METCO
ENVIRONMENTAL

SOURCE EMISSIONS SURVEY
OF
COMM ENGINEERING
MODEL 2 THERMAL COMBUSTOR INLET DUCT
AND OUTLET STACK
LAFAYETTE, LOUISIANA

SEPTEMBER 2016

TESTING COMPANY: TESTAMERICA AIR EMISSIONS CORP.
dba METCO ENVIRONMENTAL
3226 COMMANDER DR.
CARROLLTON, TEXAS 75006
972-931-7127
FILE NUMBER 16-323

"I certify that I have personally checked and am familiar with the information submitted herein. The analytical results for laboratory methods performed by METCO Environmental met all the requirements of NELAC Standard, if applicable. Based on my inquiries of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete"

James R. Monfries
Senior Quality Assurance Manager

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INTRODUCTION

METCO Environmental, 3226 Commander Dr., Carrollton, Texas, conducted an NSPS Subpart OOOO manufacturer certification test of COMM Engineering, Model 2 Thermal Combustor, located in Lafayette, Louisiana, on September 26 through 28, 2016. The purpose of these tests was to determine the concentrations of carbon monoxide and total hydrocarbons being emitted to the atmosphere via the Model 2 Thermal Combustor Outlet Stack, in order to meet the requirements of 40 CFR 60 Subpart OOOO. The visible emissions were also determined. The concentrations of total hydrocarbons were also determined at the Model 2 Thermal Combustor Inlet Duct in order to determine the removal efficiency. The testing was performed at four different operating conditions. Condition I was performed while the unit was operating at 0-30-0% of the maximum design rate; Condition II at 90-100%; Condition III at 70-100-70%; and Condition IV at 30-70-30%. The fuel used during the testing had a minimal purity of 99.5%+ propylene based on the manufacturers' specifications.

METCO Environmental is an accredited Air Emission Testing Body (AETB) having demonstrated conformance to the ASTM D-7036-04 standard by the Stack Accreditation Council (Certificate Number 2007.003.0113.1217). The sampling was performed by the following METCO personnel: Jeremiah Johnson – Project Supervisor, Benson Ho, Brandon Rios, and Alexander Madden. Jeremiah Johnson served as the Qualified Individual on-site. The credentials for the Qualified Individual can be found in Appendix J of the report.

The sampling was performed according to Sampling Protocol 16-323 following the

procedures set forth in the Code of Federal Regulations, Title 40, Chapter I, Part 60, Appendix A, Methods 1, 2, 3C, 4, 10, 18, 22, and 25A; and Subpart OOOO. Any modifications are described in the Sampling and Analytical Procedures section of the report.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 0-30-0% Emission Parameter	Condition-Run Number I-1	Condition-Run Number I-2	Condition-Run Number I-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.83	0.20	0.22	0.42	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.09	0.08	0.08	0.08	≤ 10
Excess Air @ Sampling Point - %	234.2	250.8	380.6	288.5	≥ 150
Total Hydrocarbons Destruction Efficiency - %	> 99.99	> 99.99	> 99.99	>99.99	≥ 95

Design Rate: 90-100% Emission Parameter	Condition-Run Number II-2	Condition-Run Number II-4	Condition-Run Number II-5	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.66	0.55	0.80	0.67	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.06	0.05	0.05	0.05	≤ 10
Excess Air @ Sampling Point - %	170.1	173.5	357.5	233.7	≥ 150
Total Hydrocarbons Destruction Efficiency - %	> 99.99	> 99.99	> 99.99	> 99.99	≥ 95

Design Rate: 70-100-70% Emission Parameter	Condition-Run Number III-1	Condition-Run Number III-2	Condition-Run Number III-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.79	0.55	0.77	0.70	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.05	0.05	0.08	0.06	≤ 10
Excess Air @ Sampling Point - %	257.9	208.0	463.8	309.9	≥ 150
Total Hydrocarbons Destruction Efficiency - %	> 99.99	> 99.99	> 99.99	> 99.99	≥ 95

Design Rate: 30-70-30% Emission Parameter	Condition-Run Number IV-1	Condition-Run Number IV-2	Condition-Run Number IV-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.62	0.19	0.38	0.40	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.11	0.07	0.09	0.09	≤ 10
Excess Air @ Sampling Point - %	300.0	233.2	257.3	263.5	≥ 150
Total Hydrocarbons Destruction Efficiency - %	> 99.99	> 99.99	> 99.99	> 99.99	≥ 95

[1] Corrected to 3% carbon dioxide.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Condition-Run Number	Date	Time	Visible Emissions (min:sec)
I-4A (0-30-0%)	09/26/16	1115-1219	00:00
I-4B (0-30-0%)	09/26/16	1234-1339	00:00
I-4C (0-30-0%)	09/26/16	1355-1459	00:00
Average			00:00
II-1A (90-100%)	09/27/16	1422-1526	00:00
II-1B (90-100%)	09/27/16	1540-1644	00:00
II-1C (90-100%)	09/27/16	1657-1801	00:00
Average			00:00
III-2A (70-100-70%)	09/28/16	0852-0956	00:00
III-2B (70-100-70%)	09/28/16	1010-1114	00:00
III-2C (70-100-70%)	09/28/16	1126-1230	00:00
Average			00:00
IV-3A (30-70-30%)	09/28/16	1302-1406	00:00
IV-3B (30-70-30%)	09/28/16	1420-1524	00:00
IV-3C (30-70-30%)	09/28/16	1536-1640	00:00
Average			00:00
Allowable Visible Emissions			02:00

SUMMARY OF RESULTS

Model 2 Thermal Combustor

Condition-Run Number	Inlet Duct Average Total Hydrocarbons Concentration as Propylene (lbs/hr)	Outlet Stack Average Total Hydrocarbons Emissions as Propylene (lbs/hr)	Destruction Efficiency (%)
I-1 (0-30-0%)	13.55	< 0.001	> 99.99
I-2 (0-30-0%)	13.55	< 0.001	> 99.99
I-3 (0-30-0%)	13.55	< 0.001	> 99.99
Average	13.55	< 0.001	> 99.99
II-1 (90-100%)	82.56	< 0.001	> 99.99
II-2 (90-100%)	82.56	< 0.001	> 99.99
II-3 (90-100%)	82.56	< 0.001	> 99.99
Average	82.56	< 0.001	> 99.99
III-1 (70-100-70%)	72.08	< 0.001	> 99.99
III-2 (70-100-70%)	72.08	< 0.001	> 99.99
III-3 (70-100-70%)	72.08	< 0.001	> 99.99
Average	72.08	< 0.001	> 99.99
IV-1 (30-70-30%)	43.13	< 0.001	> 99.99
IV-2 (30-70-30%)	43.13	< 0.001	> 99.99
IV-3 (30-70-30%)	43.13	< 0.001	> 99.99
Average	43.13	< 0.001	> 99.99

Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Inlet Duct

Design Rate: 0-30-0%

Condition-Run Number	I-1	I-2	I-3	Average
Date	09/26/16	09/26/16	09/26/16	----
Time	1115-1220	1234-1340	1355-1501	----
Flow Rate – SCFH[1]	153.56	156.77	158.80	156.38
% Carbon Dioxide - % Vol. (Canister)	----	----	----	< 0.463
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.727
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.324
% Nitrogen - % Vol. (Canister)	----	----	----	2.18
% Oxygen - % Vol. (Canister)	----	----	----	0.652
% Methane - % Vol. (Canister)	----	----	----	< 0.000426
Higher Heating Value – Btu/scf	----	----	----	1,701
Duct Temperature -°F[1]	98.31	98.15	94.29	96.92
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	792,543
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	13.55

[1] Provided by COMM Engineering.

Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 0-30-0%

Condition-Run Number	I-1	I-2	I-3	Average
Date	09/26/16	09/26/16	09/26/16	----
Time	1115-1220	1234-1340	1355-1501	----
Stack Flow Rate – ACFM	1,081	1,122	1,081	1,095
Stack Flow Rate – DSCFM[1]	251	263	253	256
% Water Vapor - % Volume	8.21	7.23	7.43	7.62
% Carbon Dioxide - % Vol.[2]	5.5	5.2	4.3	5.0
% Oxygen - % Vol.[2]	14.8	15.1	16.6	15.5
% Nitrogen - % Vol.[2]	79.7	79.7	79.1	79.5
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight - lb/lb-mole	28.53	28.61	28.51	28.55
% Excess Air @ Sampling Point	234.2	250.8	380.6	288.5
Stack Temperature -°F	1,642	1,640	1,632	1,638
Stack Pressure - "Hg	29.99	29.97	29.90	29.95

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)

[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 0-30-0%

Condition-Run Number	I-1	I-2	I-3	Average
Date	09/26/16	09/26/16	09/26/16	----
Time	1115-1220	1234-1340	1355-1501	----
Stack Flow Rate – DSCFM[1]	251	263	253	256
% Carbon Dioxide - % Vol. (Int. Bag)	5.5	5.2	4.3	5.0
% Water Vapor - % Volume	8.21	7.23	7.43	7.62
Carbon Monoxide Emissions - ppmvd	1.53	0.34	0.32	0.73
Carbon Monoxide Emissions - ppmvd[2]	0.83	0.20	0.22	0.42
Carbon Monoxide Emissions - lbs/hr	0.002	< 0.001	< 0.001	< 0.001
Total Hydrocarbons Emissions as Propane - ppmvw	0.17	0.13	0.12	0.14
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.09	0.08	0.08	0.08
Total Hydrocarbons Emissions as Propane - ppmvd	0.19	0.14	0.13	0.15
Total Hydrocarbons Emissions as Propylene - lbs/hr	< 0.001	< 0.001	< 0.001	< 0.001

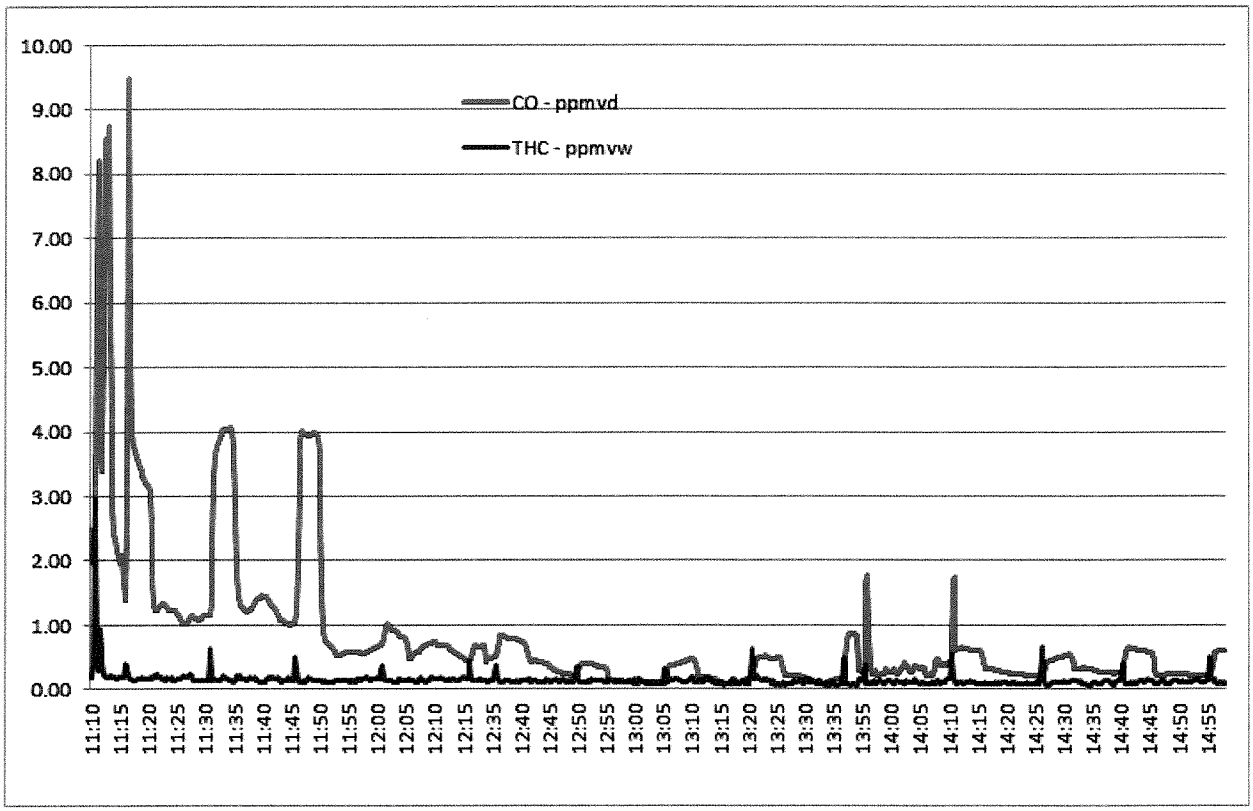
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Condition I – Design Rate: 0-30-0%

Reference Method Monitors CO and THC Graph Summary



SUMMARY OF RESULTS

Model 2 Thermal Combustor Inlet Duct

Design Rate: 90-100%

Condition-Run Number	II-1	II-2	II-3	Average
Date	09/27/16	09/27/16	09/27/16	----
Time	1422-1528	1540-1649	1657-1802	----
Flow Rate – SCFH[1]	771.87	764.58	760.10	765.52
% Carbon Dioxide - % Vol. (Canister)	----	----	----	< 0.401
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.629
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.280
% Nitrogen - % Vol. (Canister)	----	----	----	1.54
% Oxygen - % Vol. (Canister)	----	----	----	0.439
% Methane - % Vol. (Canister)	----	----	----	< 0.000369
Higher Heating Value – Btu/scf	----	----	----	2,108
Duct Temperature -°F[1]	91.63	89.08	87.47	89.39
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	986,695
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	82.56

[1] Provided by COMM Engineering.

Notes: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 90-100%

Condition-Run Number	II-1	II-2	II-3	Average
Date	09/27/16	09/27/16	09/27/16	----
Time	1422-1528	1540-1649	1657-1802	----
Stack Flow Rate – ACFM	4,076	3,505	4,396	3,992
Stack Flow Rate – DSCFM[1]	911	779	991	894
% Water Vapor - % Volume	8.22	8.19	8.04	8.15
% Carbon Dioxide - % Vol.[2]	6.3	6.2	4.4	5.6
% Oxygen - % Vol.[2]	13.4	13.5	16.4	14.4
% Nitrogen - % Vol.[2]	80.3	80.3	79.2	79.9
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.60	28.59	28.45	28.55
% Excess Air @ Sampling Point	170.1	173.5	357.5	233.7
Stack Temperature -°F	1,714	1,727	1,699	1,713
Stack Pressure - "Hg	29.89	29.89	29.89	29.89

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 90-100%

Condition-Run Number	II-1	II-2	II-3	Average
Date	09/27/16	09/27/16	09/27/16	----
Time	1422-1528	1540-1649	1657-1802	----
Stack Flow Rate – DSCFM[1]	911	779	991	894
% Carbon Dioxide - % Vol. (Int. Bag)	6.3	6.2	4.4	5.6
% Water Vapor - % Volume	8.22	8.19	8.04	8.15
Carbon Monoxide Emissions - ppmvd	1.38	1.13	1.18	1.23
Carbon Monoxide Emissions - ppmvd[2]	0.66	0.55	0.80	0.67
Carbon Monoxide Emissions - lbs/hr	0.005	0.004	0.005	0.005
Total Hydrocarbons Emissions as Propane - ppmvw	0.13	0.11	0.08	0.11
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.06	0.05	0.05	0.05
Total Hydrocarbons Emissions as Propane - ppmvd	0.14	0.12	0.09	0.12
Total Hydrocarbons Emissions as Propylene - lbs/hr	< 0.001	< 0.001	< 0.001	< 0.001

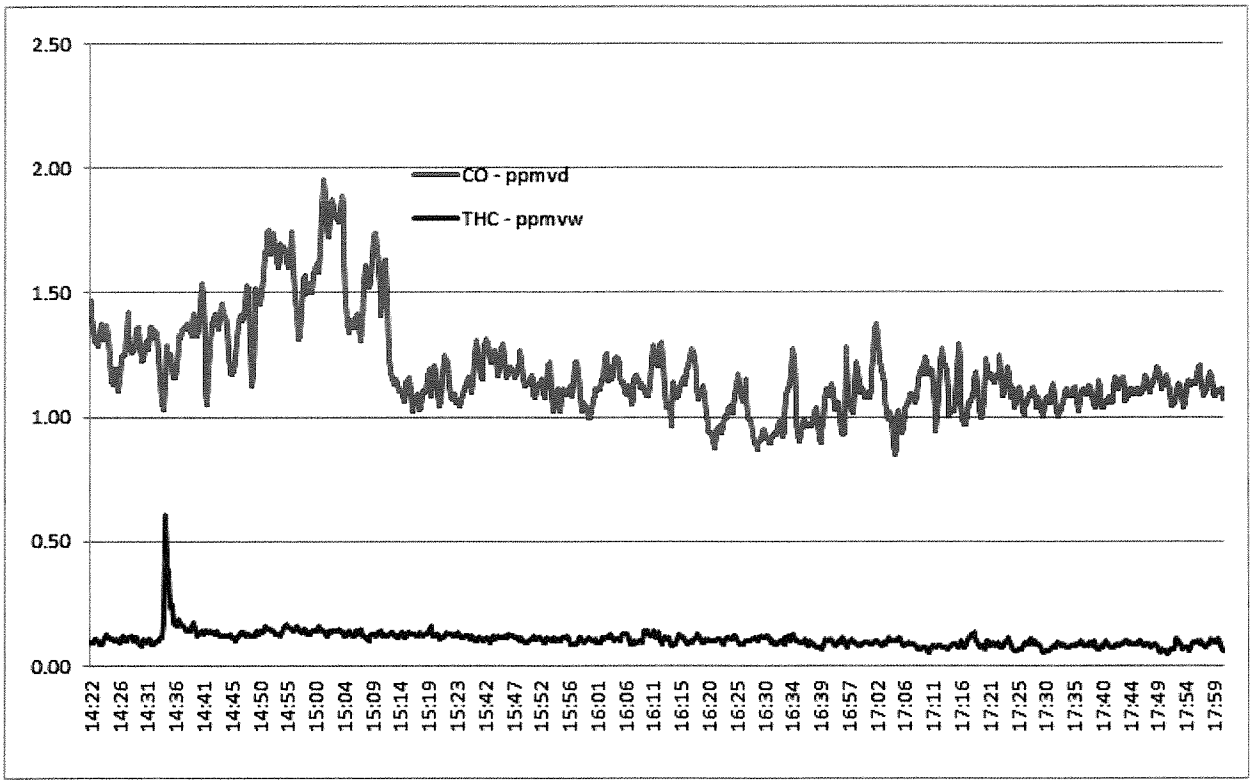
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Condition II – 90-100%

Reference Method Monitors CO and THC Graph Summary



SUMMARY OF RESULTS

Model 2 Thermal Combustor Inlet Duct

Design Rate: 70-100-70%

Condition-Run Number	III-1	III-2	III-3	Average
Date	09/28/16	09/28/16	09/28/16	----
Time	0852-0957	1010-1115	1126-1231	----
Flow Rate – SCFH[1]	682.71	677.44	680.17	680.11
% Carbon Dioxide - % Vol. (Canister)	----	----	----	< 0.415
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.652
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.290
% Nitrogen - % Vol. (Canister)	----	----	----	4.80
% Oxygen - % Vol. (Canister)	----	----	----	2.13
% Methane - % Vol. (Canister)	----	----	----	< 0.000382
Higher Heating Value – Btu/scf	----	----	----	2,081
Duct Temperature -°F[1]	77.49	90.06	100.34	89.30
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	969,689
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	72.08

[1] Provided by COMM Engineering.

Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 70-100-70%

Condition-Run Number	III-1	III-2	III-3	Average
Date	09/28/16	09/28/16	09/28/16	----
Time	0852-0957	1010-1115	1126-1231	----
Stack Flow Rate – ACFM	4,911	4,805	2,606	4,107
Stack Flow Rate – DSCFM[1]	1,143	1,134	603	960
% Water Vapor - % Volume	8.28	7.31	7.08	7.56
% Carbon Dioxide - % Vol.[2]	5.2	5.8	3.9	5.0
% Oxygen - % Vol.[2]	15.2	14.3	17.2	15.6
% Nitrogen - % Vol.[2]	79.6	79.9	78.9	79.5
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.49	28.66	28.51	28.55
% Excess Air @ Sampling Point	257.9	208.0	463.8	309.9
Stack Temperature -°F	1,632	1,628	1,675	1,645
Stack Pressure - "Hg	29.98	30.01	30.01	30.00

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 70-100-70%

Condition-Run Number	III-1	III-2	III-3	Average
Date	09/28/16	09/28/16	09/28/16	----
Time	0852-0957	1010-1115	1126-1231	----
Stack Flow Rate – DSCFM[1]	1,143	1,134	603	960
% Carbon Dioxide - % Vol.	5.2	5.8	3.9	5.0
% Water Vapor - % Volume	8.28	7.31	7.08	7.56
Carbon Monoxide Emissions - ppmvd	1.37	1.06	1.00	1.14
Carbon Monoxide Emissions - ppmvd[2]	0.79	0.55	0.77	0.70
Carbon Monoxide Emissions - lbs/hr	0.007	0.005	0.003	0.005
Total Hydrocarbons Emissions as Propane - ppmvw	0.09	0.09	0.10	0.09
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.05	0.05	0.08	0.06
Total Hydrocarbons Emissions as Propane - ppmvd	0.10	0.10	0.11	0.10
Total Hydrocarbons Emissions as Propylene - lbs/hr	< 0.001	< 0.001	< 0.001	< 0.001

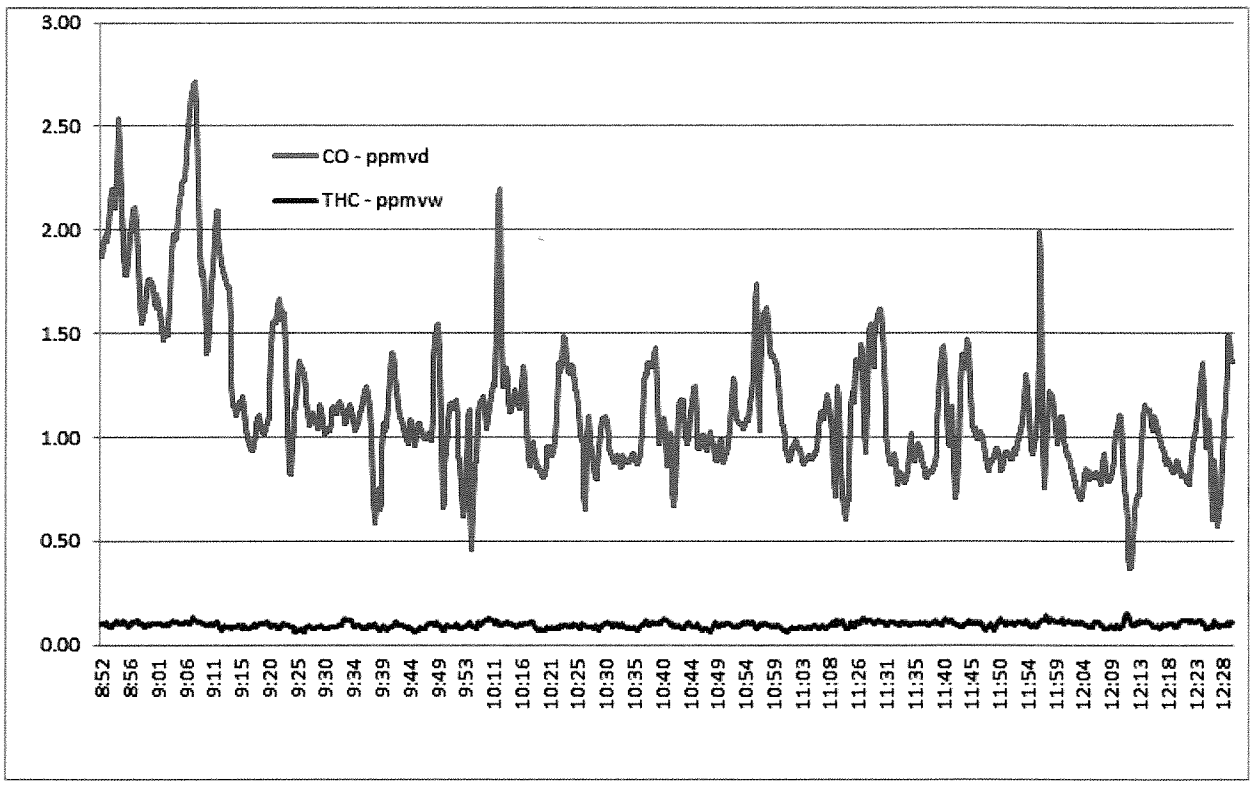
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Condition III – Design Rate: 70-100-70%

Reference Method Monitors CO and THC Graph Summary



SUMMARY OF RESULTS

Model 2 Thermal Combustor Inlet Duct

Design Rate: 30-70-30%

Condition-Run Number	IV-1	IV-2	IV-3	Average
Date	09/28/16	09/28/16	09/28/16	----
Time	1302-1408	1420-1625	1536-1641	----
Flow Rate – SCFH[1]	425.25	422.75	426.57	424.86
% Carbon Dioxide - % Vol. (Canister)	----	----	----	< 0.396
% Hydrogen - % Vol. (Canister)	----	----	----	< 0.622
% Carbon Monoxide - % Vol. (Canister)	----	----	----	< 0.277
% Nitrogen - % Vol. (Canister)	----	----	----	5.87
% Oxygen - % Vol. (Canister)	----	----	----	1.39
% Methane - % Vol. (Canister)	----	----	----	< 0.000364
Higher Heating Value – Btu/scf	----	----	----	1,993
Duct Temperature -°F[1]	98.97	94.73	90.88	94.86
Total Hydrocarbons Concentration as Propylene - ppmv	----	----	----	928,799
Total Hydrocarbons Concentration as Propylene - lbs/hr	----	----	----	43.13

[1] Provided by COMM Engineering.

Note: Only one canister sample was collected over the duration of the testing condition.

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 30-70-30%

Condition-Run Number	IV-1	IV-2	IV-3	Average
Date	09/28/16	09/28/16	09/28/16	----
Time	1302-1408	1420-1625	1536-1641	----
Stack Flow Rate – ACFM	2,485	3,185	3,291	2,987
Stack Flow Rate – DSCFM[1]	594	770	789	718
% Water Vapor - % Volume	7.22	7.63	7.67	7.51
% Carbon Dioxide - % Vol.[2]	3.5	5.4	3.9	4.3
% Oxygen - % Vol.[2]	16.0	14.8	15.4	15.4
% Nitrogen - % Vol.[2]	80.5	79.8	80.7	80.3
% Methane - % Vol.	< 0.0310	< 0.0310	< 0.0310	< 0.0310
Molecular Weight – lb/lb-mole	28.39	28.58	28.38	28.45
% Excess Air @ Sampling Point	300.0	233.2	257.3	263.5
Stack Temperature -°F	1,603	1,571	1,581	1,585
Stack Pressure - "Hg	29.98	29.99	29.93	29.97

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Design Rate: 30-70-30%

Condition-Run Number	IV-1	IV-2	IV-3	Average
Date	09/28/16	09/28/16	09/28/16	----
Time	1302-1408	1420-1625	1536-1641	----
Stack Flow Rate – DSCFM[1]	594	770	789	718
% Carbon Dioxide - % Vol.	3.5	5.4	3.9	4.3
% Water Vapor - % Volume	7.22	7.63	7.67	7.51
Carbon Monoxide Emissions - ppmvd	0.75	0.34	0.49	0.53
Carbon Monoxide Emissions - ppmvd[2]	0.62	0.19	0.38	0.40
Carbon Monoxide Emissions - lbs/hr	0.002	0.001	0.002	0.002
Total Hydrocarbons Emissions as Propane - ppmvw	0.13	0.13	0.12	0.13
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.11	0.07	0.09	0.09
Total Hydrocarbons Emissions as Propane - ppmvd	0.14	0.14	0.13	0.14
Total Hydrocarbons Emissions as Propylene - lbs/hr	< 0.001	< 0.001	< 0.001	< 0.001

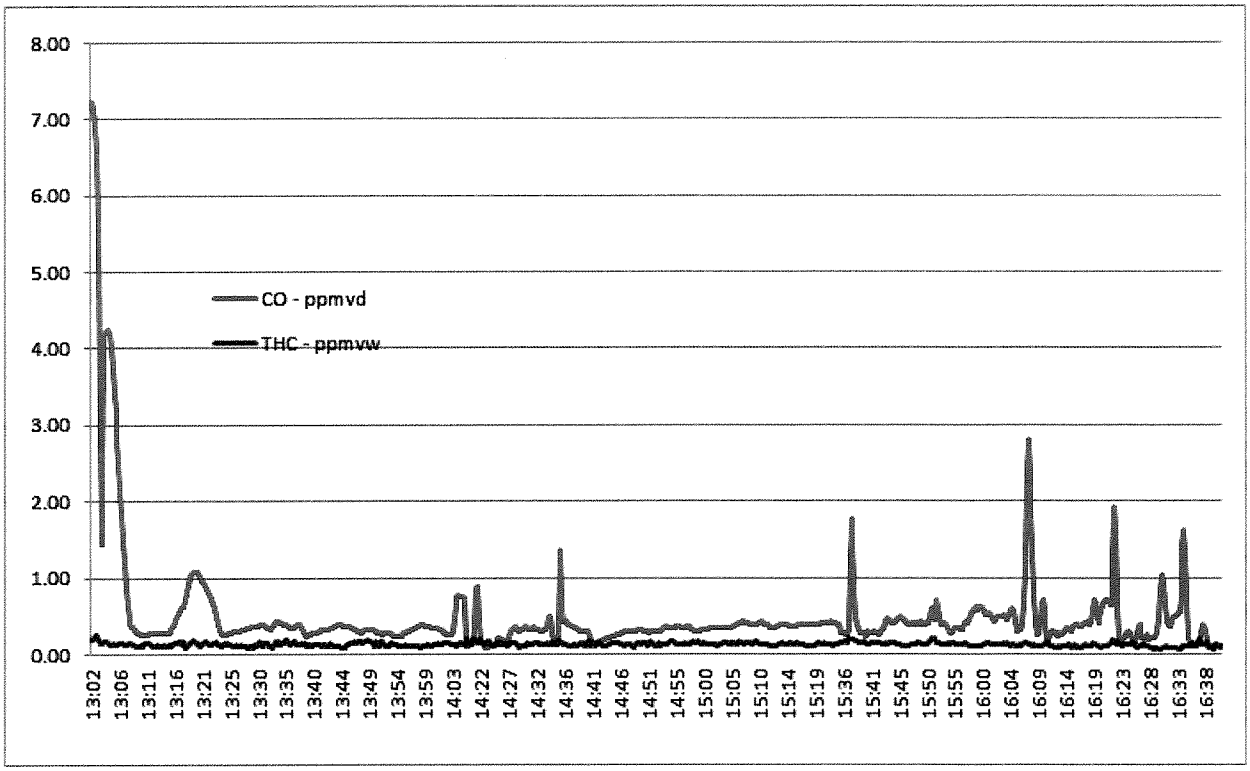
[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

SUMMARY OF RESULTS

Model 2 Thermal Combustor Outlet Stack

Condition IV – Design Rate: 30-70-30%

Reference Method Monitors CO and THC Graph Summary



DISCUSSION OF RESULTS

Model 2 Thermal Combustor Inlet Duct

The test for total hydrocarbons and fixed gases at each of the four operating conditions appeared to be valid representations of the actual inlet duct hydrocarbons amounts during the tests. All leak checks performed on the canister sampling system showed no leaks before or after each test.

Model 2 Thermal Combustor Outlet Stack

Condition I – (0-30-0%)

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 7.7 percent of the mean value. The measured flow rates (Q_s) for the tests were within 2.9 percent of the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -25.0 percent to + 50.0 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed no variation from the mean value.

Condition II – (90-100%)

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three completed tests were within 1.3 percent of the mean value. The measured flow rates (Q_s) for the tests were within 12.8 percent of the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -14.2 percent to +7.1 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed no variation from the mean value

Condition III – (70-100-70%)

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 9.6 percent of the

mean value. The measured flow rates (Q_s) for the tests were within 37.2 percent of the mean value. The large variation is due to the lower flow rate measured during Run Number 3

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -40.0 percent to +40.0 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed no variation from the mean value

Condition IV – (30-70-30%)

The three tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three tests were within 3.8 percent of the mean value. The measured flow rates (Q_s) for the tests were within 17.3 percent of the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three tests showed a range of -40.0 percent to +20.0 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed no variation from the mean value

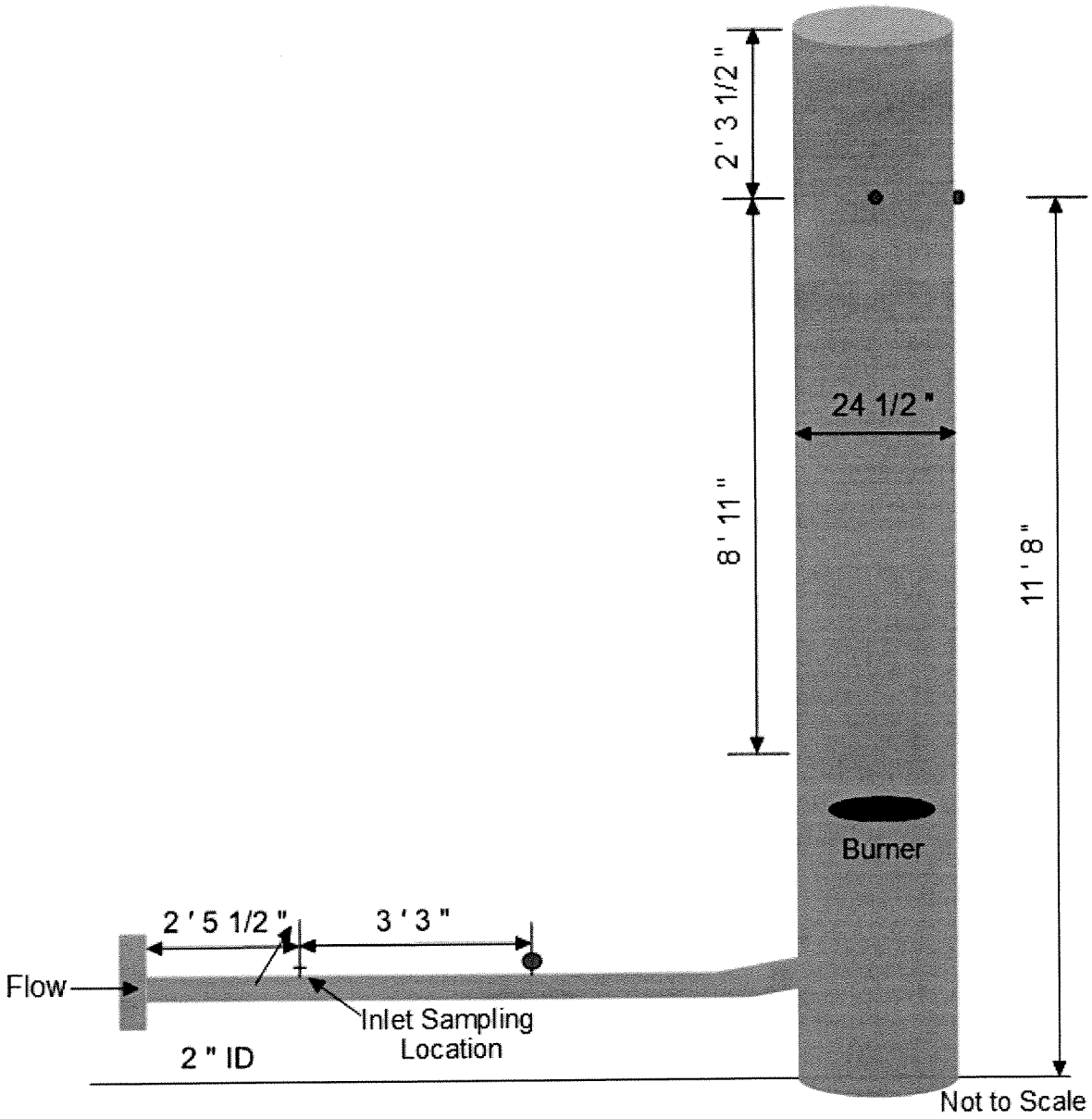
DESCRIPTION OF SAMPLING LOCATIONS

The sampling location on the Model 2 Thermal Combustor Inlet is located at ground level. The inlet pipe from the propylene trailer was a 2 inch pipe. The sampling location was located 2 feet 5 1/2 inches (14.75 inlet diameters) downstream from a disturbance in the inlet and 3 feet 3 inches (19.50 inlet diameters) upstream from a disturbance in the inlet.

The sampling location on the Model 2 Thermal Combustor Outlet Stack is 11 feet 8 inches above the ground. The sampling ports are located 8 feet 11 inches (4.37 stack diameters) downstream from the top of the flame tip in the stack and 2 feet 3 1/2 inches (1.12 stack diameters) upstream from the outlet to the stack.

SAMPLING LOCATION

Model 2 Thermal Combustor Outlet Stack



SAMPLING AND ANALYTICAL PROCEDURES

The sampling followed the procedures set forth in the Code of Federal Regulations, Title 40, Chapter I, Part 60, Appendix A, Methods 1, 2, 3C, 4, 10, 18, 22, and 25A; and Subpart OOOO.

A velocity traverse was made at each of the two ports on the Model 2 Thermal Combustor Outlet Stack, in order to determine the uniformity and magnitude of the flow during each test. Several traverse points were checked for cyclonic flow and none was found to be present. Alternate procedures would be required if the angle of flow was greater than 20 degrees. Eight traverse points were sampled from each of the two ports for a total of sixteen traverse points.

The sampling trains were leak-checked before each test and again after each test. This was done to predetermine the possibility of a diluted sample.

The pitot tube lines were checked for leaks before and after each test under both a vacuum and a pressure. The lines were also checked for clearance and the manometer was zeroed before each test.

The reference method monitors sampling systems were leak checked prior to testing.

Moisture

Triplicate samples for moisture were collected from the stack at each of the four operating conditions. The samples were taken according to EPA Methods 1, 2, 3C, and 4. For each run, samples of four-minute duration were taken at each of the sixteen traverse points for a total sampling time of 64 minutes.

The " front-half " of the sampling train contained the following components:

Stainless Steel Probe w/ glass wool plug
Teflon Sample Line

The " back-half " of the sampling train contained the following components:

Impinger Number	Contents	Amount	Parameter Collected
1	Deionized Water	100 ml	Moisture
2	Deionized Water	100 ml	Moisture
3	Empty	----	Moisture
4	Silica Gel	200 g	Moisture

Fixed Gases

Triplicate samples for fixed gases were collected from the stack at each of the four operating conditions. The samples were taken according to EPA Method 3C. For each run, samples of four-minute duration were taken at each of the sixteen traverse points for a total sampling time of 64 minutes. The reference method sampling system consisted of a stainless steel probe, Teflon sample line, a Tedlar bag in a rigid container, and a VOST dry gas meter. The samples were analyzed by GC/TCD by Enthalpy's Analytical Laboratory in Durham, North Carolina. The analytical report can be found in Appendix E.

Total Hydrocarbons and Fixed Gases

One integrated sample for total hydrocarbons and fixed gases was collected from the inlet duct at each of the four operating conditions. The samples were taken according to EPA Method 18. The reference method sampling system consisted of a stainless steel probe, Teflon sample line, and an evacuated canister. The samples were analyzed by GC/FID and GC/TCD by Enthalpy's Analytical Laboratory in Durham, North Carolina. The analytical report can be found in Appendix E.

Carbon Monoxide

The carbon monoxide sampling was performed according to EPA Method 10 using the continuous sampling procedure. A Thermo Environmental Model 48C Carbon Monoxide Analyzer (Serial Number 208845) was used to monitor the concentrations of carbon monoxide during each run. The reference method analyzer was operated at a

range of 0 to 10 parts per million, with a calibration span of 9.86 parts per million. A multi-point calibration was performed on the reference method analyzer prior to testing. An analyzer calibration error check and a sampling system bias check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitor was checked. The calibration gases were as follows:

Zero Nitrogen
5.06 ppm CO in N_2 (ALM018547)
9.86 ppm CO in N_2 (BLM000616)

The reference method sampling system consisted of a heated probe, a heated Teflon sample line, and an electronic chiller prior to the reference method monitors manifold system. The calibration gases for the bias and drift checks were introduced upstream of the heated Teflon sample line.

Calibration gas certifications are included in Appendix C.

Total Hydrocarbons

The total hydrocarbons sampling was performed according to EPA Method 25A. A Total Hydrocarbon Model 51i Analyzer (Serial Number 1125748714) was used to monitor the concentrations of total hydrocarbons during each run. The reference method analyzer was operated at a range of 10 parts per million. A multi-point calibration was performed on the reference method analyzer prior to testing. An analyzer calibration error check and a sampling system bias check were also conducted prior to testing. After each run, the zero and calibration drift of the reference method monitor was checked. The calibration gases were as follows:

Zero Nitrogen
3.13 ppm C_3H_8 in N_2 (BLM005063)
5.01 ppm C_3H_8 in N_2 (ET0010875)
8.48 ppm C_3H_8 in N_2 (ET0010859)

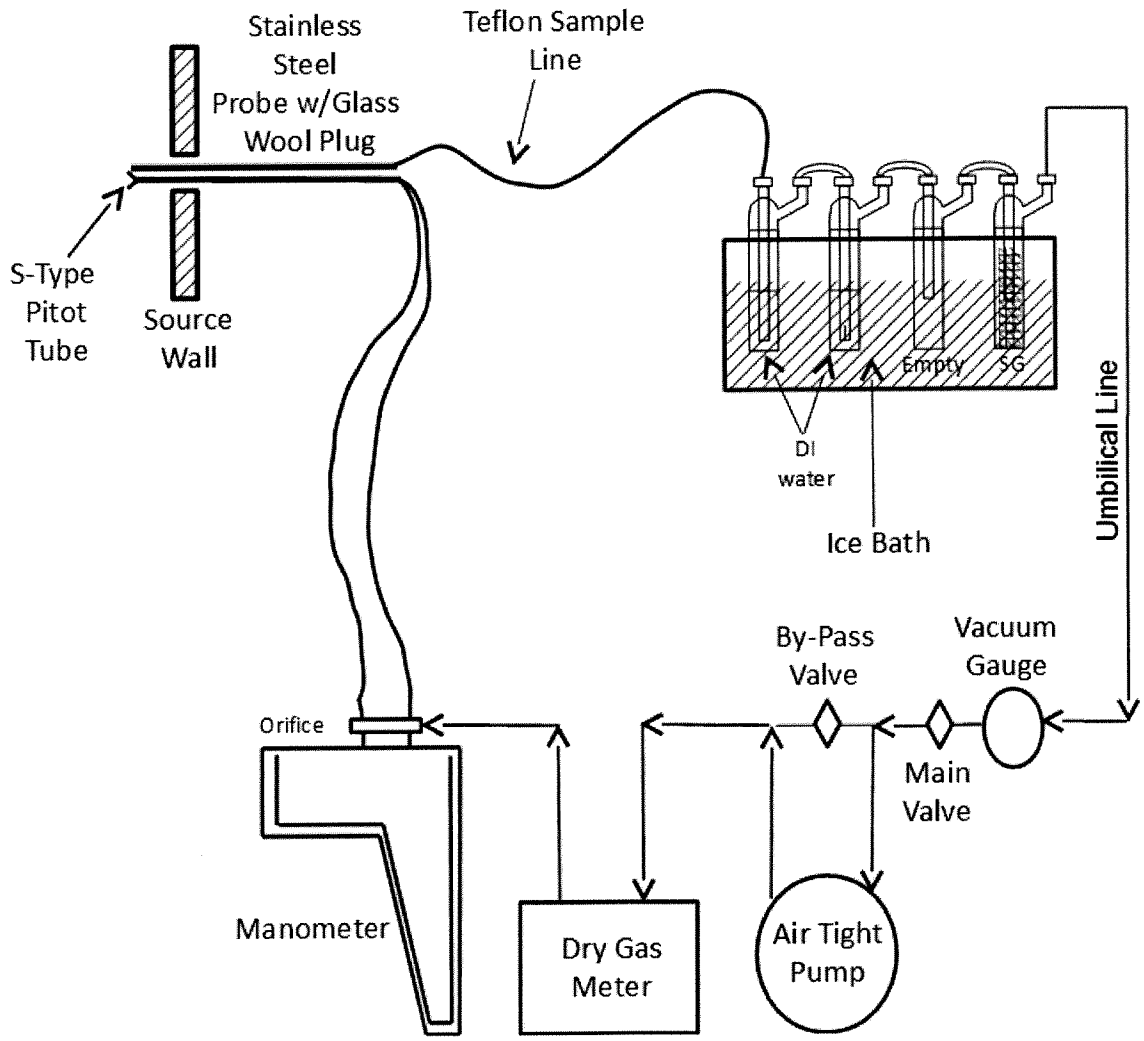
The reference method sampling system consisted of a heated probe and a heated Teflon sample line. The calibration gases for the bias and drift checks were introduced upstream of the heated Teflon sample line.

Calibration gas certifications are included in Appendix C.

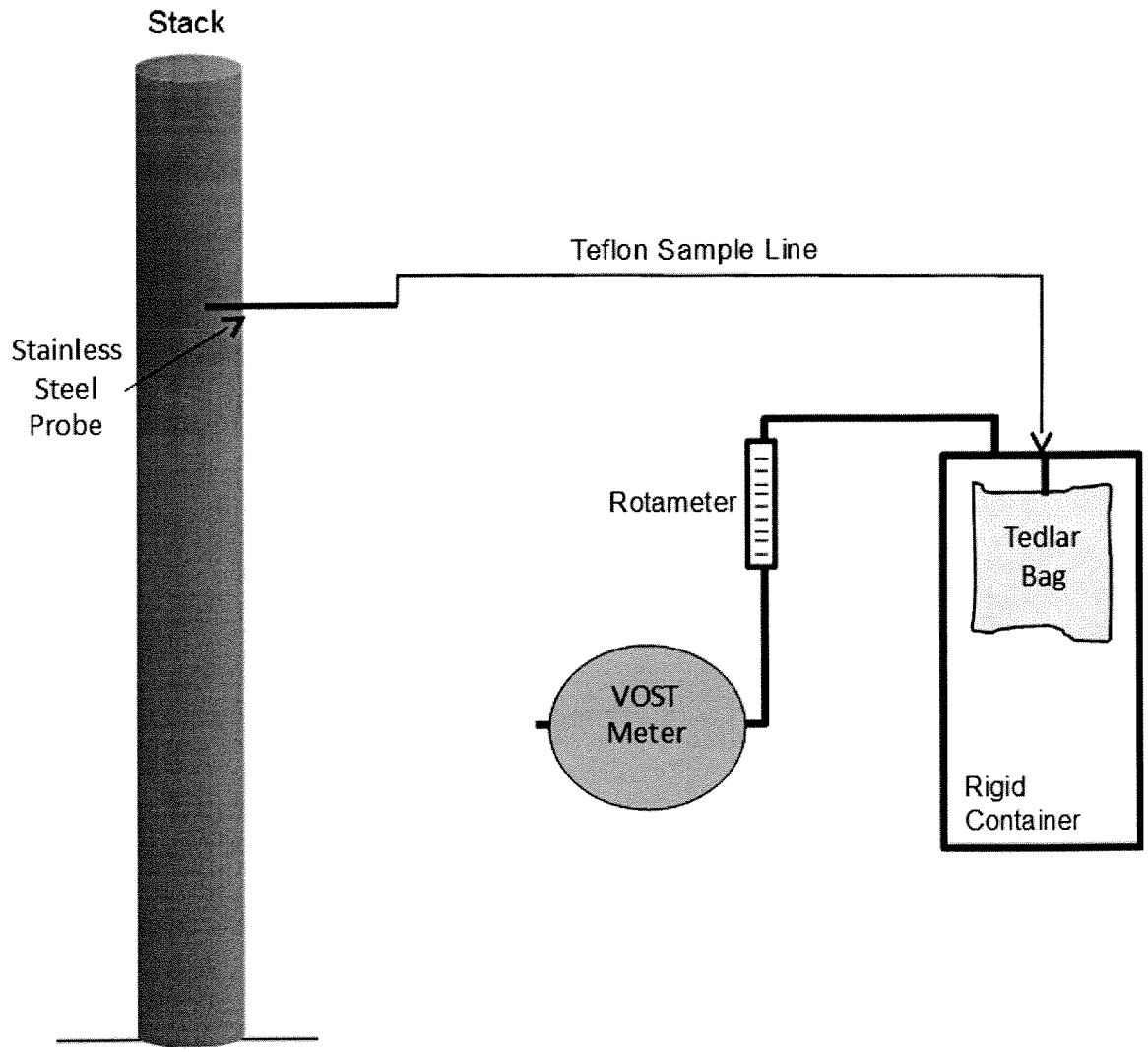
Visible Emissions

Visible emissions observations were taken according to EPA Method 22 by COMM Engineering personnel. For each of the three runs at each of the four operating conditions, visible emissions were observed over a sixty-four minute period. No visible emissions were observed during any of the test runs.

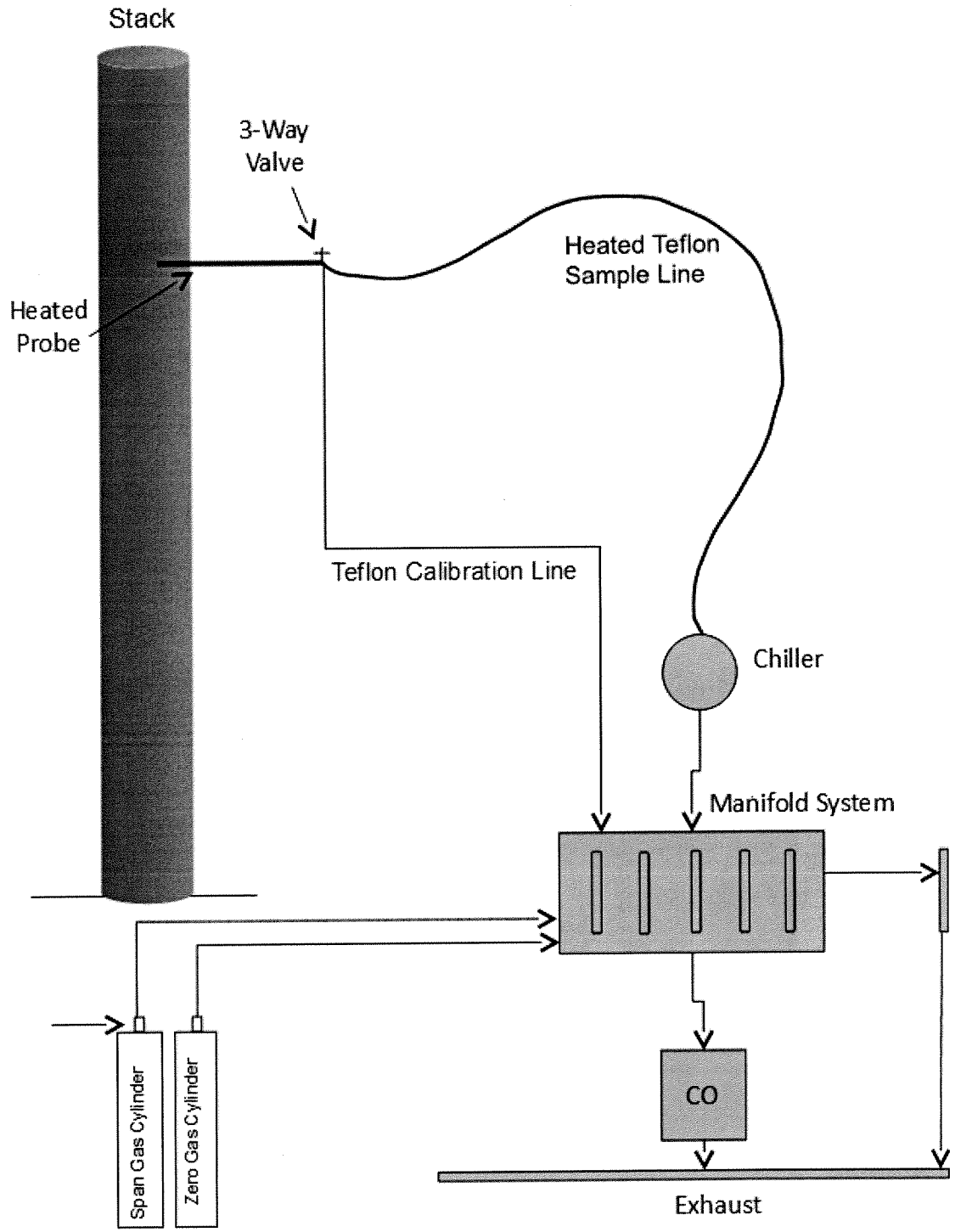
Schematic Diagram of the EPA Method 4 Sampling Train for Flow Rate



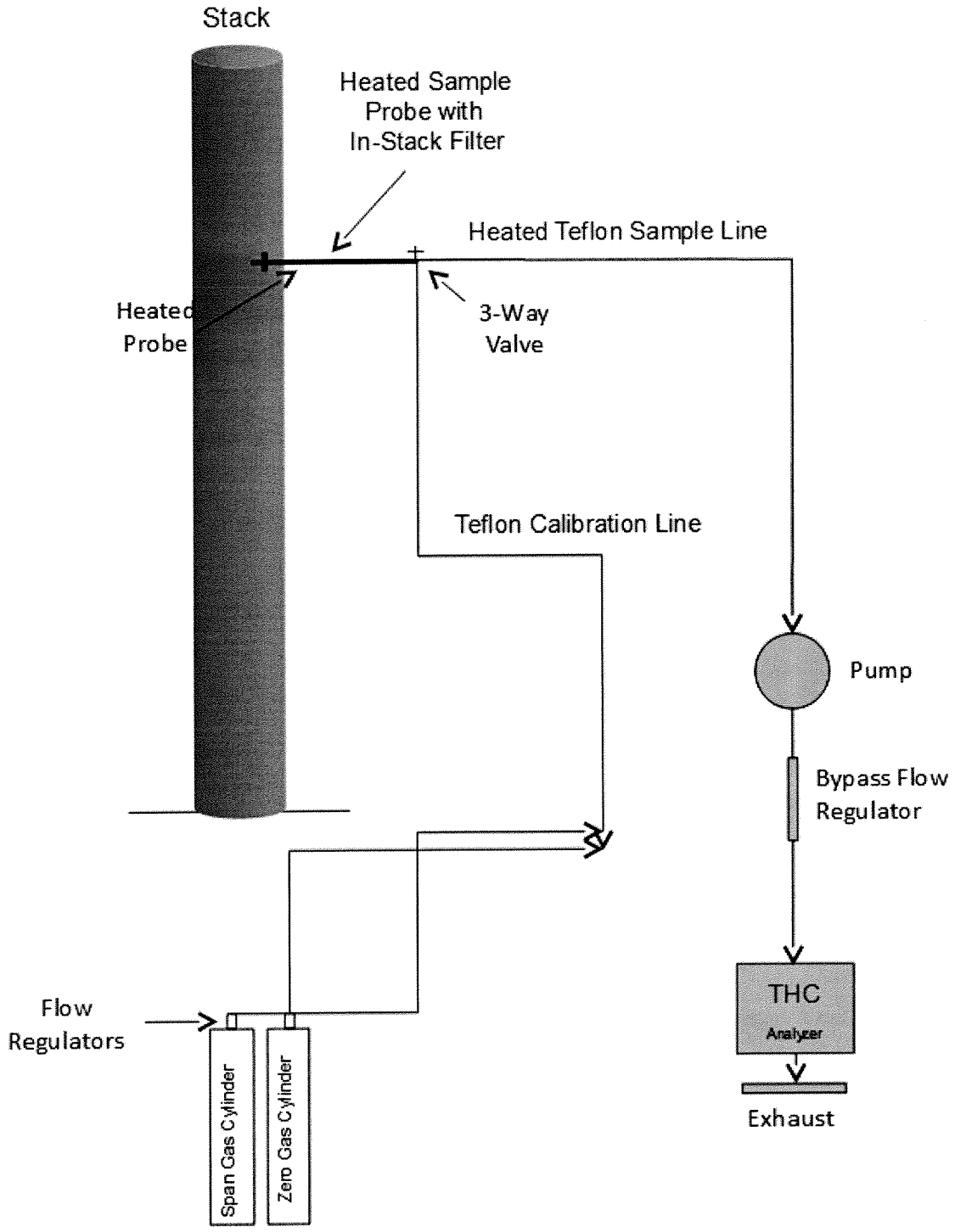
EPA Method 3C Sampling Train



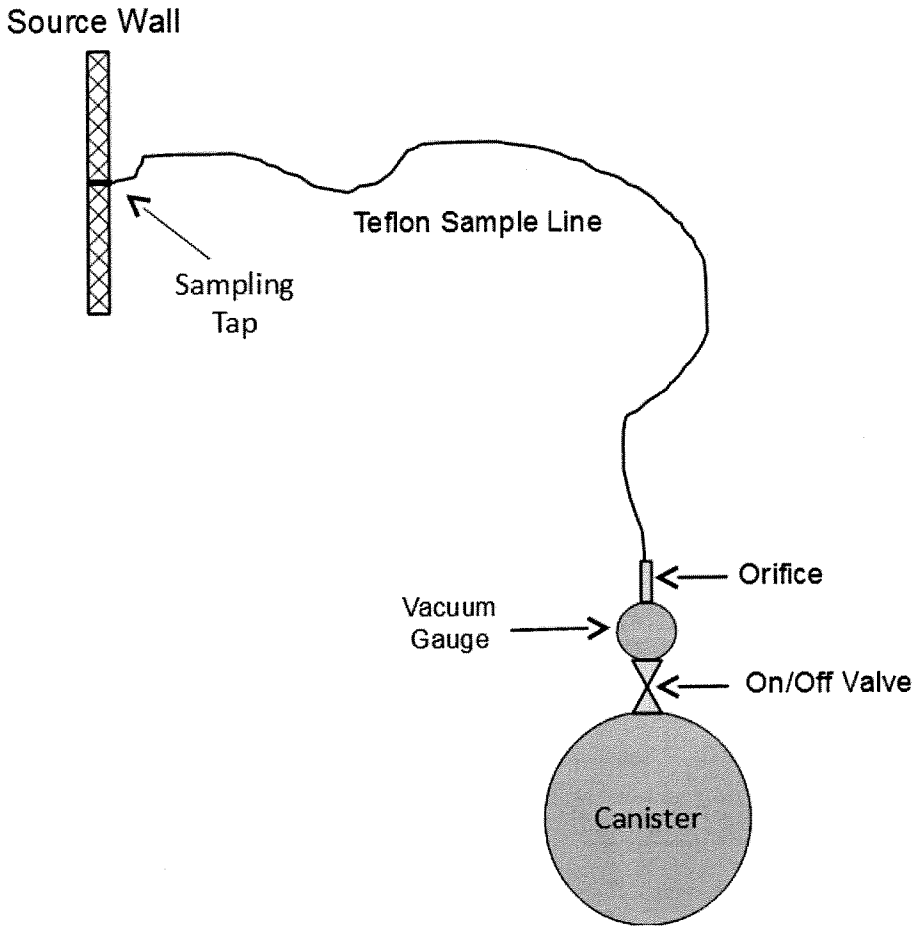
Reference Method Monitor Sampling System
(EPA Method 10)



Reference Method Monitor Sampling System (EPA Method 25A)



Canister Sampling System



TO-Can® Air Sampling Canisters with RAVE™ Valve

Optimized for Methods TO-14A, TO-15, IP-1A, ASTM D5466, OSHA PV 2120, and NJ DEP Low Level TO-15

- Proprietary electropolished surface maintains compound stability.
- High-quality, metal-to-metal seal, 2/3-turn valve with stainless steel diaphragms prevent sample adsorption for more-accurate results.
- Both 2-port and 3-port valves available; 3-port valve includes -30"Hg/60 psi vacuum/pressure gauge (other gauges available).
- SUMMA canister equivalent.
- Featuring the proven long life, leak-free performance, and effortless operation of the new RAVE™ valve.

U.S. EPA Methods TO-14A and TO-15 regulate the collection, storage, and analysis of volatile organic compounds (VOCs) using treated air sampling canisters. Restek offers a complete line of TO-Can®canisters (SUMMA can equivalent), electropolished using a proprietary process and extensively cleaned using an ultrasonic method. This ensures a high-quality, passivated surface that maintains the stability of TO-14A/TO-15 compounds during storage. A frame surrounds the electropolished canister, eliminating the need for weld marks on the sphere, thereby preventing active sites on the canister. The RAVE™ valve supports the excellent performance of the canister.
A unique holder attaches the handle and base to the canister without welds and protects the canister,

tube stub, and valve. The 2/3-turn diaphragm valve has a metal-to-metal seat and a temperature limit of 250 °C. Each canister is slightly pressurized with contaminant-free nitrogen prior to shipment.

Dimensions/Weights of Air Canisters
Can Volume— Dimensions: height x sphere diameter— Weight
1 liter— 8.5 x 5.25" (21.6 x 13.3 cm)— 2.25 lbs (1.02 kg)
3 liter— 11.5 x 7.25" (29.2 x 18.4 cm)— 3.50 lbs (1.59 kg)
6 liter— 12.5 x 9.25" (31.8 x 23.5 cm)— 5.75 lbs (2.61 kg)
15 liter— 17.0 x 12.25" (43.2 x 31.1 cm)— 11.75 lbs (5.33 kg)

*Range of standard gauge is –30" Hg to 60 psi.

Do not exceed canister maximum pressure of 40 psig (2.75 bar).

DESCRIPTION OF TESTS

Personnel from METCO Environmental arrived at the plant at 7:00 a.m. on Monday, September 26, 2016. After meeting with plant personnel and attending a brief safety orientation, the equipment was moved onto the Model 2 Thermal Combustor Inlet Duct and Outlet Stack. The reference method monitors were calibrated and the equipment was prepared for testing. The first set of tests (Condition I) for carbon monoxide, total hydrocarbons, fixed gases, and visible emissions on the stack; and for total hydrocarbons and fixed gases on the inlet duct began at 11:15 a.m. Testing continued until completion of the third set of tests (Condition I) at 3:01 p.m. The equipment was secured for the night and all work was completed at 5:00 p.m.

On Tuesday, September 27, work began at 7:00 a.m. The reference method monitors were calibrated and the equipment was prepared for testing. Testing was delayed due to operational issues. The first set of tests (Condition II) for carbon monoxide, total hydrocarbons, fixed gases, and visible emissions on the stack; and for total hydrocarbons and fixed gases on the inlet duct began at 2:22 p.m. Testing continued until completion of the third set of tests (Condition II) at 6:02 p.m. The equipment was secured for the night and all work was completed at 6:15 p.m.

On Wednesday, September 28, work began at 7:00 a.m. The reference method monitors were calibrated and the equipment was prepared for testing. The first set of tests (Condition III) for carbon monoxide, total hydrocarbons, fixed gases, and visible emissions on the stack; and for total hydrocarbons and fixed gases on the inlet duct began at 8:52 a.m. Testing continued until completion of the third set of tests (Condition III) at 12:31 p.m. The first set of tests (Condition IV) for carbon monoxide, total hydrocarbons, fixed gases, and visible emissions on the stack; and for total hydrocarbons and fixed gases on the inlet duct began at 1:02 p.m. Testing continued until completion of the third set of tests (Condition IV) at 4:41 p.m.

The reference method monitors were calibrated. The equipment was moved off of the sampling locations and loaded into the sampling van. The samples were recovered and transported to METCO Environmental's laboratory in Carrollton, Texas, for analysis and evaluation.

Field operations at COMM Engineering, Model 2 Thermal Combustor Inlet Duct and Outlet Stack, located in Lafayette, Louisiana, were completed at 5:00 p.m. on Wednesday, September 28, 2016.

APPENDICES

A. Location of Sampling Points
B. Source Emissions Calculations
C. Calibration Data
D. Field Testing Data
E. Analytical Data
F. Reference Method Monitors Data
G. Visible Emissions Data
H. Plant Operational Data, Schematic, Fuel Analysis, and Inlet Flow Meter Calibration Data
I. Resumes of Test Personnel

METCO ENVIRONMENTAL

APPENDIX A

Location of Velocity and EPA Method 3C Sampling Points
Model 2 Thermal Combustor Outlet Stack

The sampling ports are located 8 feet 11 inches (4.37 stack diameters) downstream from the top of the flame tip in the stack and 2 feet 3 1/2 inches (1.12 stack diameters) upstream from the outlet to the stack. The locations of the sampling points were calculated as follows:

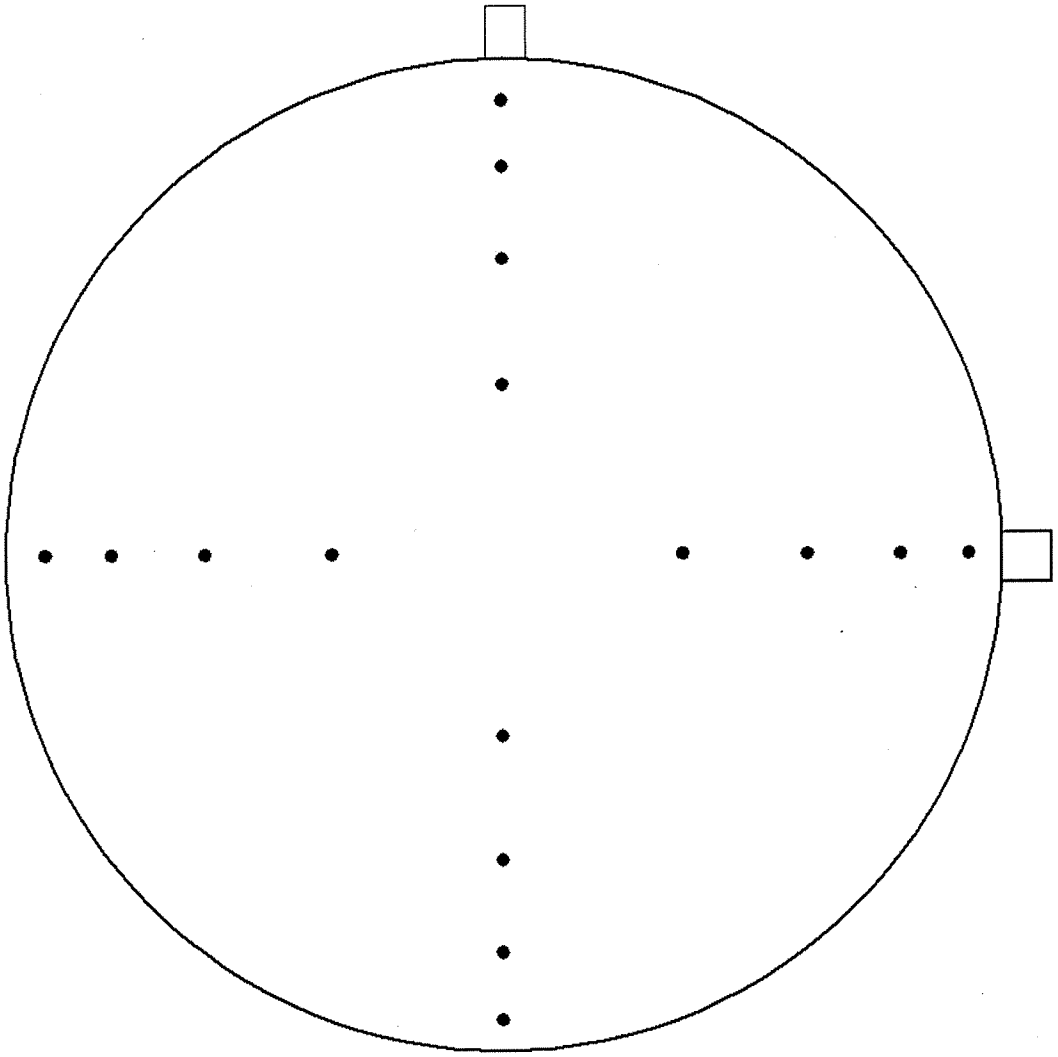
Port and Wall Thickness	=	3 inches
Inside Stack Diameter	=	24 1/2 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	3.2	1 "
2	10.5	2 9/16 "
3	19.4	4 3/4 "
4	32.3	7 15/16 "
5	67.7	16 9/16 "
6	80.6	19 3/4 "
7	89.5	21 15/16 "
8	96.8	23 1/2 "

APPENDIX A

Location of Velocity and EPA Method 3C Sampling Points

Model 2 Thermal Combustor Outlet Stack



APPENDIX A

Location of Reference Method Monitors Sampling Points
Model 2 Thermal Combustor Outlet Stack

The sampling ports are located 8 feet 11 inches (4.37 stack diameters) downstream from the top of the flame tip in the stack and 2 feet 3 1/2 inches (1.12 stack diameters) upstream from the outlet to the stack. The locations of the sampling points were calculated as follows:

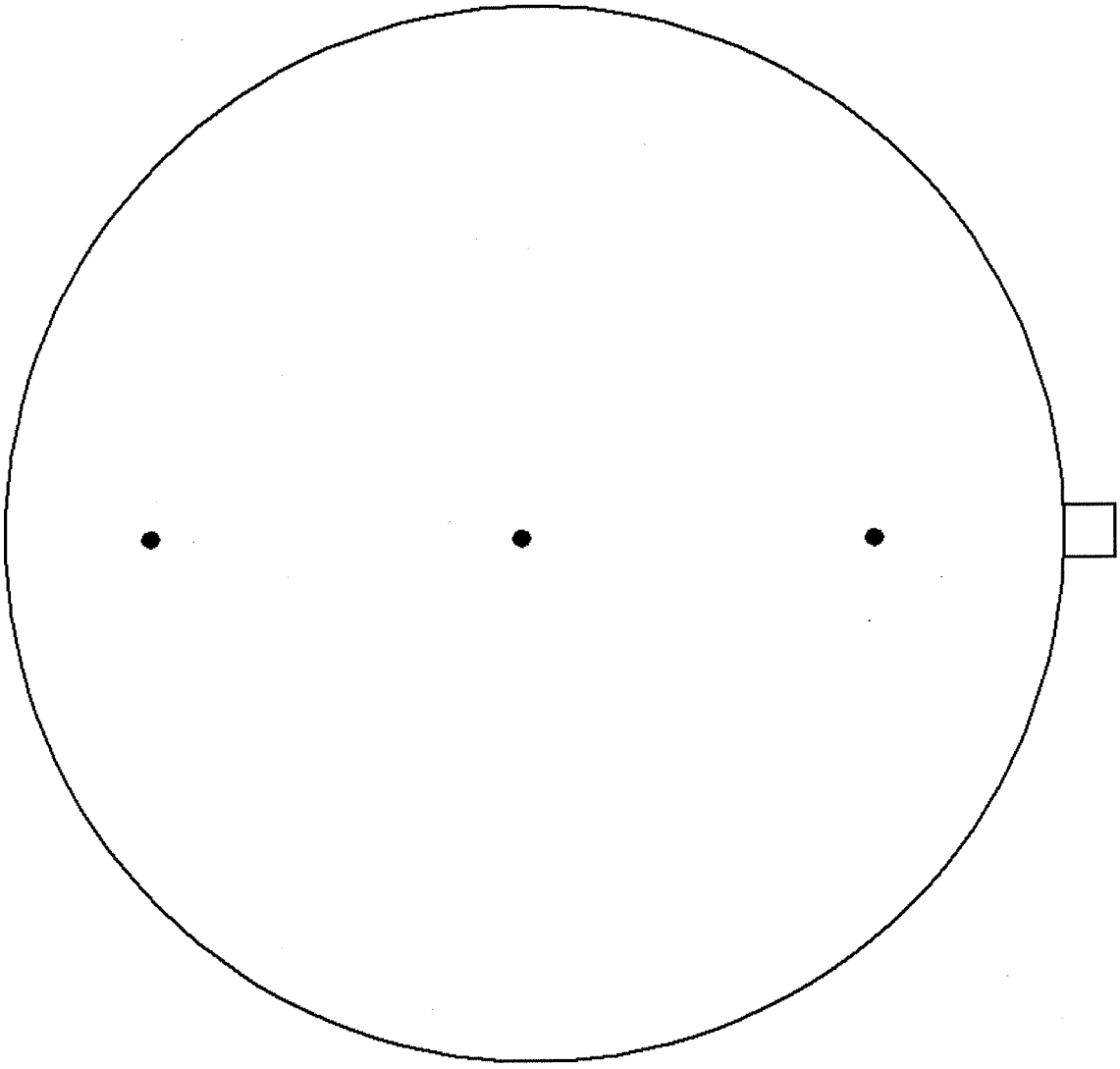
Port and Wall Thickness	=	3 inches
Inside Stack Diameter	=	24 1/2 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	16.7	4 1/16 "
2	50.0	12 1/4 "
3	83.3	20 7/16 "

APPENDIX A

Location of Reference Method Monitors Sampling Points

Model 2 Thermal Combustor Outlet Stack



APPENDIX B

Nomenclature and Equations
for Calculation of Source Emissions

NOMENCLATURE FOR FLOW RATE CALCULATIONS

Symbol	English Units	Metric Units	Description
A_s	$in.^2$	m^2	Stack Area
C_p			Pitot Tube Calibration Factor
%EA			Percent Excess Air @ Sampling Point
g	32.174 ft/sec^2		Acceleration of Gravity
%M			Percent Moisture in the stack gas by Volume
M_d			Mole fraction of dry gas
M_{water}	18 lb/lb-mole		Molecular Weight of water
MW	lb/lb-mole	g/g-mole	Molecular Weight of stack gas
MW_{air}	28.96 lb/lb-mole		Molecular Weight of air
MW_d	lb/lb-mole	g/g-mole	Molecular Weight of dry stack gas
P_b	"Hg Absolute	mm Hg	Barometric Pressure
P_m	"H_2O	mm H_2O	Orifice Pressure Drop
Ps	"Hg Absolute	mm Hg	Stack Pressure
ΔP	"H_2O	mm H_2O	Velocity Head of stack gas
P_{std}	29.92"Hg	760 mmHg	Standard Barometric Pressure
Q_a	ACFM	m^3/hr	Stack Gas Volume at actual stack conditions
Q_s	DSCFM*	dscm/hr*	Stack Gas Volume at 29.92"Hg, 528°R, dry
R	21.83 "Hg-ft^3/lb-mole °R		Universal Gas Constant
T_m	°F	°C	Average Gas Meter Temperature
T_t	min	min	Net time of test
T_s	°F	°C	Stack Temperature
T_{std}	528°R	293°K	Standard Temperature

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

Symbol	English Units	Metric Units	Description
V_m	ft^3	m^3	Volume of dry gas sampled @ meter conditions
Vm_{std}	dscf*	dscm*	Volume of dry gas sampled @ standard conditions
V_s	fpm	m/sec	Stack velocity @ stack conditions
V_w	ml	ml	Total water collected in impingers and silica gel
Vw_{gas}	scf*	scm*	Volume of water vapor collected @ standard conditions
ρ_{air}	0.0752 lbs/ ft^3		Density of Air
ρ_{water}	1 g/ml		Density of Water
ρ_{man}	62.32 lbs/ft^3		Density of Manometer Oil

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

1. Volume of dry gas sampled at standard conditions.*

$$Vm_{std} = Vm\left(\frac{T_{std}}{T_m + 460}\right)\left[\frac{P_b + \frac{P_m}{13.6}}{P_{std}}\right]$$

$$Vm_{std} = 17.65\,Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = \text{dscf}\ *$$

$$Vm_{std} = \text{dscf} \times 0.028317 = \text{dscm}\ *$$

2. Volume of water vapor collected at standard conditions.*

$$Vw_{gas} = \frac{\left(V_w - \text{grams } SO_2\ **\right) \times \rho_{water} \times R \times T_{std}}{P_{std} \times M_{water} \times 453.6}$$

$$Vw_{gas} = 0.0472\left(V_w - \text{grams } SO_2\ **\right) = \text{scf}\ *$$

$$Vw_{gas} = \text{scf} \times 0.028317 = \text{scm}\ *$$

3. Percent moisture in stack gas.

$$\%M = \left(\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}\right) \times 100 = \%$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

** Grams SO_2 subtracted only when SO_2 is collected in the sampling train being used to determine the volume of water vapor collected.

4. Mole fraction of dry gas.

$$M_d = \left(\frac{100 - \%M}{100}\right)$$

5. Average molecular weight of dry stack gas.

$$MW_d = \left[\%CO_2 \times \frac{44}{100}\right] + \left[\%O_2 \times \frac{32}{100}\right] + \left[\%N_2 \times \frac{28}{100}\right] + \left[\%CO \times \frac{28}{100}\right] = lb/lb - mole$$

$$= g/g\text{-}mole$$

6. Molecular weight of stack gas.

$$MW = MW_d \times M_d + 18\left(1 - M_d\right) = \frac{lb}{lb - mole} = g/g - mole$$

7. Percent excess air at sampling point.

$$\%EA = \frac{100\left[\%O2 - (0.5\%CO)\right]}{0.265\ (\%N_2) - \left[\%O_2 - (0.5\%CO)\right]}$$

8. Stack Pressure.

$$P_s = P_b + \frac{\text{Stack Pressure } "H_2O}{13.6} = "Hg \text{ Absolute}$$

$$P_s = "Hg \text{ Abs.} \times 25.4 = mm\,Hg$$

9. Stack velocity at stack conditions.

$$V_s = C_p \times 60\left[\frac{2\,g \times \rho_{man} \times P_{std} \times MW_{air} \times \left(T_s + 460\right)}{12 \times \rho_{air} \times P_s \times MW \times T_{std}}\right]^{1/2} \times \sqrt{\Delta P}\ \text{average}$$

$$V_s = 5{,}123.8 \times C_p\left[\frac{\left(T_s + 460\right)}{P_s \times MW}\right]^{1/2} \times \sqrt{\Delta P}\ \text{average} = fpm$$

$$V_s = fpm \times 0.00508 = m/sec$$

10. Dry stack gas volume at standard conditions.*

$$Q_s = \frac{1}{144} V_s \times A_s \times M_d \times \frac{T_{std}}{T_s + 460} \times \frac{P_s}{P_{std}}$$

$$Q_s = \frac{0.123 V_s \times A_s \times M_d \times P_s}{T_s + 460} = \text{DSCFM}$$

$$Q_s = \text{DSCFM} \times 1.6990 = \text{dscm/hr}$$

11. Actual stack gas volume at stack conditions.

$$Q_a = \frac{V_s \times A_s}{144} = \text{ACFM}$$

$$Q_a = \text{ACFM} \times 1.6990 = m^3/\text{hr}$$

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

EXAMPLE CALCULATIONS

*lbs/hr = ppm x CF x 60 min/hr x DSCFM**

*CF = Conversion Factor for ppm to lbs/scf**

Compound	*Conversion Factor*
CO	7.273×10^{-8}
THC as Propylene	1.093×10^{-7}

$$ppmvd = \frac{ppmvw}{M_d}$$

M_d = mole fraction of dry gas

** 29.92 "Hg, 68°F (760 mm Hg, 20°C)*

EXAMPLE CALCULATIONS

$$E\ corr. = E\ meas. \times \frac{3\%CO_2}{(\%CO_2\ meas.)}$$

E corr. = *Emission Rate corrected for Carbon Dioxide*
E meas. = *Emission Rate measured*
% CO_2 corr. = *The Carbon Dioxide content to be corrected to (ie. 3.0%CO_2)*
% CO_2 meas. = *The Carbon Dioxide content measured*

EXAMPLE CALCULATIONS

$$\% \text{ DRE} = \frac{\text{mass rate of pollutant in (lbs/hr) - mass rate of pollutant emitted (lbs/hr)}}{\text{mass rate of pollutant in (lbs/hr)}} \times 100$$

% DRE = percent destruction removal efficiency.
mass rate of pollutant in (lbs/hr) = mass rate of pollutant into the Model as determined by the applicable testing method and flow rate determination.
mass rate of pollutant out (lbs/hr) = mass rate of pollutant emitted from the Model as determined by the applicable testing method and flow rate determination.

EXAMPLE CALCULATIONS

Equation 7E-5

$$C_{gas} = (\bar{C} - C_o) \frac{C_{ma}}{C_m - C_o}$$

Where: C_{gas} = *Effluent gas concentration - dry basis (ppm)*

$\bar{C}$ = *Average gas concentration indicated by gas analyzer - dry basis (ppm)*

C_o = *Average of initial and final system calibration bias check responses for the zero gas (ppm)*

C_m = *Average of initial and final system calibration bias check responses for the upscale calibration gas (ppm)*

C_{ma} = *Actual concentration of the upscale calibration gas (ppm)*

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SOURCE EMISSION SURVEY

JOB NUMBER:
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION I

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			09/26/16	09/26/16	09/26/16
BEGIN TIME			1115	1234	1355
END TIME			1220	1340	1501
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.98	29.96	29.89
		(mm Hg)	(761.00)	(761.00)	(759.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	1.000	1.000	1.000
		(mm H2O)	(25.400)	(25.400)	(25.400)
	DGM CALIBRATION FACTOR		0.984	0.984	0.984
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	35.836	33.370	34.015
	@ METER CONDITIONS	(m^3)	(1.015)	(0.945)	(0.963)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	70	74	75
	TEMPERATURE	(DEG.C)	(21)	(23)	(24)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	35.866	33.126	33.624
	@ STANDARD CONDITIONS*	(DSCM)	(1.016)	(0.938)	(0.952)
V(w)	TOTAL WATER COLLECTED,	ml	68.0	54.7	57.2
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	3.210	2.582	2.700
	COLLECTED @ STANDARD	(SCM)	(0.091)	(0.073)	(0.076)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	8.21	7.23	7.43
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9179	0.9277	0.9257
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

JOB NUMBER: .
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION I

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	5.5	5.2	4.3
O2		%	14.8	15.1	16.6
CO		%	0.0	0.0	0.0
N2		%	79.7	79.7	79.1
%EA	EXCESS AIR @ SAMPLING POINT	%	234.2	250.8	380.6
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.47 (29.47)	29.44 (29.44)	29.35 (29.35)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.53 (28.53)	28.61 (28.61)	28.51 (28.51)
Cp	PITOT TUBE CALIBRATION		0.807	0.807	0.807
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.003 (0.100)	0.003 (0.100)	0.003 (0.100)
DELTA P ^(1/2)		"H2O	0.051	0.053	0.051
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,642 (894)	1,640 (893)	1,632 (889)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.99 (762.00) 0.10	29.97 (761.00) 0.10	29.90 (759.00) 0.10
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	331 (2)	343 (2)	330 (2)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	471 (0)	471 (0)	471 (0)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	251 (426) 16,407	263 (447) 17,010	253 (430) 16,398
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	1,081 (1,837)	1,122 (1,906)	1,081 (1,837)
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
%I	PERCENT ISOKINETIC	%	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION II

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			09/27/16	09/27/16	09/27/16
BEGIN TIME			1422	1540	1657
END TIME			1528	1646	1802
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.87	29.87	29.87
		(mm Hg)	(759.00)	(759.00)	(759.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	1.000	1.000	1.000
		(mm H2O)	(25.400)	(25.400)	(25.400)
	DGM CALIBRATION FACTOR		0.984	0.984	0.984
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	33.706	33.716	34.089
	@ METER CONDITIONS	(m^3)	(0.954)	(0.955)	(0.965)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	72	73	73
	TEMPERATURE	(DEG.C)	(22)	(23)	(23)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	33.484	33.432	33.801
	@ STANDARD CONDITIONS*	(DSCM)	(0.948)	(0.947)	(0.957)
V(w)	TOTAL WATER COLLECTED,	ml	63.5	63.2	62.6
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	2.997	2.983	2.955
	COLLECTED @ STANDARD	(SCM)	(0.085)	(0.084)	(0.084)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	8.22	8.19	8.04
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9178	0.9181	0.9196
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION II

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	6.3	6.2	4.4
O2		%	13.4	13.5	16.4
CO		%	0.0	0.0	0.0
N2		%	80.3	80.3	79.2
%EA	EXCESS AIR @ SAMPLING POINT	%	170.1	173.5	357.5
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.54 (29.54)	29.53 (29.53)	29.36 (29.36)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.60 (28.60)	28.59 (28.59)	28.45 (28.45)
Cp	PITOT TUBE CALIBRATION		0.807	0.807	0.807
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.038 (1.000)	0.028 (0.700)	0.044 (1.100)
DELTA P ^(1/2)		"H2O	0.189	0.162	0.204
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,714 (934)	1,727 (942)	1,699 (926)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.89 (759.00) 0.30	29.89 (759.00) 0.30	29.89 (759.00) 0.30
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	1,246 (6)	1,072 (5)	1,344 (7)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	471 (0)	471 (0)	471 (0)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	911 (1,548) 59,555	779 (1,324) 50,909	991 (1,684) 64,659
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	4,076 (6,925)	3,505 (5,955)	4,396 (7,469)
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
%I	PERCENT ISOKINETIC	%	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION III

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			09/28/16	09/28/16	09/28/16
BEGIN TIME			0852	1010	1126
END TIME			0957	1115	1231
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.97	30.00	30.00
		(mm Hg)	(761.00)	(762.00)	(762.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	1.000	1.000	1.000
		(mm H2O)	(25.400)	(25.400)	(25.400)
	DGM CALIBRATION FACTOR		0.984	0.984	0.984
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	33.522	34.109	33.728
	@ METER CONDITIONS	(m^3)	(0.949)	(0.966)	(0.955)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	67	71	72
	TEMPERATURE	(DEG.C)	(19)	(22)	(22)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	33.730	34.096	33.652
	@ STANDARD CONDITIONS*	(DSCM)	(0.955)	(0.965)	(0.953)
V(w)	TOTAL WATER COLLECTED,	ml	64.5	57.0	54.3
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	3.044	2.690	2.563
	COLLECTED @ STANDARD	(SCM)	(0.086)	(0.076)	(0.073)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	8.28	7.31	7.08
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9172	0.9269	0.9292
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION III

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	5.2	5.8	3.9
O2		%	15.2	14.3	17.2
CO		%	0.0	0.0	0.0
N2		%	79.6	79.9	78.9
%EA	EXCESS AIR @ SAMPLING POINT	%	257.9	208.0	463.8
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.44 (29.44)	29.50 (29.50)	29.31 (29.31)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.49 (28.49)	28.66 (28.66)	28.51 (28.51)
Cp	PITOT TUBE CALIBRATION		0.807	0.807	0.807
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.056 (1.400)	0.053 (1.300)	0.015 (0.400)
DELTA P ^(1/2)		"H2O	0.232	0.228	0.122
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,632 (889)	1,628 (887)	1,675 (913)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.98 (761.00) 0.20	30.01 (762.00) 0.20	30.01 (762.00) 0.20
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	1,501 (8)	1,469 (7)	797 (4)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	471 (0)	471 (0)	471 (0)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	1,143 (1,942) 74,771	1,134 (1,927) 73,406	603 (1,024) 38,937
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	4,911 (8,344)	4,805 (8,164)	2,606 (4,428)
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
%I	PERCENT ISOKINETIC	%	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

METCO ENVIRONMENTAL

SOURCE EMISSION SURVEY

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION IV

SOURCE EMISSION CALCULATIONS

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
DATE			09/28/16	09/28/16	09/28/16
BEGIN TIME			1302	1420	1536
END TIME			1408	1625	1641
P(b)	BAROMETRIC PRESSURE	"Hg Abs.	29.97	29.98	29.92
		(mm Hg)	(761.00)	(761.00)	(760.00)
P(m)	ORIFICE PRESSURE DROP	"H2O	1.000	1.000	1.000
		(mm H2O)	(25.400)	(25.400)	(25.400)
	DGM CALIBRATION FACTOR		0.984	0.984	0.984
V(m)	VOLUME DRY GAS SAMPLED	ft.^3	33.873	33.707	33.642
	@ METER CONDITIONS	(m^3)	(0.959)	(0.954)	(0.953)
	LEAK CHECK VOLUME	ft.^3	0.000	0.000	0.000
T(m)	AVERAGE GAS METER	DEG.F	71	74	76
	TEMPERATURE	(DEG.C)	(22)	(23)	(24)
V(m[std])*	VOLUME DRY GAS SAMPLED	DSCF	33.826	33.483	33.227
	@ STANDARD CONDITIONS*	(DSCM)	(0.958)	(0.948)	(0.941)
V(w)	TOTAL WATER COLLECTED,	ml	55.8	58.6	58.5
	IMPINGERS & SILICA GEL				
V(w[gas])	VOLUME WATER VAPOR	SCF	2.634	2.766	2.761
	COLLECTED @ STANDARD	(SCM)	(0.075)	(0.078)	(0.078)
	CONDITIONS*				
%M	MOISTURE IN STACK GAS	%	7.22	7.63	7.67
	BY VOLUME				
Md	MOL FRACTION OF DRY GAS		0.9278	0.9237	0.9233
Tt	NET TIME OF TEST	MINUTES	64	64	64

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LA
UNIT TESTED: MODEL 2 - CONDITION IV

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	3.5	5.4	3.9
O2		%	16.0	14.8	15.4
CO		%	0.0	0.0	0.0
N2		%	80.5	79.8	80.7
%EA	EXCESS AIR @ SAMPLING POINT	%	300.0	233.2	257.3
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.20 (29.20)	29.46 (29.46)	29.24 (29.24)
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.39 (28.39)	28.58 (28.58)	28.38 (28.38)
Cp	PITOT TUBE CALIBRATION		0.807	0.807	0.807
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.016 (0.400)	0.024 (0.600)	0.025 (0.600)
DELTA P ^(1/2)		"H2O	0.118	0.153	0.157
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,603 (873)	1,571 (855)	1,581 (861)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	29.98 (761.00) 0.20	29.99 (762.00) 0.20	29.93 (760.00) 0.20
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	760 (4)	974 (5)	1,006 (5)
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	471 (0)	471 (0)	471 (0)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	594 (1,009) 38,413	770 (1,308) 50,016	789 (1,341) 51,273
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	2,485 (4,222)	3,185 (5,411)	3,291 (5,591)
Dn	SAMPLING NOZZLE DIAM.	IN. (m)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
%I	PERCENT ISOKINETIC	%	----	----	----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

Normalization of Method 3C Data - Model 2

Condition I

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	13.6	***14.8***	13.8	***15.1***	15.2	***16.6***
Nitrogen	73.5	***79.8***	72.9	***79.7***	72.4	***79.1***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	5.03	***5.5***	4.79	***5.2***	3.92	***4.3***
Total	92.13	100.1	91.49	100	91.52	100.0

Condition II

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	12.3	***13.4***	12.4	***13.5***	15.3	***16.4***
Nitrogen	73.9	***80.3***	73.6	***80.2***	73.8	***79.2***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	5.83	***6.3***	5.72	***6.2***	4.08	***4.4***
Total	92.03	100.0	91.72	99.9	93.18	100.0

Condition III

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	14.1	***15.2***	13.1	***14.3***	16	***17.2***
Nitrogen	73.8	***79.6***	73.3	***79.9***	73.2	***78.9***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	4.81	***5.2***	5.3	***5.8***	3.62	***3.9***
Total	92.71	100.0	91.7	100.0	92.82	100.0

Condition IV

	Run 1 Actual	Run 1 Normalized	Run 2 Actual	Run 2 Normalized	Run 3 Actual	Run 3 Normalized
Hydrogen	0	***0***	0	***0***	0	***0***
Oxygen	14.8	***16.0***	13.4	***14.8***	14.4	***15.4***
Nitrogen	74.3	***80.5***	72.5	***79.8***	75.5	***80.7***
Carbon Monoxide	0	***0***	0	***0***	0	***0***
Methane	0	***0***	0	***0***	0	***0***
Carbon Dioxide	3.19	***3.5***	4.91	***5.4***	3.63	***3.9***
Total	92.29	100.0	90.81	100.0	93.53	100

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APPENDIX C

Calibration Data

Equipment	Calibration Factor	Calibration Date
Pitot Tube #9-3-2	0.807	07/05/16
Dry Gas Meter #9-1	0.984	07/19/16
Stack Model Orifice #9-1		07/19/16
Digital Temperature Indicator #9-1		07/19/16
Barometer #9-2		09/20/16

METCO ENVIRONMENTAL

Pitot Tube Calibration

Date: 7-5-16
Pitot No: S-3-2
Pitot Dimensions: 3' x 1/4"

Time: 0915
Ts: 79
C_{pstd}: 0.990

Pitot Inspections

Pitot tips level and perpendicular (YES) / NO
Pitot tips free from obstruction (YES) / NO
Pitot tips damaged YES / (NO)

Motor Setting	fps mark	Calibration Standard Start	Calibration Standard End	√Standard Average	High	√High	Cal. Factor	Low	√Low	Cal. Factor
7	20	0.10	0.10	0.316	0.15	0.387	0.808	0.15	0.387	0.808
14	30	0.20	0.20	0.447	0.30	0.548	0.808	0.30	0.548	0.808
20	40	0.36	0.36	0.600	0.54	0.735	0.808	0.55	0.742	0.801
28	50	0.56	0.56	0.748	0.84	0.917	0.808	0.84	0.917	0.808
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.10	1.10	1.049	1.70	1.304	0.796	1.70	1.304	0.796
50	80	1.40	1.40	1.183	2.10	1.449	0.808	2.10	1.449	0.808
62	90	1.80	1.80	1.342	2.70	1.643	0.808	2.70	1.643	0.808
28*	**50***	0.56	0.56	0.748	0.84	0.917	0.808	0.84	0.917	0.808
28*	**50***	0.56	0.56	0.748	0.84	0.917	0.808	0.84	0.917	0.808
Average							0.807			0.806

*** not included in average**

$$C_p = C_{pstd}\left(\frac{\sqrt{\Delta P_{std}}}{\sqrt{\Delta P}}\right)$$

Summary of Results:

Normal high side calibration factor 0.807
variation + 0.12% variation - 1.36%
Normal low side calibration factor 0.806
variation + 0.25% variation - 1.24%

Calibrator: Keith Lorio

Office: Baton Rouge

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked By: [signature]

Version 4
April 2016

METCO
ENVIRONMENTAL

Dry Gas Meter Calibration

Dry Gas Meter Number 9-1

Date: 7/19/16

ΔH ("H_2O)	C_{dg}
0.50	0.977
1.00	0.982
1.50	0.986
2.00	0.988
3.00	0.987
4.00	0.983
Average	0.984

Variation: + 0.41 %

- 0.71 %

Adjustment Required: Yes_____ No ✓

Calibrator: R RUSSO

Office: BR

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: B.H

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 9-1 Wet Test Meter No : 7

Date: 7/19/16 Calibrator: R Russo

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = ____ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = ____ \text{ scfm}$$

Run No: 1 @ 0.50 "H_2O P_b: 30.21 "Hg

Wet Test Meter C_f: 1.000 Control Module Vacuum: 5.0 "Hg

	Wet Test Meter				Dry Gas Meter			
	Time	Meter Reading	T_m	P_m	Meter Reading	T_m Inlet	T_m Outlet	P_m
End		5.595	72 °F	-1.5 "H_2O	29.340	74 °F	71 °F	0.5 "H_2O
Start		0.000	72 °F	-1.5 "H_2O	23.644	71 °F	70 °F	0.5 "H_2O
		cf^{Δ}	$°F_{avg}$	"H_2O_{avg}	cf^{Δ}		$°F_{avg}$	"H_2O_{avg}

$cf^{\Delta} = V_m$

$$\text{Wet Test Meter } VM_{std} = 17.65 \times \frac{5.595}{} \frac{30.21 + \frac{-1.5}{13.6}}{72 + 460} \times \frac{1.000}{C_f} = 5.587 \text{ scfm}$$

$$\text{Dry Gas Meter } VM_{std} = 17.65 \times 5.696 \frac{30.21 + \frac{0.50}{13.6}}{72 + 460} = 5.716 \text{ scfm}$$

$$\text{Calibration Factor } (C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}} \quad C_{dg} = \frac{5.587}{5.716} = 0.977$$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: B.H

Version 2
January 2009

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 9-1
Date: 7/19/16

Wet Test Meter No: 7
Calibrator: R Rm550

Wet Test Meter $VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f =$ _____ scfm

Dry Test Meter $VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} =$ _____ scfm

Run No: 1 @ 1.00 "H_2O
Wet Test Meter C_f: 1.000

P_b: 30.21 "Hg
Control Module Vacuum: 5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End		5.712	72 °F	-2.2 "H_2O
Start		0.000	72 °F	-2.2 "H_2O
		cf^{Δ}	$°F_{avg}$	"H_2O_{avg}

Dry Gas Meter

Meter Reading	T_m Inlet	T_m Outlet	P_m
36.028	76 °F	72 °F	1.00 "H_2O
30.248	73 °F	71 °F	1.00 "H_2O
cf^{Δ}		$°F_{avg}$	"H_2O_{avg}

$cf^{\Delta} = V_m$

Wet Test Meter $VM_{std} = 17.65 \times$ 5.712 $\frac{30.21 + \frac{-2.2}{13.6}}{72 + 460} \times$ 1.000 $C_f =$ 5.694 scfm

Dry Gas Meter $VM_{std} = 17.65 \times$ 5.780 $\frac{30.21 + \frac{1.00}{13.6}}{73 + 460} =$ 5.796 scfm

Calibration Factor $(C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}}$ $C_{dg} = \frac{5.694}{5.796} =$ 0.982

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: BH

Version 2
January 2009

METCO ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 9-1
Date: 7/19/16

Wet Test Meter No: 7
Calibrator: R Russo

Wet Test Meter $VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f =$ _____ scfm

Dry Test Meter $VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} =$ _____ scfm

Run No: 1 @ 1.50 "H_2O
Wet Test Meter C_f: 1.000

P_b: 30.21 "Hg
Control Module Vacuum: 5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End		11.057	73 °F	-2.8 "H_2O
Start		0.000	73 °F	-2.8 "H_2O
		cf^{Δ}	$°F_{avg}$	"H_2O_{avg}

Dry Gas Meter

	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	49.423	80 °F	74 °F	1.50 "H_2O
Start	38.260	77 °F	73 °F	1.50 "H_2O
	cf^{Δ}		$°F_{avg}$	"H_2O_{avg}

$cf^{\Delta} = V_m$

Wet Test Meter $VM_{std} = 17.65 \times \frac{11.057}{} \frac{30.21 + \frac{-2.8}{13.6}}{73 + 460} \times \frac{1.000}{C_f} = \frac{10.986}{}$ scfm

Dry Gas Meter $VM_{std} = 17.65 \times \frac{11.163}{} \frac{30.21 + \frac{1.50}{13.6}}{76 + 460} = \frac{11.145}{}$ scfm

Calibration Factor $(C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}}$ $C_{dg} = \frac{10.986}{11.145} = 0.986$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: B.H

Version 2
January 2009

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 9-1
Date: 7/19/16

Wet Test Meter No: 7
Calibrator: R Russo

Wet Test Meter $VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f =$ _____ scfm

Dry Test Meter $VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} =$ _____ scfm

Run No: 1 @ 2.0 "H_2O
P_b: 30.21 "Hg
Wet Test Meter C_f: 1.000
Control Module Vacuum: 5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End		10.720	74 °F	-3.3 "H_2O
Start		0.000	74 °F	-3.3 "H_2O
		cf^{Δ}	$°F_{avg}$	"H_2O_{avg}

Dry Gas Meter

	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	76.893	81 °F	75 °F	2.0 "H_2O
Start	66.104	79 °F	75 °F	2.0 "H_2O
	cf^{Δ}	$°F_{avg}$		"H_2O_{avg}

$cf^{\Delta} = V_m$

Wet Test Meter $VM_{std} = 17.65 \times 10.720 \frac{30.21 + \frac{-3.3}{13.6}}{74 + 460} \times 1.000 C_f = 10.618$ scfm

Dry Gas Meter $VM_{std} = 17.65 \times 10.789 \frac{30.21 + \frac{2.0}{13.6}}{78 + 460} = 10.745$ scfm

Calibration Factor $(C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}}$ $C_{dg} = \frac{10.618}{10.745} = 0.988$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: B.H.

Version 2
January 2009

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 9-1
Date: 7/19/16

Wet Test Meter No: 7
Calibrator: R Russo

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = ____ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = ____ \text{ scfm}$$

Run No: 1 @ 3.0 "H_2O
Wet Test Meter C_f: 1.000

P_b: 30.21 "Hg
Control Module Vacuum: 5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End		11.412	74 °F	-4.3 "H_2O
Start		0.000	74 °F	-4.3 "H_2O
		cf^{Δ}	$°F_{avg}$	"H_2O_{avg}

Dry Gas Meter

	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	88.737	83 °F	76 °F	3.00 "H_2O
Start	77.268	80 °F	75 °F	3.00 "H_2O
	cf^{Δ}	$°F_{avg}$		"H_2O_{avg}

$cf^{\Delta} = V_m$

$$\text{Wet Test Meter } VM_{std} = 17.65 \times \frac{11.412}{74 + 460} \frac{30.21 + \frac{-4.3}{13.6}}{} \times 1.000 C_f = 11.276 \text{ scfm}$$

$$\text{Dry Gas Meter } VM_{std} = 17.65 \times \frac{11.469}{79 + 460} \frac{30.21 + \frac{3.00}{13.6}}{} = 11.429 \text{ scfm}$$

$$\text{Calibration Factor } (C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}} \quad C_{dg} = \frac{11.276}{11.429} = 0.987$$

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: BH

Version 2
January 2009

METCO
ENVIRONMENTAL

DRY GAS METER CALIBRATION

Meter Number: 9-1
Date: 7/19/16

Wet Test Meter No: 7
Calibrator: R Russo

$$\text{Wet Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} \times C_f = ____ \text{ scfm}$$

$$\text{Dry Test Meter } VM_{std} = 17.65 \times V_m \frac{P_b + \frac{P_m}{13.6}}{T_m + 460} = ____ \text{ scfm}$$

Run No: 1 @ 4.0 "H_2O
Wet Test Meter C_f: 1.000

P_b: 30.21 "Hg
Control Module Vacuum: 5.0 "Hg

Wet Test Meter

	Time	Meter Reading	T_m	P_m
End		10.969	73 °F	-5.5 "H_2O
Start		0.000	73 °F	-5.5 "H_2O
		cf^{Δ}	$°F_{avg}$	"H_2O_{avg}

Dry Gas Meter

	Meter Reading	T_m Inlet	T_m Outlet	P_m
End	65.798	82 °F	75 °F	4.00 "H_2O
Start	54.769	83 °F	75 °F	4.00 "H_2O
	cf^{Δ}	$°F_{avg}$		"H_2O_{avg}

$cf^{\Delta} = V_m$

$$\text{Wet Test Meter } VM_{std} = 17.65 \times 10.969 \frac{30.21 + \frac{-5.5}{13.6}}{73 + 460} \times 1.000 C_f = 10.826 \text{ scfm}$$

$$\text{Dry Gas Meter } VM_{std} = 17.65 \times 11.029 \frac{30.21 + \frac{4.00}{13.6}}{79 + 460} = 11.017 \text{ scfm}$$

$$\text{Calibration Factor } (C_{dg}) = \frac{\text{Wet Test Meter } VM_{std}}{\text{Dry Gas Meter } VM_{std}} \quad C_{dg} = \frac{10.826}{11.017} = 0.983$$

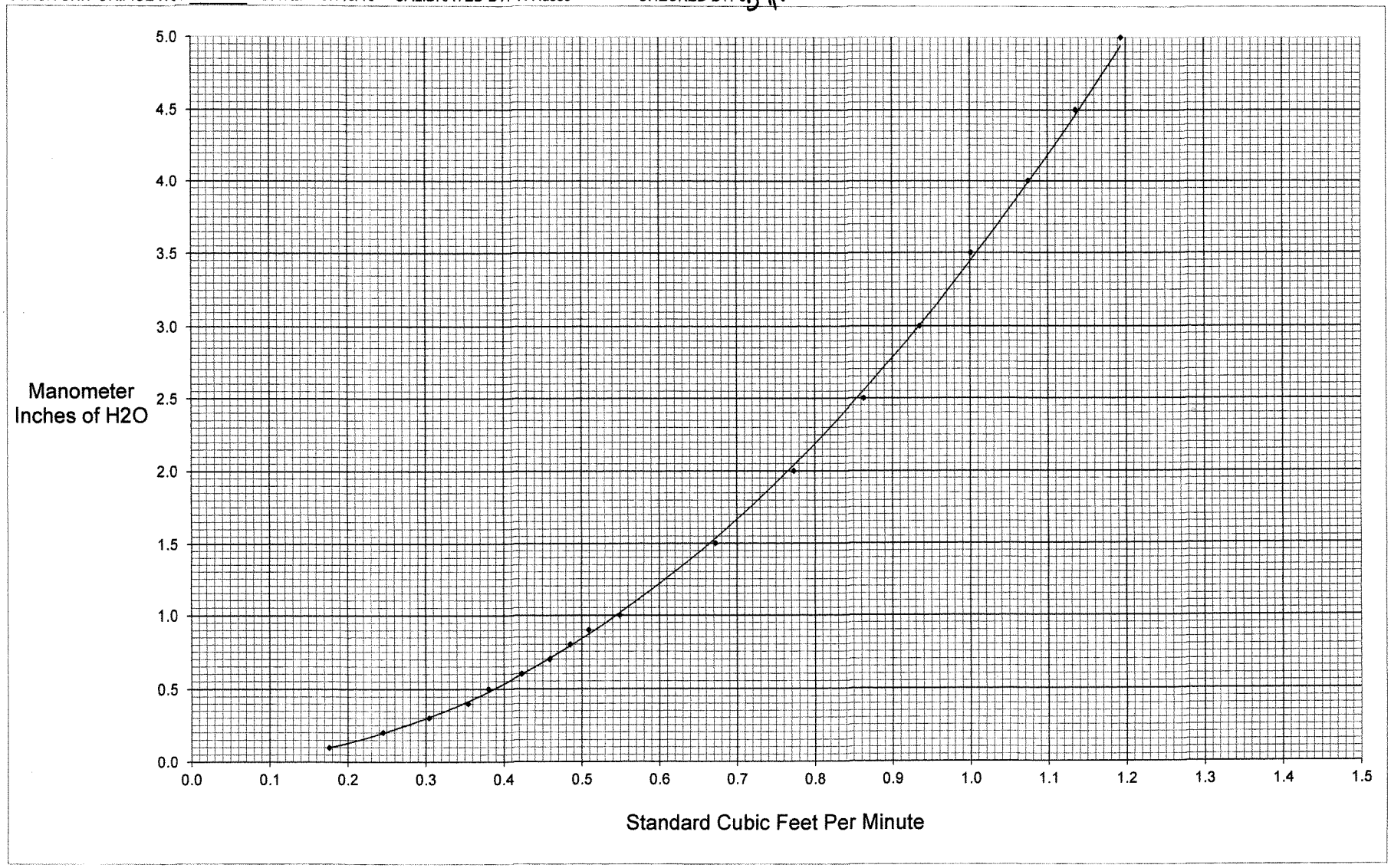
QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: BH

Version 2
January 2009

16-323

STACK UNIT ORIFICE NO: 9-1 DATE: 07/19/16 CALIBRATED BY: R Russo CHECKED BY: B.H



C-10

METCO
ENVIRONMENTAL

Digital Temperature Indicator No. 9-1

Calibration Data

Date: 7/19/16

Reference Thermometer No. 26920201WS

Media	Time	Reference Thermometer (°F)	DTI (°F)
Ambient Air	0850	74	74
Ice Bath	0852	34	34
Boiling Water	0859	211	212
Oven	0905	250	251
Oven	0912	301	302
Oven	0919	351	352
Oven	0928	372	373

Meter Adjusted? YES _____ NO ✓

Calibrator R Russo

Office: BR

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: B.H

METCO ENVIRONMENTAL

Barometer Calibration

Barometer Number	9-2
Date	9/20/2016
Time	8:45
Location	Lafayette, LA
Latitude	30.23144
Longitude	-92.04158
E_o - Elevation	37.12

Name of Closest Airport Weather Station	Lafayette Airport
E_{ws} - Elevation of Weather Station (ft above sea level)	39
P_{bws} - Barometric Pressure at Weather Station[1] ("Hg)	30.06
P_{ba} - Actual Barometric Pressure @ Weather Station ("Hg)	30.021
P_b - Actual Barometric Pressure @ Location ("Hg)	30.02288
Reading on Barometer ("Hg)	30.02
Difference Between Actual and Barometer Reading[2]	0.00288
Reading on Barometer after Correction (if applicable)	

[1] corrected to sea level

[2] no correction necessary if reading is within 0.05"Hg

Calculations:

Eq. B1

$$P_{ba} = P_{bws} - \frac{E_{ws}}{1000}$$

Eq. B2

$$P_b = P_{ba} + \frac{E_{ws} - E_o}{1000}$$

Calibrated by J. Johnson

0

0

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott

RATA CLASS

Guaranteed +/- 1% Accuracy

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory - PGVP Vendor ID: A22015
AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 61933-70-65000
Document # : 58797787-001

Customer
CLEAN AIR ENGINEERING
500 WEST WOOD STREET
PALATINE IL 60067
US

ANALYTICAL INFORMATION Gas Type : CO,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1, EPA/600/R-12/531; May 2012. Do not use this standard if pressure is less than 100 psig.

Cylinder Number: ALM018547 **Certification Date:** 26Feb2015 **Exp. Date:** 27Feb2023
Cylinder Pressure: 2000 PSIG **Batch No:** TRO0127728

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY (ABSOLUTE / RELATIVE)
CARBON MONOXIDE	5.06 PPM	0.05 PPM / 1.0 %
NITROGEN	BALANCE	

TRACEABILITY

REFERENCE STANDARD COMPONENT	CONCENTRATION	UNCERTAINTY	CYLINDER	TYPE/SRM SAMPLE	EXP. DATE
CARBON MONOXIDE	9.8550 PPM	0.0500 PPM	KAL003992	NTRM 1677	14Mar2018

ANALYTICAL METHOD

1st Analysis: 26Feb2015

COMPONENT	INSTRUMENT	ANALYTICAL/PRINCIPLE	CALIBRATED	CONCENTRATION
CARBON MONOXIDE	SIEMENS I/ULTRAMAT 6E/N1-VN-0545	NDIR	30Jan2015	5.060 PPM

Special Notes: DELIVERY DOC# IS 58797248

APPROVED BY: _____
JEFF CROTEAU

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott

COMPLIANCE CLASS

Dual-Analyzed Calibration Standard

11426 FAIRMONT PKWY, LA PORTE, TX 77571 Phone: 800-248-1427 Fax: 281-474-8419

CERTIFICATE OF ACCURACY: EPA Protocol Gas

say Laboratory - PGVP Vendor ID: A32010

R LIQUIDE AMERICA SPECIALTY GASES LLC
426 FAIRMONT PKWY
PORTE, TX 77571

P.O. No.: 569781
Document # : 38846888-001

Customer
METCO TESTAMERICA

6655 COMPLEX DR
BATON ROUGE LA 70809
US

ANALYTICAL INFORMATION **Gas Type : CO,BALN**

his certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; ocedure G-1; September, 1997.

ylinder Number: BLM000616 **Certification Date:** 09Sep2010 **Exp. Date:** 10Sep2018
ylinder Pressure*:** 1284 PSIG **Batch No:** LAP0024726

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
ARBON MONOXIDE	9.86 PPM	+/- 2%	NIST and VSL
ITROGEN	BALANCE		

* Do not use when cylinder pressure is below 150 psig.
Analytical accuracy is based on the requirements of EPA Protocol procedures , September 1997.

EFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
TRM 1677	01Jun2012	KAL004005	9.855 PPM	CARBON MONOXIDE

NSTRUMENTATION

NSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
TIR//MG-09-149	03Sep2010	FTIR

Special Notes: The expiration date has been extended without re-assay per EPA 600/R23-23/542.

APPROVED BY: T Nolte FOR
GARY WRIGHT

AIR LIQUIDE Air Liquide America Specialty Gases LLC | Scott

RATA CLASS

Dual-Analyzed Calibration Standard

1290 COMBERMERE STREET, TROY, MI 48083 Phone: 248-589-2950 Fax: 248-589-2134

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

AIR LIQUIDE AMERICA SPECIALTY GASES LLC
1290 COMBERMERE STREET
TROY, MI 48083

P.O. No.: 569677
Document # : 39345307-001

Customer
METCO ENVIRONMENTAL C/O AIR LIQUIDE

HOLD FOR PICKUP
18222 E PETROLEUM DR
HOLD FOR PICK UP
BATON ROUGE LA 70809
US

ANALYTICAL INFORMATION Gas Type : PPN,BALN

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: BLM005063
Cylinder Pressure*:** 1000 PSIG
Certification Date: 20Oct2010
Prev Certification Date: 06Dec2006
Exp. Date: 21Oct2018
Batch No: TR00011436

COMPONENT	CERTIFIED CONCENTRATION (Moles)	ACCURACY**	TRACEABILITY
PROPANE	3.13 PPM	+/- 1%	Direct NIST and VSL
NITROGEN	BALANCE		

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1668	02Oct2012	ALM011480	9.470 PPM	PROPANE

INSTRUMENTATION INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
VARIAN/3400/7506	05Oct2010	TCD/FID

ANALYZER READINGS

(Z = Zero Gas R = Reference Gas T = Test Gas r = Correlation Coefficient)

First Triad Analysis

PROPANE
Date: 20Oct2010 Response Unit: AREA

Z1 = 0.00000	R1 = 251250.0	T1 = 82986.00
R2 = 251025.0	Z2 = 0.00000	T2 = 82899.00
Z3 = 0.00000	T3 = 82862.00	R3 = 251718.0

Avg. Concentration: 3.130 PPM

Second Triad Analysis

Calibration Curve

Concentration = A + Bx + Cx2 + Dx3 + Ex4
r = 0.999998

Constants:	A = 0.03279928
B = 3.80209E-05	C = 0
D = 0	E = 0

Special Notes: The expiration date has been extended without re-assay per EPA 600/R23-23/542. Supplemental to test report 05-92991-001 for BLM005063. Amended 11-15-2013, Thatcher.

APPROVED BY: ROBERT LESNIAK

RED BALL
TECHNICAL GAS SERVICES

Assay Laboratory: Red Ball TGS
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	ET0010875	Certification Date:	01/04/2016
Product ID Number:	125971	Expiration Date:	01/02/2024
Cylinder Pressure:	1900 PSIG	MFG Facility:	RBTGS-Shreveport-LA
COA #	ET0010875.20151229-0	Lot Number:	ET0010875.20151229
Customer PO. NO.:		Tracking Number:	084265050
Customer:		Previous Certification Dates:	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Propane	5.01 PPM	±0.03 PPM	FTIR	01/04/2016
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
CC238370	LD131122.095512.1GMIS	09/30/2021	GMIS	N2	C3H8	106.2 PPM	0.409	2644a

Analytical Instrumentation

Component	Analytical Principle	Make	Model	Serial	MPC Date
C3H8	FTIR	MKS	MKS 2031DJG2EKVS13T	017146467	01/04/2016

Red Ball Technical Gas Service
PGVP Vendor ID # G12016
Information and Ordering
800-551-8150
Fax (318-425-6309)

ilac-MRA
PJLA Calibration and Testing
Accreditation #62754

Fred Holt
Analyst

Version 02-C, Revised on 2015-07-16

RED BALL
TECHNICAL GAS SERVICES

Assay Laboratory: Red Ball TGS
555 Craig Kennedy Way
Shreveport, LA 71107
800-551-8150

EPA PROTOCOL GAS CERTIFICATE OF ANALYSIS

Cylinder Number:	ET0010859	Certification Date:	01/04/2016
Product ID Number:	125972	Expiration Date:	01/02/2024
Cylinder Pressure:	1900 PSIG	MFG Facility:	RBTGS-Shreveport-LA
COA #	ET0010859.20151229-0	Lot Number:	ET0010859.20151229
Customer PO. NO.:		Tracking Number:	084265041
Customer:		Previous Certification Dates:	

This calibration standard has been certified per the May 2012 EPA Traceability Protocol, Document EPA-600/R-12/531, using procedure G1.

Do Not Use This Cylinder Below 100 psig (0.7 Megapascal).

Certified Concentration(s)

Component	Concentration	Uncertainty	Analytical Principle	Assayed On
Propane	8.48 PPM	±0.03 PPM	FTIR	01/04/2016
Nitrogen	Balance			

Analytical Measurement Data Available Online.

Reference Standard(s)

Serial Number	Lot	Expiration	Type	Balance	Component	Concentration	Uncertainty(%)	NIST Reference
CC238370	LD131122.095512 1GMIS	09/30/2021	GMIS	N2	C3H8	106.2 PPM	0.409	2644a

Analytical Instrumentation

Component	Analytical Principle	Make	Model	Serial	MPC Date
C3H8	FTIR	MKS	MKS 2031DJG2EKVS13T	017146467	01/04/2016

Red Ball Technical Gas Service
PGVP Vendor ID # G12016
Information and Ordering
800-551-8150
Fax (318-425-6309)

PJLA Calibration and Testing
Accreditation #62754

Fred Holt
Analyst

Version 02-C, Revised on 2015-07-16

APPENDIX D

Field Testing Data

16-323

D-2

METCO Environmental

Job Number	16323	Moisture w/ flows	Field Data	Ambient Temperature - °F	83
Job Name	Comm. Eng	Balance ID	M9-1	Assumed Moisture - %	-
Run Number	1 @ Cond. 2	Check Weight ID	M9-2000-1	Probe Length	55
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	- to reference
Date	9-26-16	Measured Mass (g)	1999.9	Initial Leak @	15.0 "Hg = 0.006 cfm
Operator	Ho/Rios/Johnson	Difference (g)*	0.1	Final Leak @	10.0 "Hg = 0.001 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	-	Purge Time	-		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
B 8	1115	816.765	0.001	1.00	1.00	5.0	1651	-	-	70	68	67	-	
7	1119	820.37	0.002	1.00	1.00	5.0	1659	-	-	66	68	67	-	
6	1123	823.688	0.004	1.00	1.00	5.0	1722	-	-	64	69	67	-	
5	1127	825.48	0.005	1.00	1.00	5.0	1708	-	-	61	69	68	-	
4	1131	827.88	0.003	1.00	1.00	5.0	1696	-	-	60	70	60	-	
3	1135	829.75	0.002	1.00	1.00	5.0	1763	-	-	61	71	69	-	
2	1139	832.03	0.002	1.00	1.00	5.0	1533	-	-	62	72	70	-	
1	1143	834.13	0.002	1.00	1.00	5.0	1539	-	-	63	72	70	-	
End	1147	836.325	-	-	-	-	-	-	-	-	-	-	-	
A 8	1148	836.325	0.001	1.00	1.00	5.0	1553	-	-	65	72	70	-	
7	1152	838.22	0.004	1.00	1.00	5.0	1534	-	-	63	73	70	-	
6	1156	840.43	0.003	1.00	1.00	5.0	1703	-	-	61	73	70	-	
5	1200	842.65	0.006	1.00	1.00	5.0	1732	-	-	66	73	70	-	
4	1204	844.89	0.003	1.00	1.00	5.0	1670	-	-	62	74	70	-	
3	1208	846.93	0.003	1.00	1.00	5.0	1574	-	-	63	74	70	-	
2	1212	849.11	0.002	1.00	1.00	5.0	1545	-	-	63	74	71	-	
1	1216	851.31	0.001	1.00	1.00	5.0	1707	-	-	63	74	71	-	
End	1220	853.184	-	-	-	-	-	-	-	-	-	-	-	

C_p Pitot Tube Cal. Factor 0.807 ✓ Pitot Tube # 9-3-2 Barometer # 9-2 Nozzle # -

V_m Volume Collected - cf 35.836 ✓ P_b Barometric Pressure – "Hg 29.98 ✓ Total Volume of leak checks after start – cf -

V_w Water Collected - ml 68.0 ✓ D_n Nozzle Diameter – in. - V_m = (DGM Cal Factor) 0.984 ✓ x (Net Volume Collected) 36.419

T_t Time of Test – min. 64 ✓ %CO_2 5.5 ✓ %CO 0.0 A_s = Area of Stack – in^2 ~~fan~~ 471 ✓

P_s Stack Pressure – "H_2O" 0.1 ✓ %O_2 ~~13.5~~ 14.8 DA %N_2 ~~Bal~~ 79.7 DA {Dry Gas Meter Reading - ft3 – (Tt - min. X Leak Rate - cfm)]

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By

Version 3
April 2013

Impinger Box No. 52-3

			Water Weight Gain		
Impinger 1	Final Weight	913.8		Impinger 1	49.3
	Initial Weight	864.5			
	Increase	49.3		Impinger 2	5.8
Impinger 2	Final Weight	849.0		Impinger 3	2.1
	Initial Weight	843.2	SO_2 correction		
	Increase	5.8	(if applicable)	Impinger 4	10.8
Impinger 3	Final Weight	673.0	V_w =	Impinger 5	
	Initial Weight	670.9	g SO_2 = -		
	Increase	2.1	V_w =	Impinger 6	
Impinger 4	Final Weight	985.6		Impinger 7	
	Initial Weight	974.8			
	Increase	10.8		Total	68.0 = V_w
Impinger 5	Final Weight				
	Initial Weight		P_b = 29.98 ✓	$\%CO_2$ = 5.5	
	Increase		V_m = 35.836 ✓	$\%O_2$ = 13.5 14.8 RA	
Impinger 6	Final Weight		V_w = 68.0 ✓	%CO = 0.0	
	Initial Weight		P_m = 1.000 ✓	$\%N_2$ = 81.0 79.3 RA	
	Increase		Avg ΔP = 1.003 ✓	A_s = 471 ✓	
				D_n = -	
			Avg $\sqrt{\Delta P}$ = 0.051 ✓	T_t = 64 ✓	
Impinger 7	Final Weight		C_p = 0.807 ✓		
	Initial Weight		P_s = 0.1 ✓ "H_2O		29.99 ✓ "Hg
	Increase		T_m = 70 ✓ °F		530 ✓ °R
			T_s = 1642 ✓ °F		2102 ✓ °R

Moisture Content: %M = 8.21 ✓ M_d = 0.9179 ✓ MW_d = 29.420 → 28.48 RA MW = 28.48

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 35.836 \times \left| \frac{1.000}{29.98 + 13.6} \right| = \frac{35.866 \text{ sft}^3}{0.560 \text{ scfm}}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 68.0 = 3.210$ sft³

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{3.210}{3.210 + 35.866} \times 100 = 8.21 \%$$

$$V_s = 5123.8 \times 0.051 \sqrt{\frac{2102}{29.99 \times 28.48}} \times 0.807 = 331 \text{ fpm}$$

53 RA

ACFM = 1082 → 1084 RA

SCFM = 251 ✓

%I = 1039 x ___ x ___ / ___ x ___ x ___ x ___ x (___)² = ___ %

%EA = 109.5 → 234.2

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"Hg}) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"Hg}) \times M_d \times V_s \times T_t \times (D_n)^2}$$

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	88
Job Name	Comm. Eng.	Balance ID	M9-1	Assumed Moisture - %	–
Run Number	2@ Cond 1	Check Weight ID	M9-2000-1	Probe Length	55
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	– to reference
Date	9-26-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	Ha / Rios / Johnsin	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial ✓	Final ✓	Pitot Tips Damaged during Test?	Yes/No
Purge To (cf):	–	Purge Time	–		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock TIme	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
A 8	1234	853.505	0.001	1.00	1.00	5.0	1543	–	–	68	73	72	–	
7	1238	856.21	0.003	1.00	1.00	5.0	1533	–	–	65	73	72	–	
6	1242	858.37	0.002	1.00	1.00	5.0	1507	–	–	63	73	72	–	
5	1246	860.32	0.005	1.00	1.00	5.0	1708	–	–	60	74	72	–	
4	1250	862.72	0.008	1.00	1.00	5.0	1679	–	–	61	74	72	–	
3	1254	864.26	0.003	1.00	1.00	5.0	1721	–	–	61	75	73	–	
2	1258	866.39	0.002	1.00	1.00	5.0	1644	–	–	63	76	73	–	
1	1302	868.72	0.002	1.00	1.00	5.0	1725	–	–	64	75	73	–	
End	1306	870.430	–	–	–	–	–	–	–	–	–	–	–	
B 8	1308	870.430	0.002	1.00	1.00	5.0	1663	–	–	67	75	73	–	
7	1312	872.51	0.001	1.00	1.00	5.0	1707	–	–	64	75	73	–	
6	1316	874.31	0.004	1.00	1.00	5.0	1419	–	–	61	75	73	–	
5	1320	876.66	0.006	1.00	1.00	5.0	1655	–	–	61	75	73	–	
4	1324	879.53	0.007	1.00	1.00	5.0	1609	–	–	62	75	73	–	
3	1328	881.18	0.002	1.00	1.00	5.0	1616	–	–	62	75	73	–	
2	1332	883.42	0.001	1.00	1.00	5.0	1622	–	–	64	76	73	–	
1	1336	885.71	0.001	1.00	1.00	5.0	1681	–	–	64	76	73	–	
End	1340	887.910	–	–	–	–	–	–	–	–	–	–	–	

C_p Pitot Tube Cal. Factor	0.807 ✓	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	–
V_m Volume Collected - cf	33.370 ✓	P_b Barometric Pressure – "Hg	29.96 ✓	Total Volume of leak checks after start – cf		–	
V_w Water Collected - ml	54.7 ✓	D_n Nozzle Diameter – in.	–	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	33.913
T_t Time of Test – min.	64 ✓	%CO_2	5.2 ✓	%CO	0.0	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.1 ✓	%O_2	14.1 15.1 RA	%N_2	80.7 79.7 RA	{Dry Gas Meter Reading	– ft3 – (Tt – min. X Leak Rate – cfm)]

QA/QC Check Completeness	/	Legibility	/	Accuracy	/	Specification	/	Reasonableness	/	Checked By	

Impinger Box No. 52-3

Water Weight Gain

Impinger 1	Final Weight	801.6	Impinger 1	39.8
	Initial Weight	761.8	Impinger 2	6.0
	Increase	39.8	Impinger 3	2.0
Impinger 2	Final Weight	753.4	Impinger 4	6.9
	Initial Weight	747.4	Impinger 5	
	Increase	6.0	Impinger 6	
Impinger 3	Final Weight	675.0	Impinger 7	
	Initial Weight	673.0	Total	54.7 = V_w
	Increase	2.0		
Impinger 4	Final Weight	992.5		
	Initial Weight	985.6		
	Increase	6.9		
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

SO_2 correction (if applicable)

V_w = _____
g SO_2 = -
V_w = _____

P_b =	29.96		
V_m =	33.370		
V_w =	54.7		
P_m =	1.000		
Avg ΔP =	0.003		
Avg $\sqrt{\Delta P}$ =	0.053		
C_p =	0.807		
P_s =	0.1	"H_2O	29.97 "Hg
T_m =	74	°F	534 °R
T_s =	1640	°F	~~80~~ 2100 °R

$\%CO_2$ =	5.2		
$\%O_2$ =	~~13.5 14.1~~ 15.1		RA
%CO =	0		
% N_2 =	~~80.4~~ 79.7		RA
A_s =	1.71		
D_n =	-		
T_t =	64		

Moisture Content: %M = 7.23 M_d = 0.9277 MW_d = 29.396 (44 RA) MW = 28.57 (61 RA)

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 33.370 \times \left| \frac{1.000}{29.96 + 13.6} \right| = \frac{33.126 \text{ sft}^3}{0.518 \text{ scfm}}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 54.7 = 2.582 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.582}{2.582 + 33.126} \times 100 = 7.23\%$$

$$V_s = 5123.8 \times 0.053 \sqrt{\frac{2100}{29.97 \times 28.57}} \text{ (61 RA)} \times 0.807 = 343 \text{ fpm}$$

ACFM = 1122

SCFM = 263

%EA = 193.5 / 250.8

$$\%I = \frac{1039 \times - \times -}{- \times - \times - \times - \times (- \; -)^2} = -\%$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"Hg}) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"Hg}) \times M_d \times V_s \times T_t \times (D_n)^2}$$

16-323

D-6

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	90
Job Name	Comm. Eng.	Balance ID	M9-1	Assumed Moisture - %	–
Run Number	3 @ Cond. 2	Check Weight ID	M9-2000-1	Probe Length	5s
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	– to reference
Date	9-26-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	Ho / Rios / Johnson	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial ✓	Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	–	Purge Time	–		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
B 8	1355	887.802	0.002	1.00	1.00	5.0	1588	–	–	70	74	73	–	
7	1359	889.23	1.002	1.00	1.00	5.0	1614	–	–	66	75	73	–	
6	1403	891.73	0.005	1.00	1.00	5.0	1601	–	–	63	75	73	–	
5	1407	894.16	0.004	1.00	1.01	5.0	1577	–	–	62	75	73	–	
4	1411	896.87	0.005	1.00	1.00	5.0	1602	–	–	62	76	74	–	
3	1415	898.72	0.003	1.00	1.00	5.0	1601	–	–	64	76	74	–	
2	1419	901.02	0.001	1.00	1.00	5.0	1648	–	–	64	76	74	–	
1	1423	903.15	0.001	1.00	1.00	5.0	1610	–	–	64	76	74	–	
End	1427	905.372	–	✓	✓	✓	–	–	–	–	–	–	✓	
A 8	1429	905.372	0.001	1.00	1.00	5.0	1625	–	–	65	76	74	–	
7	1433	907.97	0.004	1.00	1.00	5.0	1651	–	–	63	74	74	–	
6	1437	909.87	0.005	1.00	1.00	5.0	1607	–	–	62	77	75	–	
5	1441	911.32	0.006	1.00	1.00	5.0	1640	–	–	63	77	75	–	
4	1445	913.83	0.004	1.00	1.00	5.0	1657	–	–	63	77	75	–	
3	1449	915.72	0.003	1.00	1.00	5.0	1637	–	–	63	77	74	–	
2	1453	917.51	0.001	1.00	1.00	5.0	1658	–	–	65	77	74	–	
1	1457	919.37	0.002	1.00	1.00	5.0	1639	–	–	64	77	75	–	
End	1501	922.370	–	–	–	–	–	–	–	–	–	–	–	

C_p Pitot Tube Cal. Factor	0.809 ✓	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	–		
V_m Volume Collected - cf	34.015 ✓	P_b Barometric Pressure – "Hg	29.89 ✓	Total Volume of leak checks after start – cf	–				
V_w Water Collected - ml	57.2 ✓	D_n Nozzle Diameter – in.	–	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.568		
T_t Time of Test – min.	64 ✓	%CO_2	~~5.3~~ 4.3 RA	%CO	0 0	A_s = Area of Stack – in^2	471 ✓		
P_s Stack Pressure – "H_2O	0.4 ✓	%O_2	~~13.6~~ 16.6 RA	%N_2	~~81.1~~ 79 RA	{Dry Gas Meter Reading	– ft3 – (Tt	– min. X Leak Rate	– cfm)]
QA/QC Check Completeness	✓	Legibility	✓	Accuracy	✓	Specification	✓	Reasonableness	✓	Checked By	

Version 3
April 2013

Impinger Box No. 52-3

			Water Weight Gain		
Impinger 1	Final Weight	843.2		Impinger 1	41.6
	Initial Weight	801.6			
	Increase	41.6		Impinger 2	5.0
Impinger 2	Final Weight	758.4		Impinger 3	1.9
	Initial Weight	753.4	SO_2 correction (if applicable)		
	Increase	5.0		Impinger 4	8.7
Impinger 3	Final Weight	676.9	V_w =	Impinger 5	
	Initial Weight	675.0	g SO_2 = -		
	Increase	1.9	V_w =	Impinger 6	
Impinger 4	Final Weight	969.7		Impinger 7	
	Initial Weight	961.0			
	Increase	8.7		Total	57.2 = V_w
Impinger 5	Final Weight				
	Initial Weight		P_b = 29.89 ✓	$\%CO_2$ = 5.5 4.3 RA	
	Increase		V_m = 34.015 ✓	$\%O_2$ = 13.6 16.6 RA	
Impinger 6	Final Weight		V_w = 57.2 ✓	%CO = 0.0	
	Initial Weight		P_m = 1.000 ✓	% N_2 = 81.4 79.1 RA	
	Increase		Avg ΔP = 0.003 ✓	A_s = 471	
				D_n = -	
			Avg $\sqrt{\Delta P}$ = 0.051 ✓	T_t = 604 ✓	
Impinger 7	Final Weight		C_p = 0.807 ✓		
	Initial Weight		P_s = 0.1 ✓ "H_2O		29.90 ✓ "Hg
	Increase		T_m = 75 ✓ °F		535 ✓ °R
			T_s = 1632 ✓ °F		2092 ✓ °R

Moisture Content: %M = 7.43 ✓ M_d = 0.9257 ✓ MW_d = 29.397 5 RA MW = 28.546 55 5/RA

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times \underline{34.015} \times \left| \frac{1.000}{29.89 + 13.6} \right| = \underline{33.624} \checkmark \text{ sft}^3$$
$$\underline{75 + 460} \qquad \underline{0.525} \checkmark \text{ scfm}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times$ 57.2 = 2,700 ✓ sft^3

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2,700}{2,700 + 33.624} \times 100 = 7.43 \checkmark \%$$

$$V_s = 5123.8 \times \underline{0.051} \sqrt{\frac{2092}{29.90 \times 28.55}} \times \underline{0.807} = \underline{330} \checkmark \text{ fpm}$$
1 RA

ACFM = 81 RA / 1079

SCFM = 253 ✓

$$\%I = \frac{1039 \times - \times \div}{- \times - \times - \times - \times (-)^2} = - \%$$

%EA = 172.3 / 380.6 RA

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$ACFM = (V_s \times A_s)/144$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Job Number 16-323 Rotometer # VOST meter 10 Probe Length 5'

Job Name Comm Eng. Operator Johnson Sample Point Variable

Bag/Run Number 1Q Cond 1 Ambient Temp. 83 °F Baro. Pressure P_b 29.98 "Hg

Location Unit 2 Barometer Number 9-2 Source Pressure P_s 0.1 "H_2O

Date 9/26/16

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1115	0.15	1685	-	
1147	0.15	1744	-	
1219	0.15	1746	-	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Job Number 16-323 Rotometer # Vost Meter 16 Probe Length 5'

Job Name Comm Eng. Operator Johnson Sample Point Variable

Bag/Run Number Run 2 Cond 1 Ambient Temp. 85 °F Baro. Pressure P_b 29.96 "Hg

Location Unit 2 Barometer Number 9-2 Source Pressure P_s 0.1 "H_2O

Date 9/26/16

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1234	0.15	1365	–	
1306	0.15	1725	–	
1338	0.15	1656	–	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = ✓ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Job Number 16-323
Job Name Comm Eng.
Bag/Run Number Run 3 Cond 1
Location Unit 2
Date 9/26/16

Rotometer # VOST Mtr 10
Operator Johnson
Ambient Temp. 87 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Variable
Baro. Pressure P_b 29.89 "Hg
Source Pressure P_s 0.1 "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1355	0.15	1554	-	
1427	0.15	1589	-	
1459	0.15	1577	-	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Job Number 16-323 | Rotometer/Orifice # 10.0 cc/min | Probe Length Tap

Job Name Comm Eng. | Operator Johnson | Sample Point Unit 2

Run Number Condition 1 Primary | Ambient Temp. 83 °F | Purged Sample System ✓

Date 9/26/16 | Barometer Number 9-2 | Baro. Pressure P_b 29.98 "Hg

Canister Number 1648 | Initial Leak @ 15.5 "Hg = 0.0 Δ "Hg | Final Leak @ 15.5 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
~~1110~~ TM 9/26 1115	-	730.0	Start Run 1 Cond. 1
1219	-	28.0	End Run 1 Cond 1
1234	-	28.0	Start Run 2 Cond 1
1338 ~~1349~~ TM 9/26	-	26.0	End Run 2 Cond 1
1355	-	26.0	Start Run 3 Cond 1
1501		23.0	End Run 3 Cond 1

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = — Liters

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

Job Number 16-323 | Rotometer/Orifice # 16.2 cc/min | Probe Length TAP

Job Name Comm Eng. | Operator Johnson | Sample Point Unit 2

Run Number Condition 1 Secondary | Ambient Temp. 83 °F | Purged Sample System ✓

Date 9/26/16 | Barometer Number 9-2 | Baro. Pressure P_b 29.98 "Hg

Canister Number 1332 | Initial Leak @ 16.0 "Hg = 0.0 Δ "Hg | Final Leak @ 16.5 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
~~1110 9/26 1125~~ TM 1115	-	> 30.0	Start Run 1 Cond. 1
1219	-	29.0	End Run 1 Cond 1
1234	-	29.0	Start Run 2 Cond 1
~~1355~~ TM 1338 9/26	-	26.0	End Run 2 Cond 1
1355	-	26.0	Start Run 3 Cond 1
1501		23.0	End Run 3 Cond 1

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = ~~_____~~ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = ~~_____~~ Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

16-323

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	84
Job Name	Cummins Eng.	Balance ID	MG-1	Assumed Moisture - %	—
Run Number	1 @ Cond. 2	Check Weight ID	MG-2000-1	Probe Length	55
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	— to reference
Date	9-27-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	Ho / Ross / Johnson	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
A 8	1422	922.640	0.066 ~~0.07~~	1.00	1.00	5.0	1621	—	—	70	71	70	—	
7	1426	925.03	0.068	1.00	1.00	5.0	1702	—	—	67	71	70	—	
6	1430	926.95	0.062	1.00	1.00	5.0	1656	—	—	64	73	71	—	
5	1434	929.32	0.043	1.00	1.00	5.0	1686	—	—	63	73	71	—	
4	1438	931.53	0.017	1.00	1.00	5.0	1653	—	—	63	73	71	—	
3	1442	933.46	0.035	1.00	1.00	5.0	1652	—	—	63	73	71	—	
2	1446	935.22	0.024	1.00	1.00	5.0	1683	—	—	64	72	71	—	
1	1450	937.61	0.027	1.00	1.00	5.0	1676	—	—	64	72	71	—	
End	1454	939.631	—	—	—	—	—	—	✓	—	✓	—	✓	
B 9	1456	939.631	0.021	1.00	1.00	5.0	1815	✓	—	66	73	71	—	
7	1500	942.29	0.044	1.00	1.00	5.0	1829	—	✓	65	73	71	—	
6	1504	944.01	0.024	1.00	1.00	5.0	1831	✓	—	62	73	72	—	
5	1508	945.92	0.019	1.00	1.00	5.0	1796	✓	✓	61	74	72	—	
4	1512	948.32	0.018	1.00	1.00	5.0	1739	✓	✓	62	74	72	—	
3	1516	950.49	0.022	1.00	1.00	5.0	1727	✓	✓	63	74	72	—	
2	1520	952.60	0.055	1.00	1.00	5.0	1637	—	✓	64	74	72	—	
1	1524	954.97	0.058	1.00	1.00	5.0	1715	—	—	64	74	72	—	
End	1528	956.894	—	✓	✓	✓	—	✓	✓	—	✓	✓	✓	

C_p Pitot Tube Cal. Factor	0.807 ✓	Pitot Tube #	9-3-2	Barometer #	9-2 Nozzle # —
V_m Volume Collected - cf	33.706 ✓	P_b Barometric Pressure – "Hg	29.87 ✓	Total Volume of leak checks after start – cf	—
V_w Water Collected - ml	~~64~~ 53.5 IA	D_n Nozzle Diameter – in.	-	V_m = (DGM Cal Factor)	0.984 ✓ x (Net Volume Collected) 34.254
T_t Time of Test – min.	64 ✓	%CO_2	~~5.2~~ 6.3 IA %CO 0.0	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.3 ✓	%O_2	~~13.9~~ 13.4 %N_2 80.3 IA	{Dry Gas Meter Reading — ft3 – (Tt — min. X Leak Rate — cfm)}	

QA/QC Check Completeness ✓ Legibility ✓ Accuracy IA ✓ Specification ✓ Reasonableness ✓ Checked By ✓

Version 3
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D-13

Impinger Box No. 52-3

			Water Weight Gain		
Impinger 1	Final Weight	769.4		Impinger 1	44.1
	Initial Weight	725.3			8.2 DA
	Increase	44.1		Impinger 2	9.2
Impinger 2	Final Weight	706.8		Impinger 3	3.1
	Initial Weight	698.6	SO_2 correction		
	Increase	9.2 8.2 DA	(if applicable)	Impinger 4	8.1
Impinger 3	Final Weight	680.0	V_w =	Impinger 5	
	Initial Weight	676.9	g SO_2 = -		
	Increase	3.1	V_w =	Impinger 6	
Impinger 4	Final Weight	977.8		Impinger 7	
	Initial Weight	969.7			3.5 DA
	Increase	8.1		Total	6.5 = V_w
Impinger 5	Final Weight				
	Initial Weight		P_b = 29.87	$\%CO_2$ =	6.3 DA
	Increase		V_m = 33.706	$\%O_2$ =	13.4 DA
			V_w = 6.5 3.5 DA	%CO =	0.0
Impinger 6	Final Weight		P_m = 1.000	$\%N_2$ =	80.3 DA
	Initial Weight		Avg ΔP = 0.038	A_s =	471
	Increase			D_n =	-
			Avg $\sqrt{\Delta P}$ = 0.189	T_t =	64
Impinger 7	Final Weight		C_p = 0.807		
	Initial Weight		P_s = 6.3 "H_2O		29.89 "Hg
	Increase		T_m = 72 °F		532 °R
			T_s = 1714 °F		2174 °R

Moisture Content: %M = 8.35 22 DA M_d = 0.9167 78 DA MW_d = 29.288 54 DA MW = 28.44 60 DA

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 33.706 \times \left| \frac{1.000}{29.87 + 13.6} \right| = 33.484 \text{ sft}^3 = 0.523 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 6.5\ 3.5\ DA = 2.997\ 3.044\ DA \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.997\ 3.044\ DA}{3.044\ 2.997 + 33.484} \times 100 = 8.35\ 22\ DA \%$$

$$V_s = 5123.8 \times 0.0\ 0.189 \sqrt{\frac{2174}{29.89 \times 28.44\ 60\ DA}} \times 0.807 = 1250\ 46\ DA \text{ fpm}$$

ACFM = 4088 76 DA

SCFM = 913 DA

$$\%I = \frac{1039 \times - \times - \times - \times - \times (-)^2}{- \times - \times - \times - \times (-)^2} = - \%$$

%EA = 184.4 / 170.1 DA

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg)xMW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

16-323

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	84
Job Name	Comm. Eag.	Balance ID	M19-1	Assumed Moisture - %	-
Run Number	2 @ Load 2	Check Weight ID	M19-2000-1	Probe Length	5ft
Unit	Unit 2	Actual Mass (g)	2000.6	C Factor	— to reference
Date	9-27-16	Measured Mass (g)	1999.9	Initial Leak @	15.0 "Hg = 0.000 cfm
Operator	Ho / Rios / Johnson	Difference (g)*	0.1	Final Leak @	10.0 "Hg = 0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	— Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	—	Purge Time	—		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m			
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
B 8	1540	957.257	0.018	1.00	1.00	5.0	1753	—	—	69	73	72	—	
7	1544	959.97	0.019	1.00	1.00	5.0	1729	—	—	64	73	72	—	
6	1548	961.53	0.019	1.00	1.00	5.0	1791	—	—	63	73	72	—	
5	1552	963.97	0.020	1.00	1.00	5.0	1757	—	—	62	74	72	—	
4	1556	966.21	0.013	1.00	1.00	5.0	1754	—	—	61	74	72	—	
3	1600	968.13	0.041	1.00	1.00	5.0	1751	—	—	61	74	72	—	
2	1604	970.32	0.032	1.00	1.00	5.0	1752	—	—	63	75	72	—	
1	1608	972.45	0.051	1.00	1.00	5.0	1752	—	—	64	75	72	—	
End	1612	974.543	—	—	—	—	—	—	—	—	—	—	—	
A 8	1614	974.543	0.018	1.00	1.00	5.0	1702	—	—	64	75	72	—	
7	1618	976.64	0.020	1.00	1.00	5.0	1716	—	—	62	75	73	—	
6	1622	978.85	0.023	1.00	1.00	5.0	1721	—	—	60	75	73	—	
5	1626	980.91	0.017	1.00	1.00	5.0	1683	—	—	60	75	73	—	
4	1630	982.97	~~0.026~~ 0.026	1.00	1.00	5.0	1631	—	—	62	75	73	—	ΔP = 0.026
3	1634	985.25	0.034	1.00	1.00	5.0	1620	—	—	62	75	73	—	
2	1638	987.39	0.020	1.00	1.00	5.0	1710	—	—	63	75	73	—	
1	1642	989.25	0.013	1.00	1.00	5.0	1705	—	—	64	75	73	—	
End	1646	991.521	—	—	—	—	—	—	—	—	—	—	—	

C_p Pitot Tube Cal. Factor	0.801 ✓	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	—
V_m Volume Collected - cf	33.716 ✓	P_b Barometric Pressure – "Hg	29.87 ✓	Total Volume of leak checks after start – cf			—
V_w Water Collected - ml	~~63.8~~ 62 RA	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.264
T_t Time of Test – min.	64 ✓	%CO_2	~~5.1~~ 6.2 IM	%CO	0	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.3 ✓	%O_2	~~13.9~~ 15 RA	%N_2	~~81.0~~ 80.3 RA	{Dry Gas Meter Reading	— ft3 – (Tt — min. X Leak Rate — cfm)]

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By

Version 3
April 2013

D-15

Impinger Box No. 52-3

Impinger 1	Final Weight	814.7
	Initial Weight	769.4
	Increase	45.3
Impinger 2	Final Weight	714.3
	Initial Weight	706.8
	Increase	7.5
Impinger 3	Final Weight	682.5
	Initial Weight	680.6
	Increase	~~2.5~~ 1.9 RA
Impinger 4	Final Weight	986.3
	Initial Weight	977.8
	Increase	8.5
Impinger 5	Final Weight	
	Initial Weight	
	Increase	
Impinger 6	Final Weight	
	Initial Weight	
	Increase	
Impinger 7	Final Weight	
	Initial Weight	
	Increase	

Water Weight Gain

Impinger 1	45.3
Impinger 2	7.5
Impinger 3	~~2.5~~ 1.9 RA
Impinger 4	8.5
Impinger 5	
Impinger 6	
Impinger 7	
Total	~~63.8~~ 62 RA = V_w

SO_2 correction (if applicable)

V_w = ____
g SO_2 = ____
V_w = ____

P_b =	29.87	
V_m =	33.716	
V_w =	~~63.8~~ 62 RA	
P_m =	1.000	
Avg ΔP =	0.028	
Avg $\sqrt{\Delta P}$ =	0.162	
C_p =	0.807	
P_s =	0.3	"H_2O
T_m =	73	°F
T_s =	1727	°F

%CO_2 =	~~5.1~~ 6.2 RA	
%O_2 =	~~13.8~~ 15 RA	
%CO =	0.0	
% N_2 =	~~81.6~~ 80.2 RA	
A_s =	471	
D_n =	-	
T_t =	64	
	29.89	"Hg
	533	°R
	2187	°R

Moisture Content: %M = ~~8.26~~ 19 RA M_d = 0.9174 81 RA MW_d = 29.372 53 RA MW = 28.43 59 RA

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 33.716 \times \left| \frac{1.000}{29.87 + 13.6} \right| = 33.432 \text{ sft}^3 \quad 0.522 \text{ scfm}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times$ ~~63.8~~ 62 RA = ~~3.011~~ 2.983 RA sft³

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{~~3.011~~\ 2.983}{~~3.011~~\ 2.983 + 33.432} \times 100 = ~~8.26~~\ 19 \text{ RA } \%$$

$$V_s = 5123.8 \times 0.162 \sqrt{\frac{2187}{29.89 \times 28.43}} \times 0.807 = ~~1078~~\ 1082 \text{ RA fpm}$$

$$\%I = \frac{1039 \times - \times -}{- \times - \times - \times \text{ } \times (\ - \ )^2} = - \%$$

ACFM = ~~35~~ 0 RA

SCFM = ~~78~~ 79 RA

%EA = ~~183.1~~ 173.5 RA

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"Hg}) \times M_d \times V_s \times T_t \times (D_n)^2}$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

16-323

D-17

METCO Environmental

Job Number	16-323	Moisture/Flows	Field Data	Ambient Temperature - °F	86
Job Name	Comm. Eng.	Balance ID	MG-1	Assumed Moisture - %	-
Run Number	3 @ cond. 2	Check Weight ID	MG-2000-1	Probe Length	53
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	- to reference
Date	9-27-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	HG/Rios/Johnson	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial ✓	Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	-	Purge Time	-		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock TIme	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
A 8	1657	991.972	0.020	1.00	1.00	5.0	1629	-	-	69	73	72	-	
7	1701	993.71	0.031	1.00	1.00	5.0	1673	-	-	66	73	72	-	
6	1705	996.53	0.035	1.00	1.00	5.0	1701	-	-	63	73	73	-	
5	1709	998.73	0.019	1.00	1.00	5.0	1621	-	-	62	73	72	-	
4	1713	1000.79	0.020	1.00	1.00	5.0	1617	-	-	62	73	72	-	
3	1717	1003.62	0.028	1.00	1.00	5.0	1623	-	-	61	74	72	-	
2	1721	1005.32	0.056	1.00	1.00	5.0	1653	-	-	63	74	72	-	
1	1725	1007.28	0.059	1.00	1.00	5.0	1671	-	-	62	74	72	-	
End	1729	1009.274	-	-	-	-	-	-	-	-	-	-	-	
B 8	1730	1009.274	~~0.0~~ 0.065	1.00	1.00	5.0	1716	-	-	66	73	72	-	
7	1734	1011.38	0.052	1.00	1.00	5.0	1727	-	-	64	73	72	-	
6	1738	1013.64	0.066	1.00	1.00	5.0	1841	-	-	63	73	72	-	
5	1742	1016.25	0.064	1.00	1.00	5.0	1751	-	-	63	73	72	-	
4	1746	1018.56	0.067	1.00	1.00	5.0	1753	-	-	63	73	72	-	
3	1750	1020.71	0.040	1.00	1.00	5.0	1736	-	-	64	73	72	-	
2	1754	1022.38	0.036	1.00	1.00	5.0	1711	-	-	64	73	71	-	
1	1758	1024.43	0.039	1.00	1.00	5.0	1721	-	-	65	73	71	-	
End	1802	1026.615	-	-	-	-	-	-	-	-	-	-	-	

C_p Pitot Tube Cal. Factor	0.807	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	-
V_m Volume Collected - cf	34.089 ✓	P_b Barometric Pressure – "Hg	29.87 ✓	Total Volume of leak checks after start – cf		-	
V_w Water Collected - ml	~~62.6~~ ✓	D_n Nozzle Diameter – in.	-	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.643
T_t Time of Test – min.	64 ✓	%CO_2	~~8.0~~ 4.4 DA	%CO	0.0	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.3 ✓	%O_2	~~14.0~~ 16.4 DA	%N_2	~~81.0~~ 79.2 DA	{Dry Gas Meter Reading - ft3 – (Tt - min. X Leak Rate - cfm)}	

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By

Impinger Box No. 52-3

Impinger 1	Final Weight	858.7
	Initial Weight	814.7
	Increase	44.0
Impinger 2	Final Weight	720.4
	Initial Weight	714.3
	Increase	6.1
Impinger 3	Final Weight	686.4
	Initial Weight	682.5
	Increase	3.9
Impinger 4	Final Weight	994.9
	Initial Weight	986.3
	Increase	8.6
Impinger 5	Final Weight	
	Initial Weight	
	Increase	
Impinger 6	Final Weight	
	Initial Weight	
	Increase	
Impinger 7	Final Weight	
	Initial Weight	
	Increase	

Water Weight Gain

Impinger 1	44.0
Impinger 2	6.1
Impinger 3	3.9
Impinger 4	8.6
Impinger 5	
Impinger 6	
Impinger 7	
Total	62.6 = V_w

SO_2 correction (if applicable)

V_w = _____
g SO_2 = -_____
V_w = _____

P_b =	29.87		
V_m =	34.089		
V_w =	62.6		
P_m =	1.000		
Avg ΔP =	0.044		
Avg $\sqrt{\Delta P}$ =	0.2084		
C_p =	0.807		
P_s =	0.3	"H_2O	
T_m =	73	°F	533 °R
T_s =	1699	°F	2159 °R

$\%CO_2$ =	~~5.0~~ 4.4	
$\%O_2$ =	~~14.0~~ 16.4	
%CO =	0.0	
$\%N_2$ =	~~81.0~~ 79.2	
A_s =	471	
D_n =		
T_t =	64	
	29.89	"Hg

Moisture Content: %M = 8.04 M_d = 0.9196 MW_d = 29.360 MW = 28.45

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 34.089 \times \left| \frac{1.000}{\frac{29.87 + 13.6}{73 + 460}} \right| = 33.801 \text{ sft}^3 = 0.528 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 62.6 = 2.955 \text{ sft}^3$$

$$\%\text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.955}{2.955 + 33.801} \times 100 = 8.04\ \%$$

$$V_s = 5123.8 \times 0.2084 \sqrt{\frac{2159}{29.89 \times 28.45}} \times 0.807 = 1351 \text{ fpm}$$

ACFM = ~~9441~~ 3962

SCFM = 996

%EA = ~~187.5~~ 357.5

%I = 1039 x — x — / — x — x — x (—)² = — %

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"Hg}) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Job Number 16-323 Rotometer # Vost metin 10 Probe Length 5'

Job Name Comm Eng. Operator Johnson Sample Point Variable

Bag/Run Number Cond 2 Run 1 Ambient Temp. 84 °F Baro. Pressure P_b 29.87 "Hg

Location Unit 2 Barometer Number 9-2 Source Pressure P_s 0.3 "H_2O

Date 9/27/16

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1422	0.15	1726	—	
1454	0.15	1751	—	
1926	0.15	1754	—	END

AVG Rotometer Reading = 0.15 = 0.15 L/m Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Job Number 16-323
Job Name COMM ENG.
Bag/Run Number Load 2 Run 2
Location Unit 2
Date 9/27/16

Rotometer # VOST Mete 10
Operator Johnson
Ambient Temp. 85 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Variable
Baro. Pressure P_b 29.87 "Hg
Source Pressure P_s 0.3 "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1540	0.15	1855	-	
1612	0.15	1242	-	
1644	0.15	1817	-	END

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = - ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

Job Number 16-323
Job Name Comm Eng.
Bag/Run Number Cond 2 Run 3
Location Unit 2
Date 9/27/16

Rotometer # VOST mtr #10
Operator Johnson
Ambient Temp. 88 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Variable
Baro. Pressure P_b 29.87 "Hg
Source Pressure P_s _____ "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1657	0.15	1650	–	
1729	0.15	1610	–	
1801	0.15	1671	–	END

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = – ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: _____

16-323

Job Number 16-323
Job Name Comm Eng.
Run Number Condition 2 Primary
Date 9/27/16
Canister Number 1649

Rotometer/Orifice # 10.0 cc/min
Operator Johnson
Ambient Temp. 80 °F
Barometer Number 9-2
Initial Leak @ 16.0 "Hg = 0.0 Δ "Hg

Probe Length TAP
Sample Point Unit 2
Purged Sample System ✓
Baro. Pressure P_b 29.87 "Hg
Final Leak @ 16.5 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
1422	–	> 30.0	Start Run 1 Cond 2
~~1524~~ 1520	–	27.5	End Run 1 Cond 2
9/28/16 ~~1540~~ 1540	–	~~29~~ 27.5	Start Run 2 Cond 2
1644	–	24.0	END Run 2 Cond 2
1657	–		Start Run 3 Cond 2
1801	–		END Run 3 Cond 2

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = ~~_____~~ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = ~~_____~~ Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

16-323

Job Number 16-323
Job Name Comm Eng.
Run Number Cond. 2 Secondary
Date
Canister Number 1375

Rotometer/Orifice # 16.2 cc/min
Operator Johnson
Ambient Temp. 80 °F
Barometer Number 9-2
Initial Leak @ 16.5 "Hg = 0.0 Δ "Hg

Probe Length TAP
Sample Point Unit 2
Purged Sample System ✓
Baro. Pressure P_b 29.87 "Hg
Final Leak @ 15.0 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
1422	-	730.0	Start Run 1 Cond 2
1526	-	27.0	End Run 1 Cond 2
1540	-	27.0	Start Run 2 Cond 2
1644	-	24.0	END Run 2 Cond 2
1657	-	24.0	Start Run 3 Cond 2
1801	-		END Run 3 Cond 2

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = — Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

D-23

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	71
Job Name	Comm. Eng.	Balance ID	M9-1	Assumed Moisture - %	-
Run Number	1 @ Cond 3	Check Weight ID	M9-2000-1	Probe Length	55
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	- to reference
Date	9-28-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	Ho / Rios / Johnson	Difference (g)*	0.9	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	- Final ✓	Pitot Tips Damaged during Test?	Yes/No
Purge To (cf):	-	Purge Time	-		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock TIme	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
A 8	0852	26.949	0.035	1.00	1.00	5.0	1655	-	-	66	64	63	✓	
1	0856	29.51	0.070	1.00	1.00	5.0	1604	-	-	65	65	63	-	
6	0900	31.15	0.064	1.00	1.00	5.0	1742	-	-	62	65	63	-	
5	0904	33.43	0.067	1.00	1.00	5.0	1691	-	-	60	66	64	-	
4	0908	35.77	0.017	1.00	1.00	5.0	1650	-	-	58	66	64	-	
3	0912	37.53	0.069	1.00	1.00	5.0	1742	-	-	59	67	65	-	
2	0916	39.85	0.069	1.00	1.00	5.0	1699	✓	-	59	67	65	-	
1	0920	41.77	0.063	1.00	1.00	5.0	1671	✓	-	59	68	65	-	
End	0924	43,773	-	-	-	-	-	✓	-	-	-	-	✓	
B 8	0925	43.773	0.072	1.00	1.00	5.0	1535	-	-	65	69	66	-	
7	0929	45.89	0.070	1.00	1.00	5.0	1543	-	✓	61	69	66	-	
6	0933	47.93	0.072	1.00	1.00	5.0	1644	-	-	60	69	66	-	
5	0937	50.04	0.056	1.00	1.00	5.0	1541	-	-	60	70	67	-	
4	0941	52.45	0.070	1.00	1.00	5.0	1661	-	-	61	70	68	-	
3	0945	54.59	0.068	1.00	1.00	5.0	1521	-	-	61	70	68	-	
2	0949	56.71	0.059	1.00	1.00	5.0	1591	-	-	62	71	68	-	
1	0953	58.76	0.025	1.00	1.00	5.0	1605	-	-	62	71	68	-	
End	0957	61.016	-	-	-	-	-	-	-	-	-	-	-	

C_p Pitot Tube Cal. Factor	0.807 ✓	Pitot Tube #	9-S-2	Barometer #	9-2	Nozzle #	-
V_m Volume Collected - cf	33.522 ✓	P_b Barometric Pressure – "Hg	29.97 ✓	Total Volume of leak checks after start – cf		-	
V_w Water Collected - ml	64.5 ✓	D_n Nozzle Diameter – in.	-	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.067
T_t Time of Test – min.	64 ✓	%CO_2	15.2 DA	%CO	0.0	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.2 ✓	%O_2	14.9 15.2 DA	%N_2	80.9 79.6 DA	{Dry Gas Meter Reading	- ft3 – (Tt - min. X Leak Rate - cfm)]

QA/QC Check Completeness	✓	Legibility	✓	Accuracy	✓	Specification	✓	Reasonableness	✓	Checked By	

Impinger Box No. 52-3

			Water Weight Gain		
Impinger 1	Final Weight	906.5		Impinger 1	47.8
	Initial Weight	858.7			
	Increase	47.8		Impinger 2	5.3
Impinger 2	Final Weight	725.7		Impinger 3	2.0
	Initial Weight	720.4	SO_2 correction (if applicable)		
	Increase	5.3		Impinger 4	9.4
Impinger 3	Final Weight	688.4	V_w =	Impinger 5	
	Initial Weight	686.4	g SO_2 = -		
	Increase	2.0	V_w =	Impinger 6	
Impinger 4	Final Weight	973.7		Impinger 7	
	Initial Weight	964.3			
	Increase	9.4		Total	64.5 ✓ = V_w
Impinger 5	Final Weight				
	Initial Weight		P_b = 29.47 ✓	$\%CO_2$ = ~~4~~ 5.2 IA	
	Increase		V_m = 33.522 ✓	$\%O_2$ = ~~14.4~~ 15.2 IA	
Impinger 6	Final Weight		V_w = 64.5 ✓	%CO = 0.0	
	Initial Weight		P_m = 1.000 ✓	% N_2 = ~~80.9~~ 79.6 IA	
	Increase		Avg ΔP = 0.056 ✓	A_s = 471 ✓	
				D_n = -	
			Avg $\sqrt{\Delta P}$ = ~~0.269~~ 0.232 ✓	T_t = 64 ✓	
Impinger 7	Final Weight		C_p = 0.807 ✓		
	Initial Weight		P_s = 0.2 ✓ "H_2O	29.98 ✓ "Hg	
	Increase		T_m = 67 ✓ °F	527 ✓ °R	
			T_s = 1632 ✓ °F	2092 ✓ °R	

Moisture Content: %M = 8.28 ✓ M_d = 0.9172 ✓ MW_d = ~~29.328~~ 29.44 IA MW = ~~28.39~~ 28.49 IA

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 33.522 \times \left| \frac{1.000}{\frac{29.97 + 13.6}{67 + 460}} \right| = \begin{matrix} 33.730 \checkmark \text{ sft}^3 \\ 0.527 \checkmark \text{ scfm} \end{matrix}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 64.5 = 3.044$ ✓ sft^3

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{3.044}{3.044 + 33.730} \times 100 = 8.28 \checkmark \%$$

$$V_s = 5123.8 \times 0.232 \sqrt{\frac{2092}{29.98 \times 28.39}} \times 0.807 = 1501 \text{ IA fpm}$$

(29.98 × 28.39 = 49 IA)

ACFM = 4919 IA

SCFM = 1145 IA

%EA = 204.6 / 257.9 IA

$$\%I = \frac{1039 \times - \times -}{- \times - \times - \times - \times (-)^2} = - \%$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$ACFM = (V_s \times A_s)/144$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

16-323

D-26

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	74
Job Name	Comm. Eng.	Balance ID	MG-1	Assumed Moisture - %	-
Run Number	2 @ Load. 3	Check Weight ID	MG-2000-1	Probe Length	55
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	- to reference
Date	~~Ha / Rios / Johnson~~ 9-28-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	Ha / Rios / Johnson	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	S2-3 Meter # 9-1	Pitot Leak Check: Initial ✓	Final ✓	Pitot Tips Damaged during Test?	Yes / (No)
Purge To (cf):	-	Purge Time	-		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
B 8	1010	61.351	0.061	1.00	1.00	5.0	1561	-	-	68	70	68	-	
7	1014	63.26	0.043	1.00	1.00	5.0	1605	-	-	64	70	68	-	
6	1018	65.72	0.064	1.00	1.00	5.0	1621	-	-	61	71	69	-	
5	1022	67.52	0.060	1.00	1.00	5.0	1534	-	-	61	72	69	-	
4	1026	69.34	0.059	1.00	1.00	5.0	1541	-	-	63	72	70	-	
3	1030	72.13	0.069	1.00	1.00	5.0	1504	-	-	62	72	70	-	
2	1034	74.73	0.064	1.00	1.00	5.0	1514	-	-	63	73	70	✓	
1	1038	76.37	0.059	1.00	1.00	5.0	1503	-	✓	63	73	70	✓	
End	1042	78.555	-	-	-	-	-	-	-	-	-	-	-	
A 8	1043	78.555	0.052	1.00	1.00	5.0	1683	-	-	66	72	70	-	
7	1047	80.71	0.050	1.00	1.00	5.0	1703	-	✓	64	73	70	✓	
6	1051	83.31	0.026	1.00	1.00	5.0	1682	-	✓	62	73	70	✓	
5	1055	85.47	0.046	1.00	1.00	5.0	1680	-	-	62	73	70	✓	
4	1059	87.18	0.050	1.00	1.00	5.0	1702	-	-	63	74	70	✓	
3	1103	89.53	0.051	1.00	1.00	5.0	1729	✓	-	63	74	70	✓	
2	1107	91.65	0.051	1.00	1.00	5.0	1670	-	-	64	74	71	✓	
1	1111	93.71	0.040	1.00	1.00	5.0	1721	-	-	64	74	71	✓	
End	1115	96.015	-	-	-	-	-	-	-	-	-	-	-	

C_p Pitot Tube Cal. Factor	0.807	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	-
V_m Volume Collected - cf	34.109 ✓	P_b Barometric Pressure – "Hg	30.00 ✓	Total Volume of leak checks after start – cf		-	
V_w Water Collected - ml	57.0 ✓	D_n Nozzle Diameter – in.	-	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.664
T_t Time of Test – min.	64 ✓	%CO_2	4.7 5.8 DA	%CO	0.0 ✓	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.2 ✓	%O_2	14.43 DA	%N_2	80.7 79.9 DA ✓	{Dry Gas Meter Reading	- ft3 – (Tt - min. X Leak Rate - cfm)}

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By

Version 3
April 2013

Impinger Box No. 523

			Water Weight Gain	
Impinger 1	Final Weight	751.0		Impinger 1 33.9
	Initial Weight	717.1		
	Increase	33.9		Impinger 2 10.6
Impinger 2	Final Weight	736.3		Impinger 3 3.7
	Initial Weight	725.7	SO_2 correction (if applicable)	
	Increase	10.6		Impinger 4 8.8
Impinger 3	Final Weight	692.1	V_w =	Impinger 5
	Initial Weight	688.4	g SO_2 = -	
	Increase	3.7	V_w =	Impinger 6
Impinger 4	Final Weight	982.5		Impinger 7
	Initial Weight	973.7		
	Increase	8.8		Total 57.0 = V_w
Impinger 5	Final Weight			
	Initial Weight		P_b = 30.00	%CO_2 = 475.8 RA
	Increase		V_m = 34.109	%O_2 = 14.63 RA
Impinger 6	Final Weight		V_w = 57.0	%CO = 0.0
	Initial Weight		P_m = 1.000	% N_2 = 80.7 79.9 RA
	Increase		Avg ΔP = 0.053	A_s = 471
				D_n = -
			Avg $\sqrt{\Delta P}$ = 0.228	T_t = 604
Impinger 7	Final Weight		C_p = 0.807	
	Initial Weight		P_s = 0.2 "H_2O	30.01 "Hg
	Increase		T_m = 71 °F	531 °R
			T_s = 1628 °F	2088 °R

Moisture Content: %M = 7.31 (50 RA) M_d = 0.9269 MW_d = 29.336 MW = 28.51 (66 RA)

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 34.109 \times \left| \frac{1.000}{30.00 + 13.6} \right| = \frac{34.096}{0.533} \text{ sft}^3 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 57.0 = 2.690 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.690}{2.690 + 34.096} \times 100 = 7.31 \%$$

$$V_s = 5123.8 \times 0.228 \sqrt{\frac{2088}{30.01 \times 28.51 \text{ (66 RA)}}} \times 0.807 = 1473 \text{ (69 RA) fpm}$$

ACFM = 4819 (05 RA)

SCFM = 1137 (4 RA)

$$\%I = \frac{1039 \times - \times -}{- \times - \times - \times - \times (-)^2} = - \%$$

%EA = 215.2 / 208.0 RA

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

16-323

D-28

METCO Environmental

Job Number	16-323	Moisture & Flows	Field Data	Ambient Temperature - °F	80
Job Name	Comm. Eng.	Balance ID	M9-1	Assumed Moisture - %	–
Run Number	3 @ Load 3	Check Weight ID	M9-2000-1	Probe Length	S?
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	– to reference
Date	9-28-16	Measured Mass (g)	1999.9	Initial Leak @	15.0 "Hg = 0.000 cfm
Operator	Ho/ Rios / Johnson	Difference (g)*	0.1	Final Leak @	10.0 "Hg = 0.000 cfm
Sample Box #	S2-3 Meter # 9-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	–	Purge Time	✓		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock TIme	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
A B	1126	96.349	0.015	1.00	1.00	5.0	1603	–	–	69	72	71	–	
7	1130	98.71	0.012	1.00	1.00	5.0	1741	–	–	66	72	71	–	
6	1134	100.39	0.013	1.00	1.00	5.0	1753	–	–	64	72	71	–	
5	1138	102.62	0.025	1.00	1.00	5.0	1761	–	–	63	73	71	–	
4	1142	105.38	0.012	1.00	1.00	5.0	1619	–	–	61	73	71	–	
3	1146	107.13	0.018	1.00	1.00	5.0	1670	–	–	61	73	71	–	
2	1150	109.27	0.012	1.00	1.00	5.0	1692	–	–	62	73	71	–	
1	1154	111.53	0.011	1.00	1.00	5.0	1531	–	–	64	73	71	–	
End	1158	113.315	–	–	–	–	–	–	–	–	–	–	–	
B B	1159	113.315	0.013	1.00	1.00	5.0	1731	–	–	66	73	71	–	
7	1203	115.32	0.021	1.00	1.00	5.0	1602	–	–	66	73	71	–	
6	1207	117.91	0.014	1.00	1.00	5.0	1651	–	–	65	73	71	–	
5	1211	119.76	0.019	1.00	1.00	5.0	1711	–	–	62	73	72	–	
4	1215	121.48	0.015	1.00	1.00	5.0	1682	–	–	61	73	72	–	
3	1219	124.39	0.013	1.00	1.00	5.0	1703	–	–	61	73	72	–	
2	1223	126.31	0.015	1.00	1.00	5.0	1672	–	–	62	73	72	–	
1	1227	128.87	0.014	1.00	1.00	5.0	1681	–	–	63	73	72	–	
End	1231	130.625	–	–	–	–	–	–	–	–	–	–	–	

C_p Pitot Tube Cal. Factor	0.807 ✓	Pitot Tube #	9-5-2	Barometer #	9-2	Nozzle #	–		
V_m Volume Collected - cf	33.728 ✓	P_b Barometric Pressure – "Hg	30.00 ✓	Total Volume of leak checks after start – cf		–			
V_w Water Collected - ml	54.3 ✓	D_n Nozzle Diameter – in	–	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.276		
T_t Time of Test – min.	64 ✓	%CO_2	~~4.7~~ 3.9 M	%CO	0.0 ✓	A_s = Area of Stack – in^2	471 ✓		
P_s Stack Pressure – "H_2O	0.2 ✓	%O_2	~~14.0~~ 17.2 M	%N_2	~~80.1~~ 78.9 M	{Dry Gas Meter Reading	ft3 – (Tt	min. X Leak Rate	cfm)]

QA/QC Check Completeness	✓	Legibility	✓	Accuracy	✓	Specification	✓	Reasonableness	✓	Checked By	

Version 3
April 2013

Impinger Box No. 52-3

			Water Weight Gain	
Impinger 1	Final Weight	786.6		Impinger 1 35.6
	Initial Weight	751.0		
	Increase	35.6		Impinger 2 1.9
Impinger 2	Final Weight	744.2		Impinger 3 3.1
	Initial Weight	736.3	SO_2 correction	
	Increase	7.9	(if applicable)	Impinger 4 7.7
Impinger 3	Final Weight	695.2	V_w =	Impinger 5
	Initial Weight	692.1	g SO_2 = -	
	Increase	3.1	V_w =	Impinger 6
Impinger 4	Final Weight	990.2		Impinger 7
	Initial Weight	982.5		
	Increase	7.7		Total 54.3 = V_w
Impinger 5	Final Weight			
	Initial Weight		P_b = 30.00	$\%CO_2$ = 4.1 3.9 dry
	Increase		V_m = 33.728	$\%O_2$ = 14.6 17.2 dry
Impinger 6	Final Weight		V_w = 54.3	%CO = 0.0
	Initial Weight		P_m = 1.000	% N_2 = 80.1 78.9 dry
	Increase		Avg ΔP = 0.015	A_s = 471
				D_n = -
			Avg $\sqrt{\Delta P}$ = 0.122	T_t = 64
Impinger 7	Final Weight		C_p = 0.807	
	Initial Weight		P_s = 0.2 "H_2O	30.01 "Hg
	Increase		T_m = 72 °F	532 °R
			T_s = 1675 °F	2135 °R

Moisture Content: %M = 7.08 M_d = 0.9292 MW_d = 29.336 MW = 28.58

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 33.728 \times \left| \frac{1.000}{30.00 + 13.6} \right| = \frac{33.652}{0.525} \text{ sft}^3 \text{ scfm}$$

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 54.3 = 2.563 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.563}{2.563 + 33.652} \times 100 = 7.08 \%$$

$$V_s = 5123.8 \times 0.122 \sqrt{\frac{2135}{30.01 \times 28.58}} \times 0.807 = 796 \text{ fpm}$$

ACFM = 2603

SCFM = 607

%EA = 215.2 / 463.8

$$\%I = \frac{1039 \times - \times -}{- \times - \times - \times - \times (-)^2} = ____ \%$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Job Number 16-323
Job Name Comm Eng.
Bag/Run Number Run 1 Cond 3
Location Lafayette LA - Unit 2
Date 9/28/16

Rotometer # Vost mete 1C
Operator Johnson
Ambient Temp. 71 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Variable
Baro. Pressure P_b 29.97 "Hg
Source Pressure P_s 0.2 "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
852	0.15	1655	-	
924	0.15	1670	—	
956	0.15	1605	-	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = ~ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Job Number 16-323 Rotometer # Vost meter 10 Probe Length 5'

Job Name Comm Eng. Operator Johnson Sample Point Variable

Bag/Run Number Run 2 Cond 3 Ambient Temp. 74 °F Baro. Pressure P_b 30.00 "Hg

Location Lafayette Ln - Unit 2 Barometer Number 9-2 Source Pressure P_s 0.2 "H_2O

Date 9/28/16

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1016	0.15	1616	-	
1042	0.15	1588	-	
1114	0.15	1607	-	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = - ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ___ Legibility / Accuracy / Specifications / Reasonableness /

Checked by: [signature]

Version 1
1 February 2008

Job Number 16-323
Job Name Comm Eng
Bag/Run Number Run 3 Cond 3
Location Lafayette LA - Unit 2
Date 9/28/16

Rotometer # VOST mtr 10
Operator Johnson
Ambient Temp. 80 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Variable
Baro. Pressure P_b 30.00 "Hg
Source Pressure P_s 0.2 "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1126	0.15	1612	-	
1158	0.15	1671	-	
1230	0.15	1690	-	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = ~ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

16-323

Job Number 16.323 | Rotometer/Orifice # 10.0 column | Probe Length Tap

Job Name Comm Eng. | Operator Johnson | Sample Point ~~Tap~~ Unit 2

Run Number Primary Can Cond 3 | Ambient Temp. 71 °F | Purged Sample System ✓

Date 9/28/16 | Barometer Number 9-2 | Baro. Pressure P_b 29.97 "Hg

Canister Number 1341 | Initial Leak @ 16.0 "Hg = 0.0 Δ "Hg | Final Leak @ 17.0 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
852	-	> 30.0	start Run 1 Cond 3
956	-	28.0	End Run 1 Cond 3
1010	-	28.0	Start Run 2 Cond 3
1114	-	25.0	End Run 2 Cond 3
1126	-	25.0	Start Run 3 Cond 3
1230	-	22.0	End Run 3 Cond 3

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = ~~_____~~ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = ~~_____~~ Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

D-33

16-323

Job Number 16-323 | Rotometer/Orifice # 10.2 cal min | Probe Length Tap

Job Name Comm Eng. | Operator Johnson | Sample Point Unit 2

Run Number Cond 3 Secondary Canister | Ambient Temp. 71 °F | Purged Sample System ✓

Date 9/28/16 | Barometer Number 9-2 | Baro. Pressure P_b 29.97 "Hg

Canister Number 1591 | Initial Leak @ 15.5 "Hg = 0.0 Δ "Hg | Final Leak @ 15.0 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
852	-	> 30.0	Start Run 1 Cond 3
956	-	29.0	End Run 1 Cond 3
1010	-	29.0	Start Run 2 Cond 3
1114	-	26.0	End Run 2 Cond 3
1126	-	26.0	Start Run 3 Cond 3
1230	-	22.0	End Run 3 Cond 3

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = — Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

16-323

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	-
Job Name	Comm. Eng.	Balance ID	M9-1	Assumed Moisture - %	-
Run Number	1 @ Cond. 4	Check Weight ID	M9-2000-1	Probe Length	5s
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	— to reference
Date	9-28-16	Measured Mass (g)	1999.9	Initial Leak @	15.0 "Hg = 0.000 cfm
Operator	HO / Rios / Johnson	Difference (g)*	0.1	Final Leak @	10.0 "Hg = 0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	— Final ✓	Pitot Tips Damaged during Test?	Yes (No)
Purge To (cf):	✓	Purge Time	✓		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock TIme	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
B 8	1302	130.974	0.003	1.00	1.00	5.0	1527	—	—	69	72	70	—	
7	1306	132.21	0.003	1.00	1.00	5.0	1503	—	—	68	72	70	—	
6	1310	135.85	0.005	1.00	1.00	5.0	1671	—	—	66	72	70	—	
5	1314	137.76	0.007	1.00	1.00	5.0	1598	—	—	64	73	70	—	
4	1318	139.53	0.007	1.00	1.00	5.0	1515	—	—	64	72	70	—	
3	1322	141.91	0.006	1.00	1.00	5.0	1511	—	—	65	73	71	—	
2	1326	144.09	0.013	1.00	1.00	5.0	1603	—	—	64	72	71	—	
1	1330	146.32	0.029	1.00	1.00	5.0	1587	—	—	65	72	71	—	
End	1334	148.344	—	—	—	—	—	—	—	—	—	—	—	
A 8	1334	148.344	0.025	1.00	1.00	5.0	1708	—	—	66	72	70	—	
7	1340	150.76	0.034	1.00	1.00	5.0	1645	—	—	63	72	70	—	
6	1344	152.63	0.034	1.00	1.00	5.0	1647	—	—	61	72	70	—	
5	1348	154.74	0.017	1.00	1.00	5.0	1598	—	—	59	73	70	—	
4	1352	156.81	0.031	1.00	1.00	5.0	1623	—	—	60	73	70	—	
3	1356	158.95	0.015	1.00	1.00	5.0	1650	—	—	61	73	70	—	
2	1400	161.37	0.006	1.00	1.00	5.0	1633	—	—	61	73	70	—	
1	1404	163.52	0.022	1.00	1.00	5.0	1627	—	—	62	73	70	—	
End	1408	165.398	—	—	—	—	—	—	—	—	—	—	—	

C_p Pitot Tube Cal. Factor	0.807	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	—
V_m Volume Collected - cf	33.873 ✓	P_b Barometric Pressure – "Hg	29.97 ✓	Total Volume of leak checks after start – cf		—	
V_w Water Collected - ml	55.9 ✓	D_n Nozzle Diameter – in.	—	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.424
T_t Time of Test – min.	64 ✓	%CO_2	~~3.5~~ 3.5 ✓	%CO	0.0 ✓ 11/15/16	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.2 ✓	%O_2	~~14.9~~ 16.0 ✓	%N_2	~~80.6~~ 80.5 ✓	{Dry Gas Meter Reading	— ft3 – (Tt — min. X Leak Rate — cfm)}

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By

Version 3
April 2013

Impinger Box No. 52-3

Water Weight Gain

Impinger 1	Final Weight	824.6	Impinger 1	38.0
	Initial Weight	786.6		
	Increase	38.0	Impinger 2	5.9
Impinger 2	Final Weight	750.1	Impinger 3	3.5
	Initial Weight	744.2		
	Increase	5.9	Impinger 4	8.4
Impinger 3	Final Weight	698.7	Impinger 5	
	Initial Weight	695.2		
	Increase	3.5	Impinger 6	
Impinger 4	Final Weight	998.6	Impinger 7	
	Initial Weight	990.2		
	Increase	8.4	Total	55.8 = V_w
Impinger 5	Final Weight			
	Initial Weight			
	Increase			
Impinger 6	Final Weight			
	Initial Weight			
	Increase			
Impinger 7	Final Weight			
	Initial Weight			
	Increase			

SO_2 correction (if applicable)

V_w = _____

g SO_2 = -

V_w = _____

P_b = 29.97 ✓ in Hg

V_m = 33.873 ✓ ft³

V_w = 55.8 ✓ ml

P_m = 1.000 ✓

Avg ΔP = 0.016 ✓ in H₂O

Avg $\sqrt{\Delta P}$ = 0.118 ✓

C_p = 0.807 ✓

P_s = 0.2 ✓ "H_2O

T_m = 71 ✓ °F

T_s = 1603 ✓ °F

%CO_2 = ~~45~~ 3.5 ✓ 11/15/16

%O_2 = ~~14.9~~ 16.0 ✓ 11/15/16

%CO = -0.0

% N_2 = 80.65

A_s = 471

D_n = -

T_t = 64 ✓

29.98 ✓ "Hg

531 ✓ °R

2063 ✓ °R

Moisture Content: %M = 7.22 ✓ M_d = 0.9278 ✓ MW_d = 29.~~31~~ 30 ✓ 11/15/16 MW = 28.~~50~~ 39 ✓

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 33.873 \times \left| \frac{1.000}{\frac{29.97 + 13.6}{71 + 460}} \right| = 33.826 \text{ sft}^3 \checkmark \quad 0.529 \text{ scfm} \checkmark$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 55.8 = 2.634$ ✓ sft³

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.634}{2.634 + 33.826} \times 100 = 7.22 \checkmark \%$$

$$V_s = 5123.8 \times 0.118 \sqrt{\frac{2063}{29.98 \times \frac{28.50}{39}}} \times 0.807 = \frac{760}{~~758~~} \checkmark \text{ fpm} \quad 11/15/16$$

ACFM = 2485 ✓ 11/15/16

SCFM = 5974 ✓

%EA = 300.0 ✓ 11/15/16 ~~230.7~~

$$\%I = \frac{1039 \times _ \times _}{_ \times _ \times _ \times _ \times (_)^2} = _ \%$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$ACFM = (V_s \times A_s)/144$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

METCO Environmental

Job Number	16-323	Moisture w/ flows	Field Data	Ambient Temperature - °F	86
Job Name	Comm. Eng.	Balance ID	M9-1	Assumed Moisture - %	–
Run Number	2 @ Cond. 4	Check Weight ID	M9-2000-1	Probe Length	53
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	– to reference
Date	9-28-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	HJ/ Ribs / Johnson	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/(No)
Purge To (cf):	✓	Purge Time	–		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m		
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
A 8	1420	165.764	0.012	1.00	1.00	5.0	1558	–	–	67	73	71	–	
7	1424	167.71	0.015	1.00	1.00	5.0	1541	–	–	64	74	71	–	
6	1428	169.32	0.020	1.00	1.00	5.0	1497	–	–	63	74	72	–	
5	1432	172.56	0.021	1.00	1.00	5.0	1530	–	–	63	75	72	–	
4	1436	174.23	0.019	1.00	1.00	5.0	1603	–	–	62	75	72	–	
3	1440	176.68	0.021	1.00	1.00	5.0	1546	–	–	62	76	72	–	
2	1444	178.98	0.033	1.00	1.00	5.0	1629	–	–	63	76	72	–	
1	1448	180.75	0.035	1.00	1.00	5.0	1501	–	–	63	77	72	–	
End	1452	183.028	–	–	–	–	–	–	–	–	–	–	–	
B 8	1453	183.028	0.022	1.00	1.00	5.0	1531	–	–	65	76	73	–	
7	1457	185.32	0.037	1.00	1.00	5.0	1609	–	–	64	77	74	–	
6	1601	188.32	0.041	1.00	1.00	5.0	1617	–	–	62	77	74	–	
5	1605	189.41	0.021	1.00	1.00	5.0	1535	–	–	62	77	74	–	
4	1609	191.53	0.029	1.00	1.00	5.0	1576	–	–	62	77	74	–	
3	1613	193.72	0.039	1.00	1.00	5.0	1607	–	–	63	77	75	–	
2	1617	195.41	0.012	1.00	1.00	5.0	1623	–	–	63	77	75	–	
1	1621	198.43	0.012	1.00	1.00	5.0	1641	–	–	64	77	75	–	
End	1625	200.019	–	–	–	–	–	–	–	–	–	–	–	

C_p Pitot Tube Cal. Factor	0.807	Pitot Tube #	9.3-2	Barometer #	9-2	Nozzle #	–
V_m Volume Collected - cf	~~59.25~~ 33.707 ✓	P_b Barometric Pressure – "Hg	29.98 ✓	Total Volume of leak checks after start – cf		–	
V_w Water Collected - ml	58.6 ✓	D_n Nozzle Diameter – in.	–	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.255
T_t Time of Test – min.	64 ✓	%CO_2	~~4.4~~ 5.1 Dup	%CO	0.0	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.2 ✓	%O_2	15.1	%N_2	~~80.5~~ 79.8	{Dry Gas Meter Reading	– ft3 – (Tt – min. X Leak Rate – cfm)}
			14.8 CA		NA		

QA/QC Check Completeness ✓ Legibility ✓ Accuracy ✓ Specification ✓ Reasonableness ✓ Checked By ✓

Impinger Box No. 523

			Water Weight Gain	
Impinger 1	Final Weight	845.4		Impinger 1 40.8
	Initial Weight	824.6		
	Increase	40.8		Impinger 2 6.3
Impinger 2	Final Weight	756.4		Impinger 3 3.4
	Initial Weight	750.1	SO_2 correction (if applicable)	
	Increase	6.3		Impinger 4 8.1
Impinger 3	Final Weight	702.1	V_w =	Impinger 5
	Initial Weight	698.7	g SO_2 = -	
	Increase	3.4	V_w =	Impinger 6
Impinger 4	Final Weight	1006.7		Impinger 7
	Initial Weight	998.6		
	Increase	8.1		Total 58.6 = V_w
Impinger 5	Final Weight			
	Initial Weight		P_b = 29.98	%CO_2 = 5.4 RA
	Increase		V_m = 33.707	%O_2 = 14.8 RA
Impinger 6	Final Weight		V_w = 58.6	%CO = 0.0
	Initial Weight		P_m = 1.000	% N_2 = 79.8 RA
	Increase		Avg ΔP = 0.024	A_s = 471
				D_n = -
			Avg $\sqrt{\Delta P}$ = 0.1523 RA	T_t = 64
Impinger 7	Final Weight		C_p = 0.807	
	Initial Weight		P_s = 0.2 "H_2O	29.99 "Hg
	Increase		T_m = 78 RA °F	537 RA °R
			T_s = 1571 °F	2031 °R

Moisture Content: %M = 7.643 RA M_d = 0.92357 RA MW_d = 29.308 (46 RA) MW = 28.458 RA

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{Pb + 13.6} \right| = 17.65 \times 33.707 \times \left| \frac{1.000}{29.99 + 13.6} \right| = \frac{33.420\ (83\ RA)}{0.522} \text{ sft}^3 \text{ scfm}$$

(Tm + 460 = 78 + 460 = 538 RA)

$$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 58.6 = 2.766 \text{ sft}^3$$

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.766}{2.766 + 33.420\ (83\ RA)} \times 100 = 7.643\ RA\ \%$$

$$V_s = 5123.8 \times 0.1523\ RA \sqrt{\frac{2031}{29.99 \times 28.458\ (58\ RA)}} \times 0.807 = 970.4\ RA \text{ fpm}$$

ACFM = 3172 (85 RA)

SCFM = 766 (70 RA) RA

%EA = 2423 / 33.2 RA

$$\%I = \frac{1039 \times - \times -}{- \times - \times - \times - \times (-)^2} = - \%$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$$ACFM = (V_s \times A_s)/144$$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

16-323

METCO Environmental

Job Number	16-323	Moisture w/ Flows	Field Data	Ambient Temperature - °F	86
Job Name	Comm. Eng.	Balance ID	M-1	Assumed Moisture - %	–
Run Number	3 @ Cond. 4	Check Weight ID	M9-2000-1	Probe Length	55
Unit	Unit 2	Actual Mass (g)	2000.0	C Factor	0 – to reference
Date	9-28-16	Measured Mass (g)	1999.9	Initial Leak @ 15.0 "Hg =	0.000 cfm
Operator	Ho/Rios/Johnson	Difference (g)*	0.1	Final Leak @ 10.0 "Hg =	0.000 cfm
Sample Box #	52-3 Meter # 9-1	Pitot Leak Check: Initial	✓ Final ✓	Pitot Tips Damaged during Test?	Yes/No
Purge To (cf):	–	Purge Time	–		

Note: Read and record at the start of each test point

* must be equal to or less than 0.5 g

			ΔP		P_m		T_s					T_m			
Point	Clock Time	Dry Gas Meter (cf)	Pitot "H_2O"	Orifice ΔH "H_2O Desired	Orifice ΔH "H_2O Actual	Pump Vacuum "Hg	Stack Temp. °F	Probe Temp. °F	Oven/ Filter Temp. °F	Effluent Temp. °F	Dry Gas Inlet Temp. °F	Dry Gas Outlet Temp. °F	Aux Temp. °F	Remarks
B 8	1536	200.345	0.027	1.00	1.00	5.0	1531	–	–	69	76	75	–	
7	1540	202.59	0.015	1.00	1.00	5.0	1563	–	✓	66	76	75	–	
6	1544	204.87	0.025	1.00	1.00	5.0	1601	–	✓	63	76	75	–	
5	1548	207.13	0.041	1.00	1.00	5.0	1571	–	✓	61	76	75	–	
4	1552	208.93	0.023	1.00	1.00	5.0	1521	–	✓	61	76	75	✓	
3	1556	211.32	0.020	1.00	1.00	5.0	1609	–	✓	62	76	75	✓	
2	~~1600~~ 1600	213.56	0.018	1.00	1.00	5.0	1623	–	✓	62	77	76	✓	
1	1604	215.73	0.032	1.00	1.00	5.0	1591	–	✓	63	77	76	✓	
End	1608	217.435	–	–	–	–	–	–	–	–	–	–	–	
A 8	1609	217.435	0.026	1.00	1.00	5.0	1553	–	✓	64	76	75	–	
7	1613	219.57	0.033	1.00	1.00	5.0	1573	–	✓	63	76	75	–	
6	1617	221.93	0.033	1.00	1.00	5.0	1589	–	✓	62	77	75	–	
5	1621	223.73	0.022	1.00	1.00	5.0	1621	–	✓	62	76	75	–	
4	1625	225.93	0.019	1.00	1.00	5.0	1605	✓	✓	63	76	75	–	
3	1629	228.49	0.035	1.00	1.00	5.0	1573	–	✓	63	76	75	–	
2	1633	230.78	0.019	1.00	1.00	5.0	1627	–	✓	64	76	75	–	
1	1637	232.60	0.018	1.00	1.00	5.0	1543	–	✓	64	76	75	–	
End	1641	234.534	–	–	–	–	–	✓	✓	–	–	–	–	

C_p Pitot Tube Cal. Factor	0.807	Pitot Tube #	9-3-2	Barometer #	9-2	Nozzle #	–
V_m Volume Collected - cf	33.439 42 124	P_b Barometric Pressure – "Hg	29.92 ✓	Total Volume of leak checks after start – cf		–	
V_w Water Collected - ml	58.5 ✓	D_n Nozzle Diameter – in.	–	V_m = (DGM Cal Factor)	0.984 ✓	x (Net Volume Collected)	34.185 9 124
T_t Time of Test – min.	64 ✓	%CO_2	~~4.4~~ 3.9	%CO	0.0 ✓ 11/15/16	A_s = Area of Stack – in^2	471 ✓
P_s Stack Pressure – "H_2O	0.2 ✓	%O_2	15.64	%N_2	80.47	{Dry Gas Meter Reading	– ft3 – (Tt – min. X Leak Rate – cfm)]

QA/QC Check Completeness	✓	Legibility	✓	Accuracy	✓	Specification	✓	Reasonableness	✓	Checked By	

D-39

Version 3
April 2013

Impinger Box No. 52-3

Impinger 1	Final Weight	904.7
	Initial Weight	865.4
	Increase	39.3
Impinger 2	Final Weight	763.7
	Initial Weight	756.4
	Increase	7.3
Impinger 3	Final Weight	705.0
	Initial Weight	702.1
	Increase	2.9
Impinger 4	Final Weight	1003.6
	Initial Weight	994.6
	Increase	9.0
Impinger 5	Final Weight	
	Initial Weight	
	Increase	
Impinger 6	Final Weight	
	Initial Weight	
	Increase	
Impinger 7	Final Weight	
	Initial Weight	
	Increase	

Water Weight Gain

Impinger 1	39.3
Impinger 2	7.3
Impinger 3	2.9
Impinger 4	9.0
Impinger 5	
Impinger 6	
Impinger 7	
Total	58.5 = V_w

SO_2 correction (if applicable)

V_w = _____
g SO_2 = _____
V_w = _____

P_b =	29.92		
V_m =	33.638	42 mA	
V_w =	58.5		
P_m =	1.000		
Avg ΔP =	0.025		
Avg $\sqrt{\Delta P}$ =	0.157		
C_p =	0.807		
P_s =	0.2	"H_2O	
T_m =	76	°F	536 °R
T_s =	1501	°F	2041 °R

$\%CO_2$ =	~~4.4~~ 3.9	
$\%O_2$ =	~~15.0~~ 15.4	
%CO =	0.0	11/15/16
% N_2 =	~~80.67~~	
A_s =	471	
D_n =	—	
T_t =	64	

29.93 "Hg

Moisture Content: %M = 7.67 M_d = 0.9233 MW_d = ~~29.304~~ 29.240 11/15/16 MW = 28.44 (38)

$$Vm_{std} = 17.65 \times V_m \left| \frac{Pm}{\frac{Pb + 13.6}{Tm + 460}} \right| = 17.65 \times 33.638 \times \left| \frac{1.000}{\frac{29.92 + 13.6}{76 + 460}} \right| = \frac{33.223}{0.519} \text{ sft}^3 \text{ (7pt)} \text{ scfm}$$

$Vw_{gas} = 0.0472 \times V_w = 0.0472 \times 58.5 = 2.761$ sft³

$$\% \text{ Moisture} = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \frac{2.761}{2.761 + 33.223} \times 100 = 7.67 \%$$

(6pt) 11/15/16

$$V_s = 5123.8 \times 0.157 \sqrt{\frac{2041}{29.93 \times 28.44 \text{ (38)}}} \times 0.807 = \text{~~1005~~} \text{ fpm}$$

ACFM = ~~3288~~ 3291 11/8/16

SCFM = ~~789~~

%EA = ~~235.9~~ / 257.3 11/15/16

$$\%I = \frac{1039 \times _ \times _}{_ \times _ \times _ \times _ \times (_ - _)^2} = _ \%$$

$$V_s = 5123.8 \times \text{Avg } \sqrt{\Delta P} \times \sqrt{\frac{Ts(R)}{Ps(\text{"}Hg) \times MW}} \times C_p = \text{fpm}$$

$ACFM = (V_s \times A_s)/144$

$$SCFM = \frac{0.123 \times V_s \times A_s \times M_d \times P_s}{T_s}$$

$$\%I = \frac{1039 \times Vm_{std} \times T_s(^\circ R)}{P_s(\text{"}Hg) \times M_d \times V_s \times T_t \times (D_n)^2}$$

Job Number 16-323
Job Name Comm Eng.
Bag/Run Number Run 1 Cond 4
Location Unit 2
Date 9/28/16

Rotometer # Vost meter 10
Operator Johnson
Ambient Temp. 81 °F
Barometer Number 9-2

Probe Length 5'
Sample Point ~~Unit 2~~ TKY 9/28/16 Variable
Baro. Pressure P_b 29.97 "Hg
Source Pressure P_s 0.2 "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1302	0.15	1631	-	
1334	0.15	1611	-	
1406	0.15	1627	-	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = - ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: [signature]

16-323

Job Number 16-323
Job Name Comm Eng.
Bag/Run Number Run 2 Cond 4
Location Unit 2
Date 9/28/16

Rotometer # VEST meter 10
Operator Johnson
Ambient Temp. 85 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Vaisala
Baro. Pressure P_b 29.98 "Hg
Source Pressure P_s _____ "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1920	0.15	1625	–	
1452	0.15	1619	–	
1524	0.15	1633	–	END

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = – ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Version 1
1 February 2008

Job Number 16-323
Job Name Comm Eng
Bag/Run Number Run 3 Condy
Location Unit 2
Date 9/28/11

Rotometer # VOST meter 10
Operator Johnson
Ambient Temp. 86 °F
Barometer Number 9-2

Probe Length 5'
Sample Point Variable
Baro. Pressure P_b 29.92 "Hg
Source Pressure P_s 0.2 "H_2O

METHOD 18 FIELD DATA (Bag Sample)

CLOCK TIME	ROTOMETER READING	SOURCE TEMP. °F	PROBE TEMP. °F	REMARKS
1536	0.15	1642	—	
TM 9/28/11 1608	0.15	1633	—	
1640	0.15	1637	—	

AVG Rotometer Reading = 0.15 = 0.15 L/m

Collected Condensate + Rinse = — ml

$Volume_{TOTAL}$ = L/m x T_t (min) = 0.15 x 64 = 9.6 Liters

QA/QC Check
Completeness ___ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

Version 1
1 February 2008

16-323

Job Number 16-323 | Rotometer/Orifice # 10.0 cc/min | Probe Length Tap

Job Name Comm Eng. | Operator Johnson | Sample Point Unit 2

Run Number ~~to~~ Primary Can Cond 4 | Ambient Temp. 81 °F | Purged Sample System ✓

Date 9/28/16 | Barometer Number 9-2 | Baro. Pressure P_b 29.97 "Hg

Canister Number 1111 | Initial Leak @ 15.0 "Hg = 0.6 Δ "Hg | Final Leak @ 16.5 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
1302	~~0.15~~ T1 9/28/16	> 30.0	Start Run 1 Cond 4
1406	–	29.0	End Run 1 Cond 4
1420	–	29.0	Start Run 2 Cond 4
1524	–	25.0	End Run 2 Cond 4
1536	–	25.0	Start Run 3 Cond 4
1640	–	21.0	End Run 3 Cond 4

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = ~ _____ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = ~ _____ Liters

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness /

D-44

Job Number 16-323
Job Name Comm Eng
Run Number Secondary Cap. Cond 4
Date 9/28/16
Canister Number 1122

Rotometer/Orifice # 10.2 cc/min
Operator Johnson
Ambient Temp. 81 °F
Barometer Number 9-2
Initial Leak @ 16.0 "Hg = 0.0 Δ "Hg

Probe Length Tap
Sample Point Unit 2
Purged Sample System ✓
Baro. Pressure P_b 29.97 "Hg
Final Leak @ 17.0 "Hg = 0.0 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
1302	-	730.0	Start Run 1 Cond 4
1406	—	29.0	End Run 1 Cond 4
1420	—	29.0	Start Run 2 Cond 4
1524	-	26.0	End Run 2 Cond 4
1536	-	26.0	Start Run 3 Cond 4
1640	—	22.0	End Run 3 Cond 4

AVG Rotometer Reading = _____ = _____ L/m or Orifice Value = _____ L/m Collected Condensate + Rinse = ~ ml

$Volume_{TOTAL}$ = L/m x T_t (min) = _____ x _____ = ~ Liters

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

APPENDIX E

Analytical Data

METCO Environmental

3226 Commander Drive
Carrollton, TX 75006

Comm Engineering
Lafayette, LA
Unit 2
Client # 16-323

Analytical Report
(0816-140AR)

EPA Method 3C
Hydrogen, Oxygen, Nitrogen, Carbon monoxide, Methane, Carbon dioxide

EPA Method 18-Type
Methane, Ethane, Propane, Butane, Pentane, Hexane, Benzene, Propylene
Others as Cx Compounds
Total Volatile Organic Compounds reported as Propylene

ASTM D1946-90
Hydrogen, Oxygen, Nitrogen, Carbon monoxide, Methane, Carbon dioxide

Btu and Mixed Molecular Weight Determinations

ENTHALPY ANALYTICAL

Enthalpy Analytical, Inc.
Phone: (919) 850 - 4392 / Fax: (919) 850 - 9012 / www.enthalpy.com
800-1 Capitola Drive Durham, NC 27713-4385

I certify that to the best of my knowledge all analytical data presented in this report:

- Have been checked for completeness
- Are accurate, error-free, and legible
- Have been conducted in accordance with approved protocol, and that all deviations and analytical problems are summarized in the appropriate narrative(s)

This analytical report was prepared in Portable Document Format (.PDF) and contains 580 pages.

Kristen H Bounds

QA Reviewed by – Kristen H. Bounds

Report Issued: 11/04/2016

ENTHALPY
ANALYTICAL

Summary of Results

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 Mixed Molecular Weight Calculations

Client No.: 16-323

Units	Sample ID / Mixed Molecular Weight		
	Unit 2-R1C1 bag	***Unit 2-R1C2 bag***	***Unit 2-R1C3 bag***
g/mole	29.5	29.6	29.4
	Unit 2-R1C4 bag	***Unit 2-R2C1 bag***	***Unit 2-R2C2 bag***
g/mole	29.2	29.5	29.6
	Unit 2-R2C3 bag	***Unit 2-R2C4 bag***	***Unit 2-R3C1 bag***
g/mole	29.5	29.5	29.4
	Unit 2-R3C2 bag	***Unit 2-R3C3 bag***	***Unit 2-R3C4 bag***
g/mole	29.4	29.3	29.2

Mixed Molecular Weight results are all normalized to exactly 100% total gasses from the measured totals.

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Summary Table

Compound Sample Name	Hydrogen Sample Conc (%)	Oxygen Sample Conc (%)	Nitrogen Sample Conc (%)	Carbon monoxide Sample Conc (%)	Methane Sample Conc (%)	Carbon Dioxide Sample Conc (%)
Unit 2-R1C1 bag	0.0360 ND	13.6	73.5	0.0380 ND	0.0310 ND	5.03
Unit 2-R1C2 bag	0.0360 ND	12.3	73.9	0.0380 ND	0.0310 ND	5.83
Unit 2-R1C3 bag	0.0360 ND	14.1	73.8	0.0380 ND	0.0310 ND	4.81
Unit 2-R1C4 bag	0.0360 ND	14.8	74.3	0.0380 ND	0.0310 ND	3.19
Unit 2-R2C1 bag	0.0360 ND	13.8	72.9	0.0380 ND	0.0310 ND	4.79
Unit 2-R2C2 bag	0.0360 ND	12.4	73.6	0.0380 ND	0.0310 ND	5.72
Unit 2-R2C3 bag	0.0360 ND	13.1	73.3	0.0380 ND	0.0310 ND	5.30
Unit 2-R2C4 bag	0.0360 ND	13.4	72.5	0.0380 ND	0.0310 ND	4.91
Unit 2-R3C1 bag	0.0360 ND	15.2	72.4	0.0380 ND	0.0310 ND	3.92
Unit 2-R3C2 bag	0.0360 ND	15.3	73.8	0.0380 ND	0.0310 ND	4.08
Unit 2-R3C3 bag	0.0360 ND	16.0	73.2	0.0380 ND	0.0310 ND	3.62
Unit 2-R3C4 bag	0.0360 ND	14.4	75.5	0.0380 ND	0.0310 ND	3.63

Company	METCO Environmental
Analyst	NBT
Parameters	Btu & Mixed Molecular Wt.

Client #	16-323
Job #	0816-140
# Samples	4 Canisters

Units	Sample ID / Net Heating Value / Mixed Molecular Weight			
	U2-C1-Primary Can1648	***U2-C2-Primary Can1649***	***U2-C3-Primary Can1341***	***U2-C4-Primary Can1111***
Btu/SCF	1,701	2,108	2,081	1,993
g/mole	41.7	41.8	41.8	41.1

Mixed Molecular Weight results are all normalized to exactly 100% total gasses from the measured totals.

Btu/SCF values have been normalized down to exactly 100% total gasses from the measured values for samples with total gasses measuring >100%.

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Summary Table

Sample Name Compound	U2-C1-Primary Can1648 Sample Conc (ppm)	U2-C2-Primary Can1649 Sample Conc (ppm)	U2-C3-Primary Can1341 Sample Conc (ppm)	U2-C4-Primary Can1111 Sample Conc (ppm)
Methane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
Ethane	32.1 J	32.1 J	29.0 J	28.1 J
C2 as Ethane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
Propane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
C3 as Propane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
Butane	1,283	1,366	1,229	1,172
C4 as Butane	68.0	103	99.6	82.0
Pentane	4.39 ND	3.80 ND	3.94 ND	3.75 ND
C5 as Pentane	4.39 ND	3.80 ND	3.94 ND	3.75 ND
Hexane	4.31 ND	3.73 ND	3.86 ND	3.68 ND
C6 as Hexane	4.31 ND	3.73 ND	3.86 ND	3.68 ND
Benzene	1.69 ND	1.46 ND	1.51 ND	1.44 ND
Propylene	789,457	982,847	966,078	925,240
TVOC as Propylene	792,543	986,695	969,689	928,799

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1946-90 Canister Analysis

Client No.: 16-323

Summary Table

Sample Name Compound	U2-C1-Primary Can1648 Sample Conc (%)	U2-C2-Primary Can1649 Sample Conc (%)	U2-C3-Primary Can1341 Sample Conc (%)	U2-C4-Primary Can1111 Sample Conc (%)
Hydrogen	0.727 ND	0.629 ND	0.652 ND	0.622 ND
Oxygen	0.652 J	0.439 J	2.13 J	1.39 J
Nitrogen	2.18 J	1.54 J	4.80 J	5.87
Carbon monoxide	0.324 ND	0.280 ND	0.290 ND	0.277 ND
Carbon Dioxide	0.463 ND	0.401 ND	0.415 ND	0.396 ND

Results

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 Mixed Molecular Weight Calculations

Client No.: 16-323

Sample ID	Analyte	MW	Mol. %
Unit 2-R1C1 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	13.6
	Nitrogen	28.0	73.5
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	5.03
	Total Mixed MW		**29.5**
	% Total Gasses		**92.2**

Sample ID	Analyte	MW	Mol. %
Unit 2-R1C2 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	12.3
	Nitrogen	28.0	73.9
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	5.83
	Total Mixed MW		**29.6**
	% Total Gasses		**92.0**

Sample ID	Analyte	MW	Mol. %
Unit 2-R1C3 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	14.1
	Nitrogen	28.0	73.8
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	4.81
	Total Mixed MW		**29.4**
	% Total Gasses		**92.8**

Sample ID	Analyte	MW	Mol. %
Unit 2-R1C4 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	14.8
	Nitrogen	28.0	74.3
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	3.19
	Total Mixed MW		**29.2**
	% Total Gasses		**92.2**

Sample ID	Analyte	MW	Mol. %
Unit 2-R2C1 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	13.8
	Nitrogen	28.0	72.9
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	4.79
	Total Mixed MW		**29.5**
	% Total Gasses		**91.5**

Sample ID	Analyte	MW	Mol. %
Unit 2-R2C2 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	12.4
	Nitrogen	28.0	73.6
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	5.72
	Total Mixed MW		**29.6**
	% Total Gasses		**91.7**

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 Mixed Molecular Weight Calculations

Client No.: 16-323

Sample ID	Analyte	MW	Mol. %
Unit 2-R2C3 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	13.1
	Nitrogen	28.0	73.3
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	5.30
	Total Mixed MW		**29.5**
	% Total Gasses		**91.7**

Sample ID	Analyte	MW	Mol. %
Unit 2-R2C4 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	13.4
	Nitrogen	28.0	72.5
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	4.91
	Total Mixed MW		**29.5**
	% Total Gasses		**90.8**

Sample ID	Analyte	MW	Mol. %
Unit 2-R3C1 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	15.2
	Nitrogen	28.0	72.4
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	3.92
	Total Mixed MW		**29.4**
	% Total Gasses		**91.4**

Sample ID	Analyte	MW	Mol. %
Unit 2-R3C2 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	15.3
	Nitrogen	28.0	73.8
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	4.08
	Total Mixed MW		**29.4**
	% Total Gasses		**93.2**

Sample ID	Analyte	MW	Mol. %
Unit 2-R3C3 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	16.0
	Nitrogen	28.0	73.2
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	3.62
	Total Mixed MW		**29.3**
	% Total Gasses		**92.9**

Sample ID	Analyte	MW	Mol. %
Unit 2-R3C4 bag	Hydrogen	2.02	0.00
	Oxygen	32.0	14.4
	Nitrogen	28.0	75.5
	Carbon monoxide	28.0	0.00
	Methane	16.0	0.00
	Carbon dioxide	44.0	3.63
	Total Mixed MW		**29.2**
	% Total Gasses		**93.5**

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (%)	Conc #2 (%)	Conc #3 (%)	%dif conc	DF	Avg Conc (%)	Flag
Hydrogen																		
Unit 2-R1C1 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R1C2 bag	003F0301.D	003F0302.D	003F0303.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R1C3 bag	006F0401.D	006F0402.D	006F0403.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R1C4 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R2C1 bag	007F0501.D	007F0502.D	007F0503.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R2C2 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R2C3 bag	007F0701.D	007F0702.D	007F0703.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R2C4 bag	004F1201.D	004F1202.D	004F1203.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R3C1 bag	003F0101.D	003F0102.D	003F0103.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R3C2 bag	005F0301.D	005F0302.D	005F0303.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R3C3 bag	008F0501.D	008F0502.D	008F0503.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND
Unit 2-R3C4 bag	006F0501.D	006F0502.D	006F0503.D	BETTYP348_FGA_CRYO.M	0.310	28.5	0.0360	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	1	0.0360	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (%)	Conc #2 (%)	Conc #3 (%)	%dif conc	DF	Avg Conc (%)	Flag
Oxygen																		
Unit 2-R1C1 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.80	8.80	8.80	0.0	13.6	13.6	13.6	0.1	1	13.6	
Unit 2-R1C2 bag	003F0301.D	003F0302.D	003F0303.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.81	8.81	8.81	0.0	12.2	12.3	12.4	0.9	1	12.3	
Unit 2-R1C3 bag	006F0401.D	006F0402.D	006F0403.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.81	8.81	8.81	0.0	14.1	14.1	14.2	0.4	1	14.1	
Unit 2-R1C4 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.78	8.78	8.78	0.0	14.5	14.7	15.0	2.0	1	14.8	
Unit 2-R2C1 bag	007F0501.D	007F0502.D	007F0503.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.79	8.79	8.79	0.0	13.8	13.8	13.9	0.7	1	13.8	
Unit 2-R2C2 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.81	8.81	8.81	0.0	12.5	12.4	12.4	0.4	1	12.4	
Unit 2-R2C3 bag	007F0701.D	007F0702.D	007F0703.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.80	8.80	8.80	0.0	13.0	13.2	13.1	0.8	1	13.1	
Unit 2-R2C4 bag	004F1201.D	004F1202.D	004F1203.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.80	8.80	8.80	0.0	13.4	13.4	13.5	0.4	1	13.4	
Unit 2-R3C1 bag	003F0101.D	003F0102.D	003F0103.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.78	8.78	8.78	0.0	15.1	15.1	15.3	0.9	1	15.2	
Unit 2-R3C2 bag	005F0301.D	005F0302.D	005F0303.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.80	8.80	8.80	0.0	15.3	15.2	15.4	0.6	1	15.3	
Unit 2-R3C3 bag	008F0501.D	008F0502.D	008F0503.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.79	8.79	8.79	0.0	16.0	16.0	16.1	0.4	1	16.0	
Unit 2-R3C4 bag	006F0501.D	006F0502.D	006F0503.D	BETTYP348_FGA_CRYO.M	0.544	100	0.0544	8.78	8.78	8.78	0.0	14.4	14.4	14.6	0.9	1	14.4	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (%)	Conc #2 (%)	Conc #3 (%)	%dif conc	DF	Avg Conc (%)	Flag
Nitrogen																		
Unit 2-R1C1 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.59	9.60	9.60	0.0	73.3	73.7	73.5	0.3	1	73.5	
Unit 2-R1C2 bag	003F0301.D	003F0302.D	003F0303.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.59	9.59	9.60	0.0	73.5	74.0	74.4	0.6	1	73.9	
Unit 2-R1C3 bag	006F0401.D	006F0402.D	006F0403.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.62	9.62	9.61	0.0	73.7	73.9	74.0	0.2	1	73.8	
Unit 2-R1C4 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.59	9.59	9.58	0.0	73.5	74.3	75.1	1.1	1	74.3	
Unit 2-R2C1 bag	007F0501.D	007F0502.D	007F0503.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.59	9.59	9.59	0.0	72.6	72.6	73.4	0.8	1	72.9	
Unit 2-R2C2 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.59	9.60	9.59	0.1	73.8	73.3	73.6	0.4	1	73.6	
Unit 2-R2C3 bag	007F0701.D	007F0702.D	007F0703.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.60	9.60	9.59	0.0	72.8	73.8	73.3	0.7	1	73.3	
Unit 2-R2C4 bag	004F1201.D	004F1202.D	004F1203.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.59	9.60	9.60	0.0	72.4	72.5	72.6	0.2	1	72.5	
Unit 2-R3C1 bag	003F0101.D	003F0102.D	003F0103.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.60	9.60	9.60	0.0	72.0	72.3	72.8	0.6	1	72.4	
Unit 2-R3C2 bag	005F0301.D	005F0302.D	005F0303.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.61	9.62	9.62	0.0	74.1	73.4	74.0	0.6	1	73.8	
Unit 2-R3C3 bag	008F0501.D	008F0502.D	008F0503.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.62	9.62	9.61	0.0	73.1	73.1	73.5	0.4	1	73.2	
Unit 2-R3C4 bag	006F0501.D	006F0502.D	006F0503.D	BETTYP348_FGA_CRYO.M	0.380	99.9	0.0380	9.58	9.58	9.58	0.0	75.2	75.5	75.7	0.3	1	75.5	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (%)	Conc #2 (%)	Conc #3 (%)	%dif conc	DF	Avg Conc (%)	Flag
Carbon monoxide																		
Unit 2-R1C1 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R1C2 bag	003F0301.D	003F0302.D	003F0303.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R1C3 bag	006F0401.D	006F0402.D	006F0403.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R1C4 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R2C1 bag	007F0501.D	007F0502.D	007F0503.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R2C2 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R2C3 bag	007F0701.D	007F0702.D	007F0703.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R2C4 bag	004F1201.D	004F1202.D	004F1203.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R3C1 bag	003F0101.D	003F0102.D	003F0103.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R3C2 bag	005F0301.D	005F0302.D	005F0303.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R3C3 bag	008F0501.D	008F0502.D	008F0503.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND
Unit 2-R3C4 bag	006F0501.D	006F0502.D	006F0503.D	BETTYP348_FGA_CRYO.M	0.380	10.0	0.0380	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	1	0.0380	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (%)	Conc #2 (%)	Conc #3 (%)	%dif conc	DF	Avg Conc (%)	Flag
Methane																		
Unit 2-R1C1 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R1C2 bag	003F0301.D	003F0302.D	003F0303.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R1C3 bag	006F0401.D	006F0402.D	006F0403.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R1C4 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R2C1 bag	007F0501.D	007F0502.D	007F0503.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R2C2 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R2C3 bag	007F0701.D	007F0702.D	007F0703.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R2C4 bag	004F1201.D	004F1202.D	004F1203.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R3C1 bag	003F0101.D	003F0102.D	003F0103.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R3C2 bag	005F0301.D	005F0302.D	005F0303.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R3C3 bag	008F0501.D	008F0502.D	008F0503.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND
Unit 2-R3C4 bag	006F0501.D	006F0502.D	006F0503.D	BETTYP348_FGA_CRYO.M	0.310	8.00	0.0310	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	1	0.0310	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc #1 (%)	Conc #2 (%)	Conc #3 (%)	%dif conc	DF	Avg Conc (%)	Flag
Carbon Dioxide																		
Unit 2-R1C1 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.47	19.47	19.47	0.0	5.02	5.04	5.03	0.3	1	5.03	
Unit 2-R1C2 bag	003F0301.D	003F0302.D	003F0303.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.46	19.46	19.46	0.0	5.78	5.86	5.86	0.9	1	5.83	
Unit 2-R1C3 bag	006F0401.D	006F0402.D	006F0403.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.48	19.48	19.48	0.0	4.80	4.81	4.81	0.3	1	4.81	
Unit 2-R1C4 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.51	19.50	19.50	0.0	3.20	3.18	3.19	0.3	1	3.19	
Unit 2-R2C1 bag	007F0501.D	007F0502.D	007F0503.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.47	19.47	19.47	0.0	4.77	4.77	4.82	0.7	1	4.79	
Unit 2-R2C2 bag	004F0401.D	004F0402.D	004F0403.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.46	19.46	19.46	0.0	5.76	5.71	5.70	0.6	1	5.72	
Unit 2-R2C3 bag	007F0701.D	007F0702.D	007F0703.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.47	19.46	19.46	0.0	5.27	5.32	5.30	0.5	1	5.30	
Unit 2-R2C4 bag	004F1201.D	004F1202.D	004F1203.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.47	19.47	19.47	0.0	4.90	4.91	4.93	0.3	1	4.91	
Unit 2-R3C1 bag	003F0101.D	003F0102.D	003F0103.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.49	19.49	19.49	0.0	3.92	3.91	3.93	0.3	1	3.92	
Unit 2-R3C2 bag	005F0301.D	005F0302.D	005F0303.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	4.10	4.04	4.09	0.8	1	4.08	
Unit 2-R3C3 bag	008F0501.D	008F0502.D	008F0503.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.50	19.50	19.50	0.0	3.63	3.61	3.63	0.3	1	3.62	
Unit 2-R3C4 bag	006F0501.D	006F0502.D	006F0503.D	BETTYP348_FGA_CRYO.M	0.544	10.0	0.0544	19.49	19.49	19.49	0.0	3.60	3.67	3.61	1.1	1	3.63	

Company	METCO Environmental
Analyst	NBT
Parameters	Btu & Mixed Molecular Wt.

Client #	16-323
Job #	0816-140
# Samples	4 Canisters

Sample ID	Analyte	MW	Mol. %	Btu/lb	Btu/SCF
U2-C1-Primary Can1648	Hydrogen	2.02	0.00	51,571	0.00
	Oxygen	32.0	0.652	0.00	0.00
	Nitrogen	28.0	2.18	0.00	0.00
	Carbon monoxide	28.0	0.00	4,344	0.00
	Carbon dioxide	44.0	0.00	0.00	0.00
	Methane	16.0	0.00	21,502	0.00
	Ethane	30.1	0.00321	20,416	0.0512
	C2	30.1	0.00	20,416	0.00
	Propane	44.1	0.00	19,929	0.00
	C3	44.1	0.00	19,929	0.00
	Butane	58.1	0.128	19,665	3.80
	C4	58.1	0.00680	19,665	0.202
	Pentane	72.1	0.00	19,499	0.00
	C5	72.1	0.00	19,499	0.00
	Hexane	86.2	0.00	19,391	0.00
	C6	86.2	0.00	19,391	0.00
	Propylene	42.1	78.9	19,683	1,697
	Total Mixed MW		**41.7**	**Total**	**1,701**
	% Total Gasses		**81.9**		

Sample ID	Analyte	MW	Mol. %	Btu/lb	Btu/SCF
U2-C2-Primary Can1649	Hydrogen	2.02	0.00	51,571	0.00
	Oxygen	32.0	0.439	0.00	0.00
	Nitrogen	28.0	1.54	0.00	0.00
	Carbon monoxide	28.0	0.00	4,344	0.00
	Carbon dioxide	44.0	0.00	0.00	0.00
	Methane	16.0	0.00	21,502	0.00
	Ethane	30.1	0.00321	20,416	0.0511
	C2	30.1	0.00	20,416	0.00
	Propane	44.1	0.00	19,929	0.00
	C3	44.1	0.00	19,929	0.00
	Butane	58.1	0.137	19,665	4.05
	C4	58.1	0.0103	19,665	0.306
	Pentane	72.1	0.00	19,499	0.00
	C5	72.1	0.00	19,499	0.00
	Hexane	86.2	0.00	19,391	0.00
	C6	86.2	0.00	19,391	0.00
	Propylene	42.1	98.3	19,683	2,113
	Total Mixed MW		**41.8**	**Total**	**2,108**
	% Total Gasses		**100**		

Sample ID	Analyte	MW	Mol. %	Btu/lb	Btu/SCF
U2-C3-Primary Can1341	Hydrogen	2.02	0.00	51,571	0.00
	Oxygen	32.0	0.432	0.00	0.00
	Nitrogen	28.0	1.50	0.00	0.00
	Carbon monoxide	28.0	0.00	4,344	0.00
	Carbon dioxide	44.0	0.00	0.00	0.00
	Methane	16.0	0.00	21,502	0.00
	Ethane	30.1	0.00290	20,416	0.0463
	C2	30.1	0.00	20,416	0.00
	Propane	44.1	0.00	19,929	0.00
	C3	44.1	0.00	19,929	0.00
	Butane	58.1	0.123	19,665	3.65
	C4	58.1	0.00996	19,665	0.295
	Pentane	72.1	0.00	19,499	0.00
	C5	72.1	0.00	19,499	0.00
	Hexane	86.2	0.00	19,391	0.00
	C6	86.2	0.00	19,391	0.00
	Propylene	42.1	96.6	19,683	2,077
	Total Mixed MW		**41.8**	**Total**	**2,081**
	% Total Gasses		**98.7**		

Sample ID	Analyte	MW	Mol. %	Btu/lb	Btu/SCF
U2-C4-Primary Can1111	Hydrogen	2.02	0.00	51,571	0.00
	Oxygen	32.0	1.39	0.00	0.00
	Nitrogen	28.0	5.87	0.00	0.00
	Carbon monoxide	28.0	0.00	4,344	0.00
	Carbon dioxide	44.0	0.00	0.00	0.00
	Methane	16.0	0.00	21,502	0.00
	Ethane	30.1	0.00281	20,416	0.0448
	C2	30.1	0.00	20,416	0.00
	Propane	44.1	0.00	19,929	0.00
	C3	44.1	0.00	19,929	0.00
	Butane	58.1	0.117	19,665	3.48
	C4	58.1	0.00820	19,665	0.243
	Pentane	72.1	0.00	19,499	0.00
	C5	72.1	0.00	19,499	0.00
	Hexane	86.2	0.00	19,391	0.00
	C6	86.2	0.00	19,391	0.00
	Propylene	42.1	92.5	19,683	1,989
	Total Mixed MW		**41.1**	**Total**	**1,993**
	% Total Gasses		**99.9**		

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Methane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,060	0.500	NA	NA	NA	NA	8.526	0.500	0.500	0.500	0.0	0.500	4.26	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,060	0.500	NA	NA	NA	NA	7.378	0.500	0.500	0.500	0.0	0.500	3.69	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,060	0.500	NA	NA	NA	NA	7.644	0.500	0.500	0.500	0.0	0.500	3.82	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,060	0.500	NA	NA	NA	NA	7.288	0.500	0.500	0.500	0.0	0.500	3.64	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Ethane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	1.66	1.66	1.66	0.0	8.526	3.80	3.79	3.72	1.4	3.77	32.1	J
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	1.66	1.66	1.66	0.0	7.378	4.40	4.42	4.22	3.0	4.35	32.1	J
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	1.66	1.66	1.66	0.0	7.644	3.80	3.76	3.84	1.1	3.80	29.0	J
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	1.66	1.66	1.66	0.0	7.288	3.74	3.75	4.07	5.6	3.86	28.1	J

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

C2 as Ethane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	8.526	0.500	0.500	0.500	0.0	0.500	4.26	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	7.378	0.500	0.500	0.500	0.0	0.500	3.69	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	7.644	0.500	0.500	0.500	0.0	0.500	3.82	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	7.288	0.500	0.500	0.500	0.0	0.500	3.64	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Propane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	NA	NA	NA	NA	8.526	0.500	0.500	0.500	0.0	0.500	4.26	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	NA	NA	NA	NA	7.378	0.500	0.500	0.500	0.0	0.500	3.69	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	NA	NA	NA	NA	7.644	0.500	0.500	0.500	0.0	0.500	3.82	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	NA	NA	NA	NA	7.288	0.500	0.500	0.500	0.0	0.500	3.64	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

C3 as Propane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	8.526	0.500	0.500	0.500	0.0	0.500	4.26	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	7.378	0.500	0.500	0.500	0.0	0.500	3.69	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	7.644	0.500	0.500	0.500	0.0	0.500	3.82	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	50,030	0.500	7.288	0.500	0.500	0.500	0.0	0.500	3.64	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Butane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	2.91	2.91	2.91	0.0	8.526	150	150	150	0.0	150	1,283	
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	2.91	2.91	2.91	0.0	7.378	186	185	185	0.2	185	1,366	
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	2.91	2.91	2.91	0.0	7.644	161	161	160	0.3	161	1,229	
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	2.91	2.91	2.91	0.0	7.288	160	161	161	0.3	161	1,172	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

C4 as Butane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	8.526	7.85	7.85	8.25	3.3	7.98	68.0	
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	7.378	14.2	13.9	13.8	1.7	14.0	103	
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	7.644	12.8	13.6	12.7	4.3	13.0	99.6	
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.00	10,000	0.500	7.288	11.4	11.2	11.1	1.4	11.2	82.0	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Pentane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	NA	NA	NA	NA	8.526	0.515	0.515	0.515	0.0	0.515	4.39	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	NA	NA	NA	NA	7.378	0.515	0.515	0.515	0.0	0.515	3.80	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	NA	NA	NA	NA	7.644	0.515	0.515	0.515	0.0	0.515	3.94	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	NA	NA	NA	NA	7.288	0.515	0.515	0.515	0.0	0.515	3.75	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

C5 as Pentane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	8.526	0.515	0.515	0.515	0.0	0.515	4.39	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	7.378	0.515	0.515	0.515	0.0	0.515	3.80	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	7.644	0.515	0.515	0.515	0.0	0.515	3.94	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.15	5,003	0.515	7.288	0.515	0.515	0.515	0.0	0.515	3.75	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Hexane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	NA	NA	NA	NA	8.526	0.505	0.505	0.505	0.0	0.505	4.31	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	NA	NA	NA	NA	7.378	0.505	0.505	0.505	0.0	0.505	3.73	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	NA	NA	NA	NA	7.644	0.505	0.505	0.505	0.0	0.505	3.86	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	NA	NA	NA	NA	7.288	0.505	0.505	0.505	0.0	0.505	3.68	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

C6 as Hexane

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	8.526	0.505	0.505	0.505	0.0	0.505	4.31	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	7.378	0.505	0.505	0.505	0.0	0.505	3.73	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	7.644	0.505	0.505	0.505	0.0	0.505	3.86	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	5.05	4,006	0.505	7.288	0.505	0.505	0.505	0.0	0.505	3.68	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Benzene

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.Can	009F2501.D	009F2502.D	009F2503.D	EDITHP730F_C1-C6_BENZENE.M	1.98	103	0.198	NA	NA	NA	NA	8.526	0.198	0.198	0.198	0.0	0.198	1.69	ND
U2-C2-Primary Can1649.Can	010F2601.D	010F2602.D	010F2603.D	EDITHP730F_C1-C6_BENZENE.M	1.98	103	0.198	NA	NA	NA	NA	7.378	0.198	0.198	0.198	0.0	0.198	1.46	ND
U2-C3-Primary Can1341.Can	011F2701.D	011F2702.D	011F2703.D	EDITHP730F_C1-C6_BENZENE.M	1.98	103	0.198	NA	NA	NA	NA	7.644	0.198	0.198	0.198	0.0	0.198	1.51	ND
U2-C4-Primary Can1111.Can	003F0101.D	003F0102.D	003F0103.D	EDITHP730F_C1-C6_BENZENE.M	1.98	103	0.198	NA	NA	NA	NA	7.288	0.198	0.198	0.198	0.0	0.198	1.44	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Propylene

Sample ID	Filename #1	Filename #2	Filename #3	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (ppm)	Conc #2 (ppm)	Conc #3 (ppm)	%dif conc	Avg Conc (ppm)	Final Conc (ppm)	Flag
U2-C1-Primary Can1648.CanP2	025B2101.D	025B2102.D	025B2103.D	EDITHP636R_HRVOC_ACETYLENE.M	0.788	10,000	0.0788	4.86	4.86	4.86	0.0	460.973	1,714	1,713	1,710	0.1	1,713	789,457	
U2-C2-Primary Can1649.Can	026B2201.D	026B2202.D	026B2203.D	EDITHP636R_HRVOC_ACETYLENE.M	0.788	10,000	0.0788	4.82	4.82	4.82	0.0	228.705	4,295	4,298	4,299	0.0	4,297	982,847	
U2-C3-Primary Can1341.Can	027B2301.D	027B2302.D	027B2303.D	EDITHP636R_HRVOC_ACETYLENE.M	0.788	10,000	0.0788	4.83	4.83	4.83	0.0	236.962	4,076	4,073	4,082	0.1	4,077	966,078	
U2-C4-Primary Can1111.Can	028B2401.D	028B2402.D	028B2403.D	EDITHP636R_HRVOC_ACETYLENE.M	0.788	10,000	0.0788	4.82	4.82	4.82	0.0	225.914	4,097	4,096	4,094	0.0	4,096	925,240	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

TVOC As Propylene

Client's Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	MDL	Average RF	Area Sum #1	Area Sum #2	Area Sum #3	%dif area	Units	Dil Factor	Total As Propane	Flag
U2-C1-Primary Can1648.CanP2	025B2101.D	025B2102.D	025B2103.D	EDITHP636R_HRVOC_ACETYLENE.M	0.0788	0.618	2,784	2,784	2,779	0.1	ppm	460.973	792,543	
U2-C2-Primary Can1649.Can	026B2201.D	026B2202.D	026B2203.D	EDITHP636R_HRVOC_ACETYLENE.M	0.0788	0.618	6,978	6,982	6,984	0.0	ppm	228.705	986,695	
U2-C3-Primary Can1341.Can	027B2301.D	027B2302.D	027B2303.D	EDITHP636R_HRVOC_ACETYLENE.M	0.0788	0.618	6,621	6,615	6,629	0.1	ppm	236.962	969,689	
U2-C4-Primary Can1111.Can	028B2401.D	028B2402.D	028B2403.D	EDITHP636R_HRVOC_ACETYLENE.M	0.0788	0.618	6,655	6,654	6,650	0.0	ppm	225.914	928,799	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1946-90 Canister Analysis

Client No.: 16-323

Hydrogen

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (%)	Conc #2 (%)	%dif conc	Avg Conc (%)	Final Conc (%)	Flag
U2-C1-Primary Can1648.Can	008F0501.D	008F0502.D	BETTYP338_FGA.M	0.310	28.5	0.0853	NA	NA	NA	8.526	0.0853	0.0853	0.0	0.0853	0.727	ND
U2-C2-Primary Can1649.Can	010F0601.D	010F0602.D	BETTYP338_FGA.M	0.310	28.5	0.0853	NA	NA	NA	7.378	0.0853	0.0853	0.0	0.0853	0.629	ND
U2-C3-Primary Can1341.Can	004F0301.D	004F0302.D	BETTYP472_FGA_.M	0.790	28.5	0.0853	NA	NA	NA	7.644	0.0853	0.0853	0.0	0.0853	0.652	ND
U2-C4-Primary Can1111.Can	012F0801.D	012F0802.D	BETTYP338_FGA.M	0.310	28.5	0.0853	NA	NA	NA	7.288	0.0853	0.0853	0.0	0.0853	0.622	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1946-90 Canister Analysis

Client No.: 16-323

Oxygen

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (%)	Conc #2 (%)	%dif conc	Avg Conc (%)	Final Conc (%)	Flag
U2-C1-Primary Can1648.Can	008F0501.D	008F0502.D	BETTYP338_FGA.M	0.543	100	0.0543	4.58	4.60	0.2	8.526	0.0770	0.0759	0.7	0.0764	0.652	J
U2-C2-Primary Can1649.Can	010F0601.D	010F0602.D	BETTYP338_FGA.M	0.543	100	0.0543	4.61	4.61	0.0	7.378	0.0609	0.0580	2.5	0.0595	0.439	J
U2-C3-Primary Can1341.Can	004F0301.D	004F0302.D	BETTYP472_FGA_.M	0.498	100	0.0543	4.61	4.61	0.0	7.644	0.274	0.284	1.8	0.279	2.13	J
U2-C4-Primary Can1111.Can	012F0801.D	012F0802.D	BETTYP338_FGA.M	0.543	100	0.0543	4.60	4.59	0.1	7.288	0.189	0.192	1.0	0.191	1.39	J

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1946-90 Canister Analysis

Client No.: 16-323

Nitrogen

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (%)	Conc #2 (%)	%dif conc	Avg Conc (%)	Final Conc (%)	Flag
U2-C1-Primary Can1648.Can	008F0501.D	008F0502.D	BETTYP338_FGA.M	0.380	99.9	0.0380	4.94	4.95	0.1	8.526	0.251	0.261	2.0	0.256	2.18	J
U2-C2-Primary Can1649.Can	010F0601.D	010F0602.D	BETTYP338_FGA.M	0.380	99.9	0.0380	4.95	4.95	0.0	7.378	0.212	0.206	1.5	0.209	1.54	J
U2-C3-Primary Can1341.Can	004F0301.D	004F0302.D	BETTYP472_FGA_.M	0.380	99.9	0.0380	4.96	4.96	0.0	7.644	0.597	0.659	4.9	0.628	4.80	J
U2-C4-Primary Can1111.Can	012F0801.D	012F0802.D	BETTYP338_FGA.M	0.380	99.9	0.0380	4.94	4.94	0.0	7.288	0.803	0.809	0.3	0.806	5.87	

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1946-90 Canister Analysis

Client No.: 16-323

Carbon monoxide

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (%)	Conc #2 (%)	%dif conc	Avg Conc (%)	Final Conc (%)	Flag
U2-C1-Primary Can1648.Can	008F0501.D	008F0502.D	BETTYP338_FGA.M	0.380	99.5	0.0380	NA	NA	NA	8.526	0.0380	0.0380	0.0	0.0380	0.324	ND
U2-C2-Primary Can1649.Can	010F0601.D	010F0602.D	BETTYP338_FGA.M	0.380	99.5	0.0380	NA	NA	NA	7.378	0.0380	0.0380	0.0	0.0380	0.280	ND
U2-C3-Primary Can1341.Can	004F0301.D	004F0302.D	BETTYP472_FGA_.M	0.380	99.5	0.0380	NA	NA	NA	7.644	0.0380	0.0380	0.0	0.0380	0.290	ND
U2-C4-Primary Can1111.Can	012F0801.D	012F0802.D	BETTYP338_FGA.M	0.380	99.5	0.0380	NA	NA	NA	7.288	0.0380	0.0380	0.0	0.0380	0.277	ND

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1946-90 Canister Analysis

Client No.: 16-323

Carbon Dioxide

Sample ID	Filename #1	Filename #2	Analysis Method	Curve Min	Curve Max	MDL	Ret Time (min)	Ret Time (min)	%dif RT	DF	Conc #1 (%)	Conc #2 (%)	%dif conc	Avg Conc (%)	Final Conc (%)	Flag
U2-C1-Primary Can1648.Can	008F0501.D	008F0502.D	BETTYP338_FGA.M	0.543	100	0.0543	NA	NA	NA	8.526	0.0543	0.0543	0.0	0.0543	0.463	ND
U2-C2-Primary Can1649.Can	010F0601.D	010F0602.D	BETTYP338_FGA.M	0.543	100	0.0543	NA	NA	NA	7.378	0.0543	0.0543	0.0	0.0543	0.401	ND
U2-C3-Primary Can1341.Can	004F0301.D	004F0302.D	BETTYP472_FGA_.M	0.497	100	0.0543	NA	NA	NA	7.644	0.0543	0.0543	0.0	0.0543	0.415	ND
U2-C4-Primary Can1111.Can	012F0801.D	012F0802.D	BETTYP338_FGA.M	0.543	100	0.0543	NA	NA	NA	7.288	0.0543	0.0543	0.0	0.0543	0.396	ND

Enthalpy Analytical -- Canister Pressurization

Job No.	0816-140
Company	METCO Environmental
Site	Comm Engineering: Lafayette, LA

Can Number	1648	1649	1341	1111
Job	0816-140	0816-140	0816-140	0816-140
Sample ID	U2-C1-Primary Can1648	U2-C2-Primary Can1649	U2-C3-Primary Can1341	U2-C4-Primary Can1111
CleanDate	07/26/2016	09/19/2016	09/19/2016	09/19/2016
LeakCheckDate	07/26/2016	09/19/2016	09/19/2016	09/19/2016
LeakCheckAnalyst	PRM	SNH	SNH	SNH
BlankCheckRef	EdithP680	Edithp736	Edithp736	Edithp736
Can Size (L)	6	6	6	6
Evac Temp (F)	70.0	74.0	74.0	74.0
Evac Pbar (mmHg)	757	754	754	754
Evac Gauge (mmHg)	-753	-751	-751	-751
Evac Analyst	PRM	SNH	SNH	SNH
Evac Time	09/12/16 16:45	09/20/16 15:45	09/20/16 15:58	09/20/16 15:58
Evac Vol (L)	0.027	0.024	0.030	0.030
Recd. Temp (F)	70.5	71.0	71.0	71.0
Recd. Pbar (mmHg)	757	757	757	757
Recd. Gauge (mmHg)	-514	-477	-488	-474
Recd Vol (L)	1.911	2.195	2.106	2.217
P1 Temp (F)	70.5	71.0	71.0	71.0
P1 Pbar (mmHg)	757	757	757	757
P1 Gauge (mmHg)	1,287	1,284	1,264	1,274
P1 Analyst	NBT	NBT	NBT	NBT
P1 Time	10/13/16 12:49	10/13/16 12:54	10/13/16 12:58	10/13/16 13:03
P1 Vol (L)	16.057	16.019	15.866	15.939
P1 Dilution Factor	8.526	7.378	7.644	7.288
Mid Temp (F)	73.5	NA	NA	NA
Mid Pbar (mmHg)	751	NA	NA	NA
Mid Gauge (mmHg)	49.7	NA	NA	NA
Mid Vol (L)	6.259	NA	NA	NA
P2 Temp (F)	73.5	NA	NA	NA
P2 Pbar (mmHg)	751	NA	NA	NA
P2 Gauge (mmHg)	646	NA	NA	NA
P2 Analyst	NBT	NA	NA	NA
P2 Time	10/20/16 16:44	NA	NA	NA
P2 Vol (L)	10.916	NA	NA	NA
Combined Dilution Factor	14.870	NA	NA	NA

Narrative Summary

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	NBT
Parameters	EPA Method 3C

Client #	16-323
Job #	0816-140
# Samples	12 Bags

Custody

Shannon Hammaker received the samples on 9/27/16 and 9/30/16 after being relinquished by METCO Environmental. Back-up bags for samples ***Unit 2-R1C4*** and ***Unit 2-R3C4*** were received by Shannon Hammaker on 10/28/16 under Enthalpy Analytical job #1016-147. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for hydrogen, oxygen, nitrogen, carbon monoxide, methane, and carbon dioxide using the analytical procedures in EPA Method 3C.

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. All target analytes were referenced to certified gas phase standards.

The Agilent Technologies Model 6890N, Gas Chromatograph "Betty" (S/N US10430048) was equipped with a Thermal Conductivity Detector for these analyses.

Calibration

The calibration curve is included in the Raw Data section of this report. The data analysis method is referenced in the Analysis Method column on the Detailed Results page.

The first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

Chromatographic Conditions

The acquisition method, BETTYP017_CAL.M, is included in the Raw Data section of this report.

QC Notes

The analysis of the laboratory helium blank contained no target compounds at concentrations greater than the detection limit.

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Enthalpy Analytical Narrative Summary
(continued)

Reporting Notes

This revised report shows the results for the replacement bags for samples ***Unit 2-R1C4*** and ***Unit 2-R3C4***.

These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above.

The results presented in this report are representative of the samples as provided to the laboratory.

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	NBT
Parameters	EPA Method 18-Type

Client #	16-323
Job #	0816-140R
# Samples	4 Canisters

Custody

Shannon Hammaker received the samples on 9/27/16 and 9/30/16 after being relinquished by METCO Environmental. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for methane, ethane, propane, butane, pentane, hexane, benzene, propylene, total volatile organic compounds as propylene and others as Cx compounds using the general analytical procedures in EPA Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography (40 CFR Part 60, Appendix A).

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. The C_1-C_6 n-alkanes, benzene, and propylene were referenced to certified gas phase standards.

The n-alkane retention times are used to generate retention time windows for other hydrocarbons, which are reported 'as' the nearest n-alkane. For example, the areas for all peaks between 3.714 and 5.209 minutes (except the n-pentane peak) are referenced to the calibrated n-pentane response. The sum of the results is labeled 'C5 as pentane'.

Total VOC as propylene results were determined by summing the peak areas for all peaks in each injection and calculating the average area, then multiplying that average area by the calibrated propylene response factor from the initial calibration.

Upon receipt, the canister pressures were measured and recorded. The canisters were then pressurized and a dilution ratio was calculated for each canister (see the Canister Pressurization page in the Results section of this report).

The canister ***U2-C1-Primary Can1648*** was pressurized a second time, and then reanalyzed for propylene.

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Enthalpy Analytical Narrative Summary
(continued)

Analysis (continued)	The Agilent Technologies Model 7890A, Gas Chromatograph "Edith" (S/N CN10722006) was equipped with a Flame Ionization Detector for these analyses.
Chromatographic Conditions	The acquisition methods, AQ_EDITHP274_HRVOC_SHORT.M, AQ_EDITHP274_HRVOC.M, AQ_EDITHP503_HRVOC.M and AQ_EDITHP274_HRVOC_XLONG.M are included in the Raw Data section of this report.
Calibration	The calibration curves are included in the Raw Data section of this report. The data analysis method is referenced in the Analysis Method column on the Detailed Results page. The first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.
QC Notes	The analysis of the laboratory zero air blank contained no target compounds at concentrations greater than the detection limit.
Reporting Notes	These analytical results are reported on a wet basis. The user of this report should determine the percent moisture in the sample and correct the reported value to ppmvd as appropriate. The results presented in this report are representative of the samples as provided to the laboratory.

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Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	NBT
Parameters	ASTM D1946-90

Client #	16-323
Job #	0816-140
# Samples	4 Canisters

Custody

Shannon Hammaker received the samples on 9/27/16 and 9/30/16 after being relinquished by METCO Environmental. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for hydrogen, oxygen, nitrogen, carbon monoxide, methane, and carbon dioxide using the analytical procedures in ASTM D1946 – 90 (Reapproved 2000), Standard Practice for Analysis of Reformed Gas by Gas Chromatography.

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. All target analytes were referenced to certified gas phase standards.

Upon receipt, the canister pressures were measured and recorded. The canisters were then pressurized and a dilution ratio was calculated for each canister (see the Canister Pressurization page in the Results section of this report).

The Agilent Technologies Model 6890N, Gas Chromatograph "Betty" (S/N US10430048) was equipped with a Thermal Conductivity Detector for these analyses.

Calibration

The calibration curves are included in the Raw Data section of this report. The data analysis method is referenced in the Analysis Method column on the Detailed Results page.

The first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

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Enthalpy Analytical Narrative Summary
(continued)

Chromatographic Conditions	The acquisition method, GC142P133_CAL.M, is included in the Raw Data section of this report.
QC Notes	The analysis of the laboratory helium blank contained nitrogen at a concentration between the detection limit and LOQ. No other target compounds were present at concentrations greater than the detection limit.
Reporting Notes	Methane was not present in any sample at concentrations greater than the detection limit and thus, methane results were reported from the EPA Method 18-Type analyses. The EPA Method 18-Type results were also used for the Btu and Mixed Molecular Weight calculations. These analyses met the requirements of the TNI Standard. Any deviations from the requirements of the reference method or TNI Standard have been stated above. The results presented in this report are representative of the samples as provided to the laboratory.

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General Reporting Notes

The following are general reporting notes that are applicable to all Enthalpy Analytical, Inc. data reports, unless specifically noted otherwise.

- Any analysis which refers to the method as ***"Type"*** represents a planned deviation from the reference method. For instance a Hydrogen Sulfide assay from a Tedlar bag would be labeled as "EPA Method 16-Type" because Tedlar bags are not mentioned as one of the collection options in EPA Method 16.
- The acronym ***MDL*** represents the Minimum Detection Limit. Below this value the laboratory cannot determine the presence of the analyte of interest reliably.
- The acronym ***LOQ*** represents the Limit of Quantification. Below this value the laboratory cannot quantitate the analyte of interest within the criteria of the method.
- The acronym ***ND*** following a value indicates a non-detect or analytical result below the MDL.
- The letter ***J*** in the Qualifier or Flag column in the results indicates that the value is between the MDL and the LOQ. The laboratory can positively identify the analyte of interest as present, but the value should be considered an estimate.
- The letter ***E*** in the Qualifier or Flag column indicates an analytical result exceeding 100% of the highest calibration point. The associated value should be considered as an estimate.
- The acronym ***DF*** represents Dilution Factor. This number represents dilution of the sample during the preparation and/or analysis process. The analytical result taken from a laboratory instrument is multiplied by the DF to determine the final undiluted sample results.
- The addition of ***MS*** to the Sample ID represents a Matrix Spike. An aliquot of an actual sample is spiked with a known amount of analyte so that a percent recovery value can be determined. The MS analysis indicates what effect the sample matrix may have on the target analyte, i.e. whether or not anything in the sample matrix interferes with the analysis of the analyte(s).
- The addition of ***MSD*** to the Sample ID represents a Matrix Spike Duplicate. Prepared in the same manner as a MS, the use of duplicate matrix spikes allows further confirmation of laboratory quality by showing the consistency of results gained by performing the same steps multiple times.
- The addition of ***LD*** to the Sample ID represents a Laboratory Duplicate. The analyst prepares an additional aliquot of sample for testing and the results of the duplicate analysis are compared to the initial result. The result should have a difference value of within 10% of the initial result (if the results of the original analysis are greater than the LOQ).

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General Reporting Notes

(continued)

- The addition of ***AD*** to the Sample ID represents an Alternate Dilution. The analyst prepares an additional aliquot at a different dilution factor (usually double the initial factor). This analysis helps confirm that no additional compound is present and coeluting or sharing absorbance with the analyte of interest, as they would have a different response/absorbance than the analyte of interest.
- The Sample ID ***LCS*** represents a Laboratory Control Sample. Clean matrix, similar to the client sample matrix, prepared and analyzed by the laboratory using the same reagents, spiking standards and procedures used for the client samples. The LCS is used to assess the control of the laboratory's analytical system. Whenever spikes are prepared for our client projects, two spikes are retained as LCSs. The LCSs are labeled with the associated project number and kept in-house at the appropriate temperature conditions. When the project samples are received for analysis, the LCSs are analyzed to confirm that the analyte could be recovered from the media, separate from the samples which were used on the project and which may have been affected by source matrix, sample collection and/or sample transport.
- **Significant Figures**: Where the reported value is much greater than unity (1.00) in the units expressed, the number is rounded to a whole number of units, rather than to 3 significant figures. For example, a value of 10,456.45 ug catch is rounded to 10,456 ug. There are five significant digits displayed, but no confidence should be placed on more than two significant digits.
- **Manual Integration**: The data systems used for processing will flag manually integrated peaks with an "M". There are several reasons a peak may be manually integrated. These reasons will be identified by the following two letter designations on sample chromatograms, if provided in the report. The peak was ***not integrated*** by the software **"NI"**, the peak was ***integrated incorrectly*** by the software **"II"** or the ***wrong peak*** was integrated by the software **"WP"**. These codes will accompany the analyst's manual integration stamp placed next to the compound name on the chromatogram.

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Sample Custody

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CHAIN OF CUSTODY RECORD

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Job No.: 16-323
Job Name: Comm Eng
Location: Lafayette LA
Unit: 2

Project Manager: M. Hutchinson
Project Supervisor: J. Johnson

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	SEE U.S.		Recovered by	REMARKS (Specific Compounds/Methods)
Run 1 Cond 1 Bag	9/20/16	1225	1								✓		MK	
Run 2 Cond 1 BAG		1343	1								✓			
Run 3 Cond 1 BAG		1507	1								✓			
RUN 1 Cond 1 Split bag		1225	1								✓			
Run 2 Cond 1 Split Bag		1343	1								✓			
Run 3 Cond 1 Split Bag		1507	1								✓			

Samples Received for Transport/Shipment by: MK	Date: 9/26/16	Time: 1730		
Samples Received for Transport/Shipment by:	Date:	Time:		
Samples Received for Transport/Shipment by:	Date:	Time:		
Samples Shipped Via: FED EX	Date: 9/26/16	Time: 1730	ambient T, good condition	
Samples Received at Laboratory by:	Date: 09/27/16	Time: 0830 AM	SNH 09.27.16	
Samples Analyzed by:	Date:	Time:		
Samples Analyzed by:	Date:	Time:		
Data Checked by:	Date:	Time:		

VERSION 2
10 MARCH 2003

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CHAIN OF CUSTODY RECORD

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Job No.: 16.323
Job Name: Comm Eng.
Location: Lafayette LA
Unit: 3

Project Manager: M. Hutchenson
Project Supervisor: J. Johnson

Method: 18

CAN#	SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	SEE LIST		Recovered by	REMARKS (Specific Compounds/Methods)
1109	Unit 3 Cond 4 Primary Canister	9/23/16	1822	1								✓		JR RJR	
1094	Unit 3 Cond 4 Secondary Canister	"	1822	1								✓		"	Archive
1648	Unit 2 Cond 1 Primary Canister	9/22/16	1500	1										"	
1332	Unit 2 Cond 1 Secondary Canister	"	1500	1										"	Archive

Samples Received for Transport/Shipment by:	JR RJR	Date: 9/22/16	Time: 1730
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Received for Transport/Shipment by:		Date:	Time:
Samples Shipped Via:	FED Ex	Date: 9/22/16	Time: 1730
Samples Received at Laboratory by:	[signature]	Date: 09/27/16	Time: 0830 AM
Samples Analyzed by:		Date:	Time:
Samples Analyzed by:		Date:	Time:
Data Checked by:		Date:	Time:

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good condition
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VERSION 2
10 MARCH 2003

METCO
Environmental ©

CHAIN OF CUSTODY RECORD

Page of

Job No.: 16-323
Job Name: Comm Eng.
Location: Lafayette CA
Unit: 2

Project Manager: M. Hutchinson
Project Supervisor: J. Johnson

Method: 18

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	SEE List		Recovered by	REMARKS (Specific Compounds/Methods)
Cond 2 Primary Canister	9/27/16	1805	1								✓		JK	
Cond 2 Secondary Canister	1	1	1								✓			Archive
Cond 3 Primary Canister	9/28/16	1233	1								✓			
Cond 3 Secondary Canister	1	1	1								✓			Archive
Cond 4 Primary Canister	9/28/16	1645	1								✓			
Cond 4 Secondary Canister	1	1	1								✓			Archive

Samples Received for Transport/Shipment by:	JK	Date:	9/28/16	Time: 1900
Samples Received for Transport/Shipment by:		Date:		Time:
Samples Received for Transport/Shipment by:		Date:		Time:
Samples Shipped Via:	FED EX	Date:	9/29/16	Time: 1700
Samples Received at Laboratory by:		Date:	09.30.16	Time: 10:15 AM
Samples Analyzed by:		Date:		Time:
Samples Analyzed by:		Date:		Time:
Data Checked by:		Date:		Time:

good condition
OH 09.30.16

VERSION 2
10 MARCH 2003

METCO
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CHAIN OF CUSTODY RECORD

Page of

Job No.: 16-323
Job Name: Comm Eng.
Location: Lafayette, LA
Unit: 2

Project Manager: M. Hutchinson
Project Supervisor: J. Johnson

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	See List		Recovered by	REMARKS (Specific Compounds/Methods)
Run 1 Cond 2 Bag	9/27/16	1527	1								✓		[signature]	
Run 1 Cond 2 Split Bag		1527	1								✓			Archive
Run 2 Cond 2 Bag		1700	1								✓			
Run 2 Cond 2 Split Bag		1700	1								✓			Archive
Run 3 Cond 2 Bag		1805	1								✓			
Run 3 Cond 2 Split Bag		1805	1								✓			Archive

Samples Received for Transport/Shipment by:	[signature]	Date: 9/28/16	Time: 1900	
Samples Received for Transport/Shipment by:		Date:	Time:	
Samples Received for Transport/Shipment by:		Date:	Time:	
Samples Shipped Via: FED EX		Date: 9/29/16	Time: 1700	
Samples Received at Laboratory by:	[signature]	Date: 09.30.16	Time: 10:15 AM	
Samples Analyzed by:		Date:	Time:	
Samples Analyzed by:		Date:	Time:	
Data Checked by:		Date:	Time:	

good condition
SNH
09.30.16

VERSION 2
10 MARCH 2003

METCO
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CHAIN OF CUSTODY RECORD

Page of

Job No.: 16-323
Job Name: Comm Engineering
Location: Lafayette LA
Unit: 2

Project Manager: M. Hutchinson
Project Supervisor: J. Johnson

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	SEE List		Recovered by	REMARKS (Specific Compounds/Methods)
Run 1 Cond 3 - Bag	9/28/16	1000	1								✓		JLK	
Run 1 Cond 3 Split Bag	"	"	1								✓		"	Archive
Run 2 Cond 3 Bag	"	1120	1								✓		"	
Run 2 Cond 3 Split Bag	"	"	1								✓		"	Archive
Run 3 Cond 3 Bag	"	1233	1								✓		"	
Run 3 Cond 3 Split Bag	"	"	1								✓		"	Archive

Samples Received for Transport/Shipment by:	JLK	Date: 9/28/16	Time: 1900	good condition SNH 09-30-16
Samples Received for Transport/Shipment by:		Date:	Time:	
Samples Received for Transport/Shipment by:		Date:	Time:	
Samples Shipped Via:	FED EX	Date: 9/29/16	Time: 1700	
Samples Received at Laboratory by:		Date: 09-30-16	Time: 10:15AM	
Samples Analyzed by:		Date:	Time:	
Samples Analyzed by:		Date:	Time:	
Data Checked by:		Date:	Time:	

VERSION 2
10 MARCH 2003

METCO
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CHAIN OF CUSTODY RECORD

Page of

Job No.: 16.323
Job Name: Comm Eng.
Location: Lafayette LA
Unit: 2

Project Manager: M. Hutchinson
Project Supervisor: J. Johnson

Method: 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	DEF Liq		Recovered by	REMARKS (Specific Compounds/Methods)
Run 1 Cond 4 Bag	9/28/16	1412	1								✓		[signature]	
Run 1 Cond 4 Split Bag	"	"	1								✓			Archive
Run 2 Cond 4 Bag	9/28/16	1530	1								✓			
Run 2 Cond 4 Split Bag	"	"	1								✓			Archive
Run 3 Cond 4 Bag	9/28/16	1645	1								✓			
Run 3 Cond 4 Split Bag	"	"	1								✓			Archive

Samples Received for Transport/Shipment by:	[signature]	Date: 9/28/16	Time: 1900	good condition SMH 09.30.16
Samples Received for Transport/Shipment by:		Date:	Time:	
Samples Received for Transport/Shipment by:		Date:	Time:	
Samples Shipped Via:	FED EX	Date: 9/29/16	Time: 1700	
Samples Received at Laboratory by:	[signature]	Date: 09.30.16	Time: 10:15 AM	
Samples Analyzed by:		Date:	Time:	
Samples Analyzed by:		Date:	Time:	
Data Checked by:		Date:	Time:	

METCO
Environmental ©

CHAIN OF CUSTODY RECORD

Job No.: 16-323
Job Name: Comm Eng.
Location: Lafayette LA
Unit: Unit 2

Project Manager: Hutcherson
Project Supervisor: Johnson

Method: EPA 3C

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	*		Recovered by	REMARKS (Specific Compounds/Methods)
Cond. 4 Run 1 bag	10/27/16	1600	1								✓			*molecular weight O_2, CO_2, N_2, methane, and excess air
Cond 4 Run 3 bag	10/27/16	1600	1								✓			
Split (backup) bags from original														

Samples Received for Transport/Shipment by: _____ Date: _____ Time: _____
Samples Received for Transport/Shipment by: _____ Date: _____ Time: _____
Samples Received for Transport/Shipment by: _____ Date: _____ Time: _____
Samples Shipped Via: FedEx to Enthalpy by MH Hutcherson Date: 10/27/16 Time: 1600
Samples Received at Laboratory by: [signature] Date: 10/28/16 Time: 0835 good condition, T. ambient
Samples Analyzed by: _____ Date: _____ Time: _____ SDH 10.28.16
Samples Analyzed by: _____ Date: _____ Time: _____
Data Checked by: _____ Date: _____ Time: _____

Raw Data

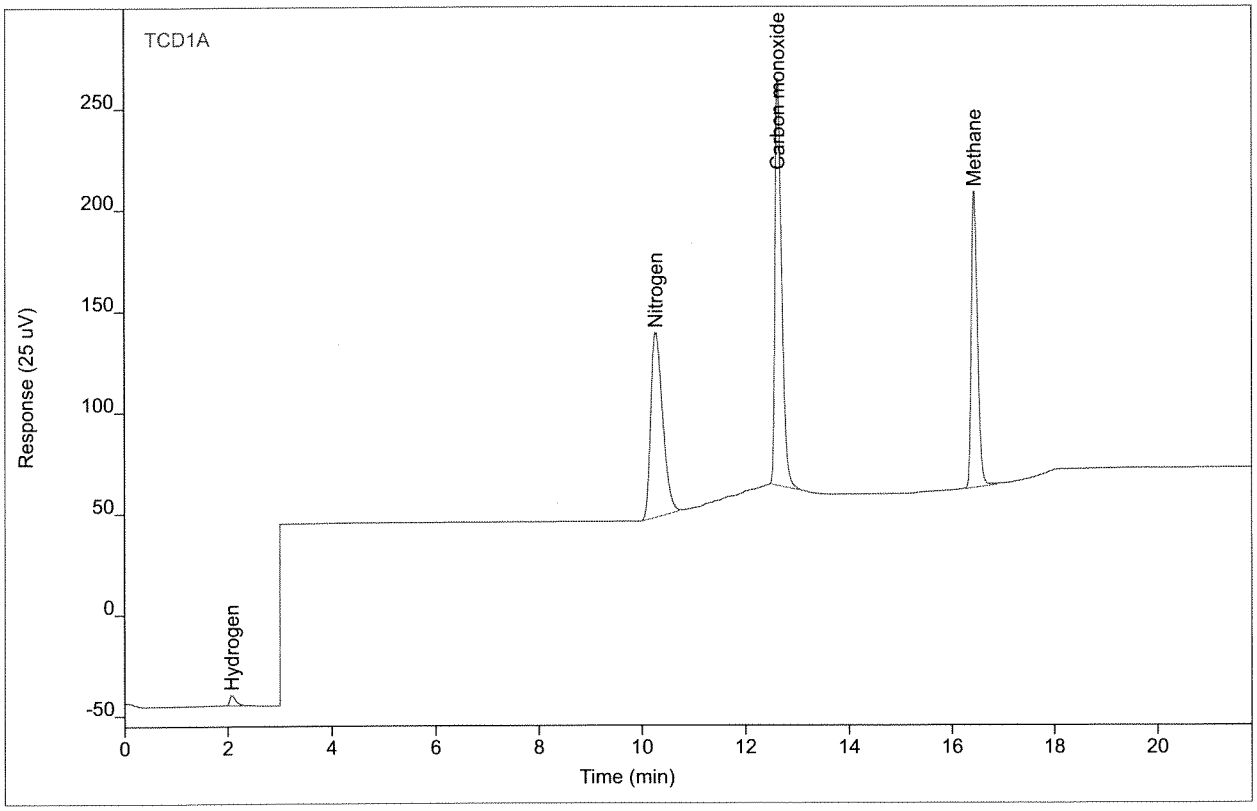
ENTHALPY
ANALYTICAL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP450 1 ver.4
Data File	009F0103.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	9/26/2016 5:12 PM
File Modified	10/18/2016 12:21 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	9/28/2016 8:13 AM
Printed	10/18/2016 5:09 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	44.2113	5.42525	2.46699	1	2.46699	%
Nitrogen	BB	10.27	1449.44	91.6425	3.32908	1	3.32908	%
Carbon monoxide	MM	12.65	1789.83	201.414	3.38029	1	3.38029	%
Methane	MM	16.44	1220.18	146.570	2.69860	1	2.69860	%

Analyst Peak Integration Comments

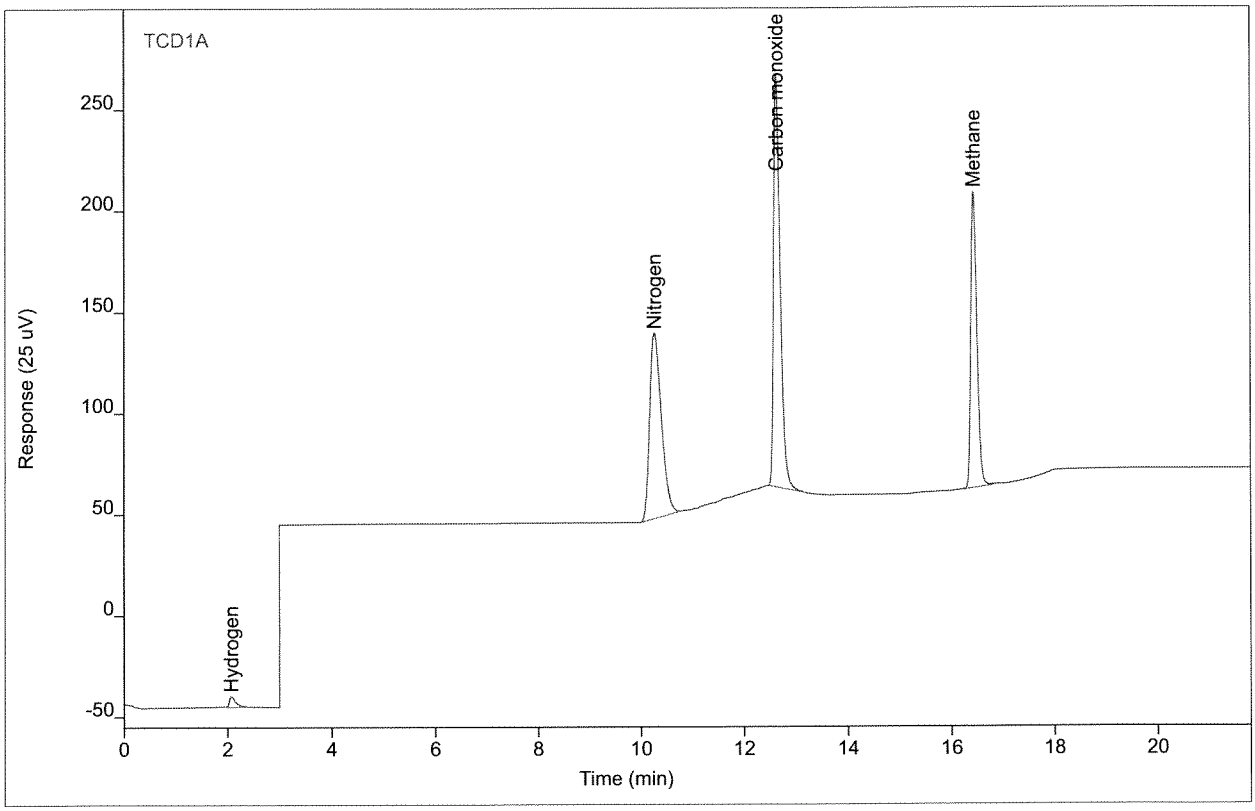
08:03:53 09/27/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP450 1 ver.4
Data File	009F0201.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	9/26/2016 5:43 PM
File Modified	10/18/2016 12:21 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	9/28/2016 8:13 AM
Printed	10/18/2016 5:09 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	46.2765	5.48657	2.58200	1	2.58200	%
Nitrogen	BB	10.27	1450.56	91.6876	3.33172	1	3.33172	%
Carbon monoxide	MM	12.65	1797.05	203.529	3.39403	1	3.39403	%
Methane	MM	16.44	1212.52	146.193	2.68141	1	2.68141	%

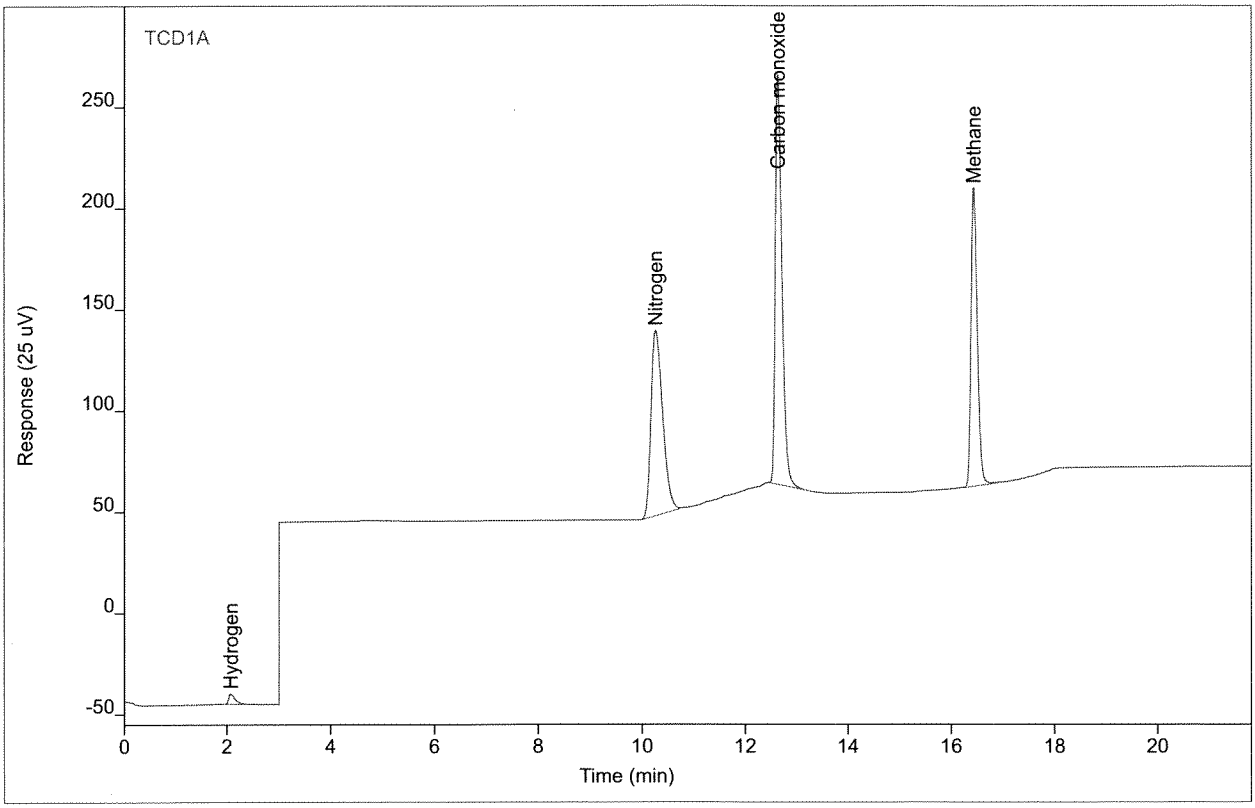
Analyst Peak Integration Comments

08:05:03 09/27/16 Nicholas Traversa II-BL
08:05:10 09/27/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP450 1 ver.4	Vial Number	Vial 9
Data File	009F0202.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 3	Injection	2 of 2
Injection Date	9/26/2016 6:14 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 12:21 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	9/28/2016 8:13 AM
Operator	Nicholas Traversa	Printed	10/18/2016 5:09 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.8006	5.53998	2.55550	1	2.55550	%
Nitrogen	BB	10.27	1453.50	91.8402	3.33859	1	3.33859	%
Carbon monoxide	MM	12.65	1795.57	202.867	3.39121	1	3.39121	%
Methane	MM	16.44	1218.25	147.501	2.69427	1	2.69427	%

Analyst Peak Integration Comments

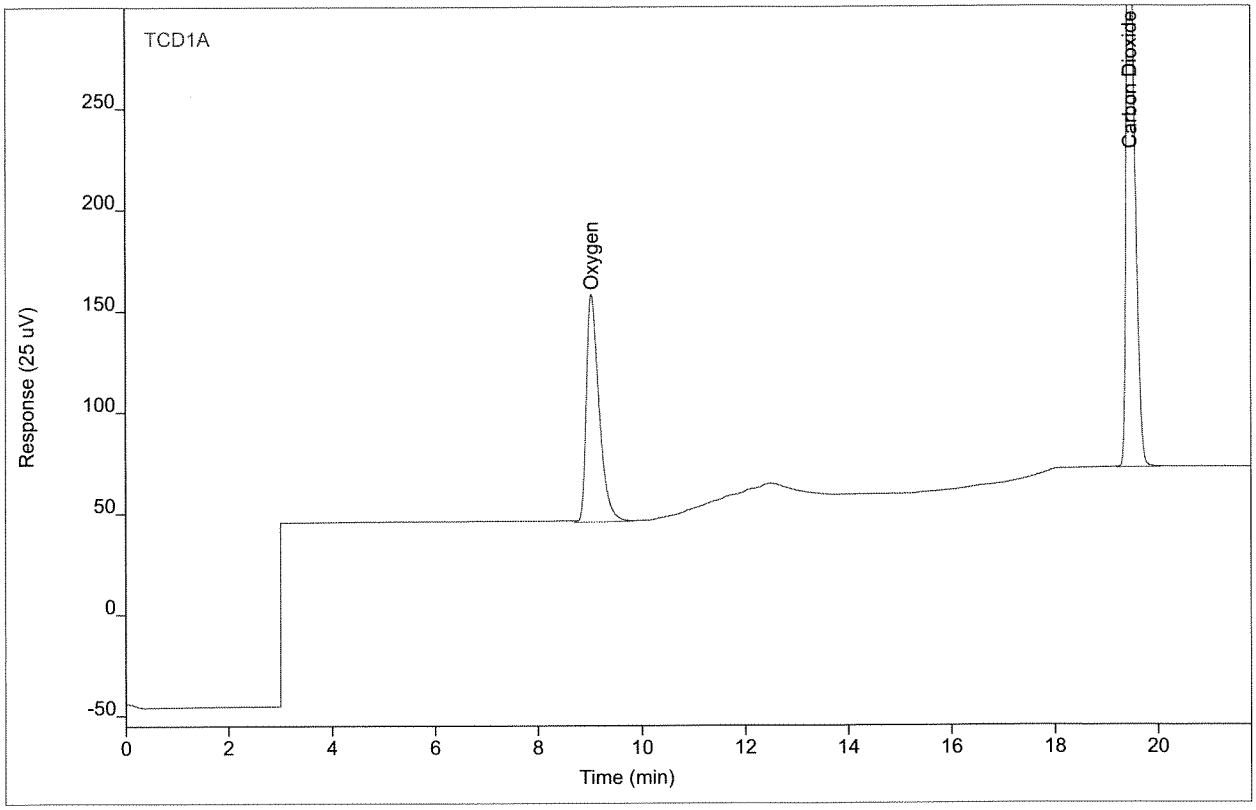
08:05:25 09/27/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP450 1 ver.4
Data File	009F0303.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	9/26/2016 7:47 PM
File Modified	10/18/2016 12:21 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 5
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	9/28/2016 8:13 AM
Printed	10/18/2016 5:09 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	9.03	1900.35	112.630	4.94843	1	4.94843	%
Carbon Dioxide	MM	19.48	3346.96	298.797	4.63842	1	4.63842	%

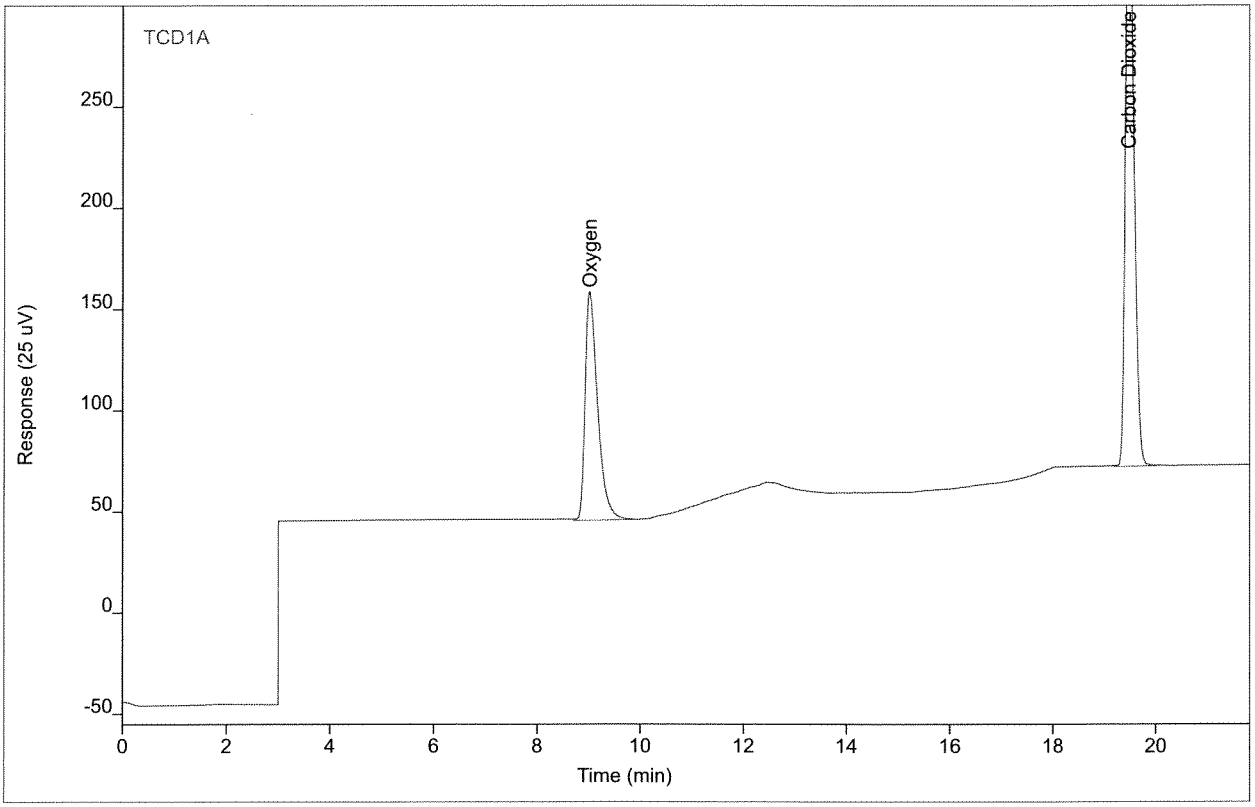
Analyst Peak Integration Comments

08:06:36 09/27/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP450 1 ver.4	Vial Number	Vial 9
Data File	009F0304.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 3	Injection	4 of 5
Injection Date	9/26/2016 8:18 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 12:21 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	9/28/2016 8:13 AM
Operator	Nicholas Traversa	Printed	10/18/2016 5:09 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	9.03	1901.27	113.016	4.95085	1	4.95085	%
Carbon Dioxide	MM	19.48	3346.49	299.896	4.63776	1	4.63776	%

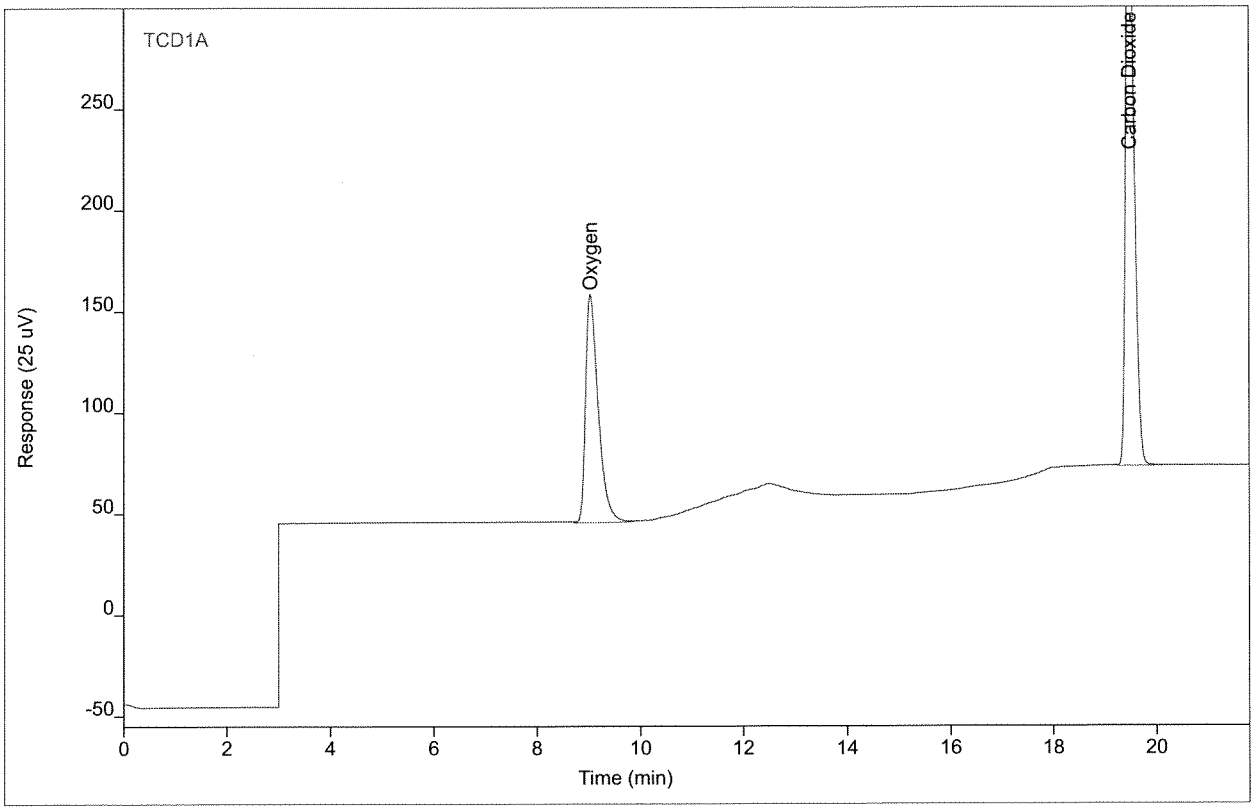
Analyst Peak Integration Comments

08:06:54 09/27/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP450 1 ver.4	Vial Number	Vial 9
Data File	009F0305.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 3	Injection	5 of 5
Injection Date	9/26/2016 8:49 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 12:22 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	9/28/2016 8:13 AM
Operator	Nicholas Traversa	Printed	10/18/2016 5:09 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	9.03	1898.28	112.757	4.94300	1	4.94300	%
Carbon Dioxide	MM	19.48	3349.41	299.682	4.64187	1	4.64187	%

Analyst Peak Integration Comments

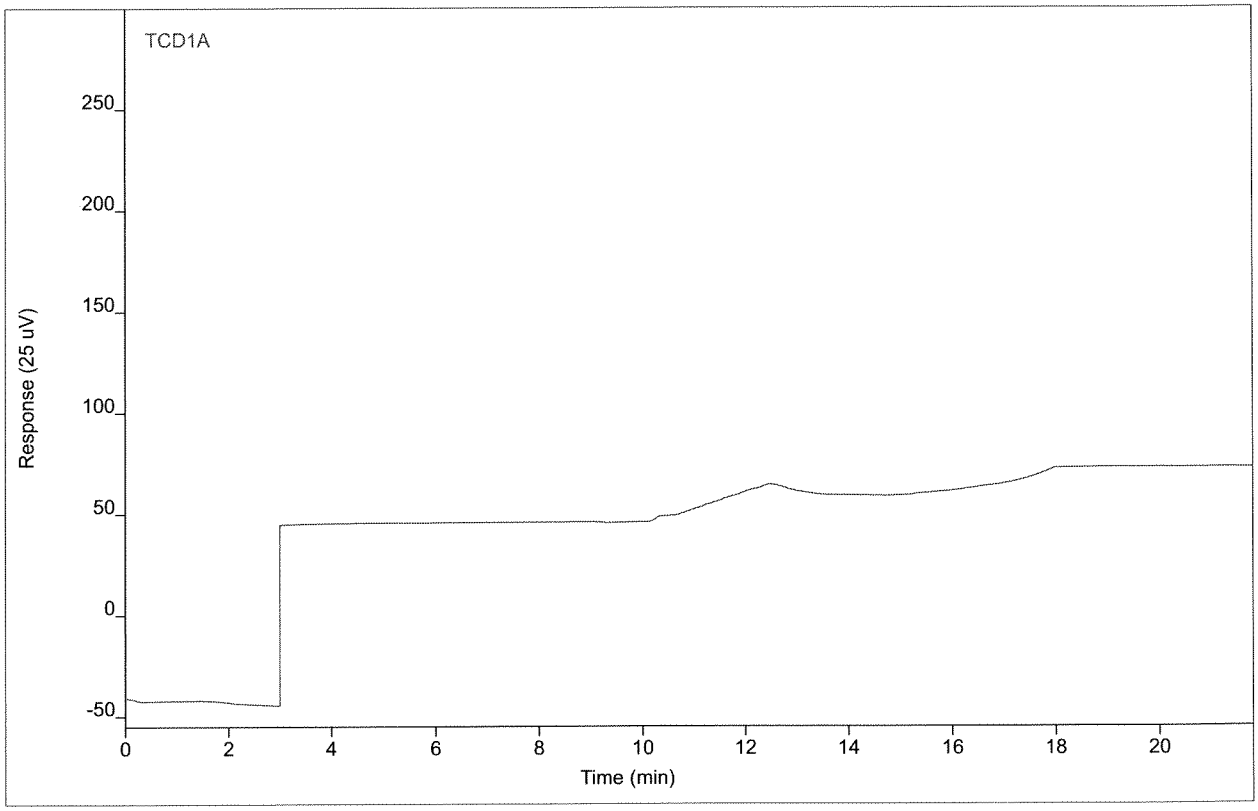
08:07:17 09/27/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP374 Method Blank-1
Sequence Name	BETTYP450 1 ver.4
Data File	001F0401.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	9/26/2016 9:18 PM
File Modified	10/18/2016 12:22 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	9/28/2016 8:13 AM
Printed	10/18/2016 5:09 PM



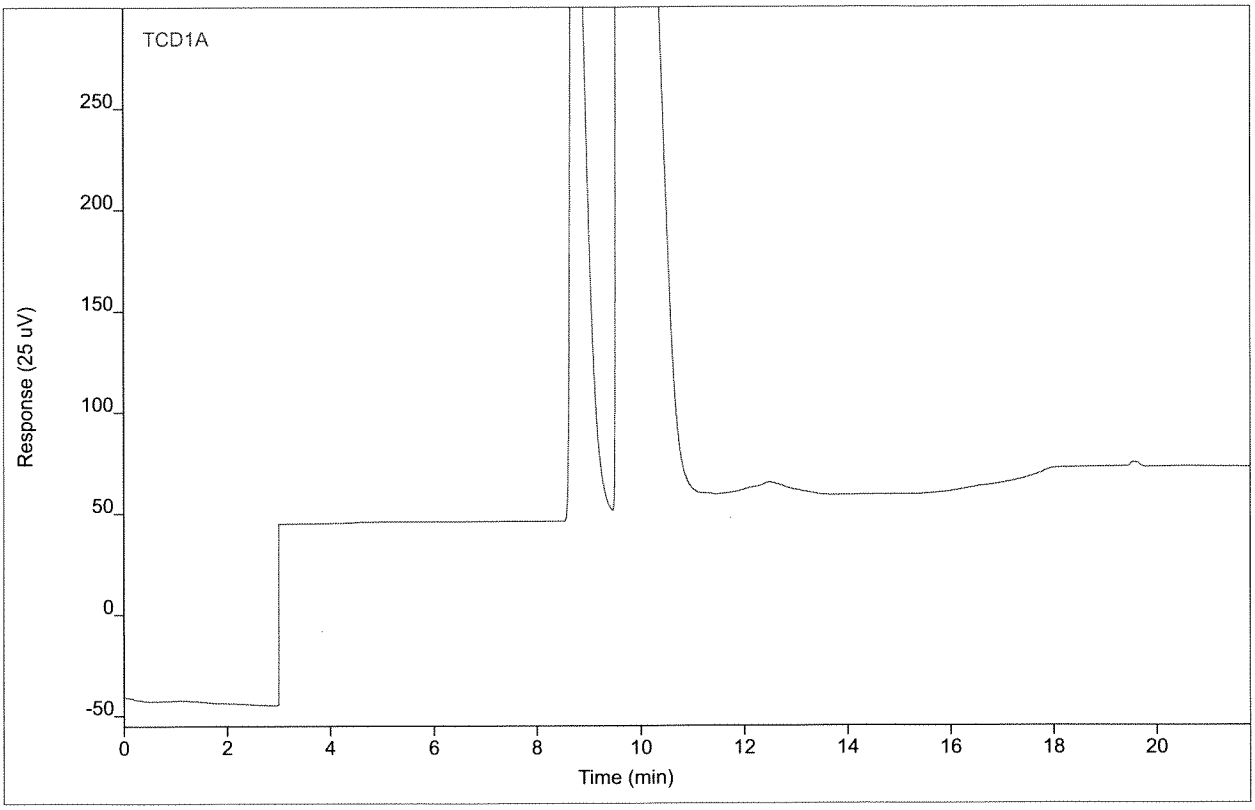
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen		(9.04)				1		
Nitrogen		(10.29)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	BettyP374 Method Blank-1
Sequence Name	BETTYP450 1 ver.4
Data File	001F0402.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	9/26/2016 9:47 PM
File Modified	10/18/2016 12:22 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	9/28/2016 8:13 AM
Printed	10/18/2016 5:09 PM



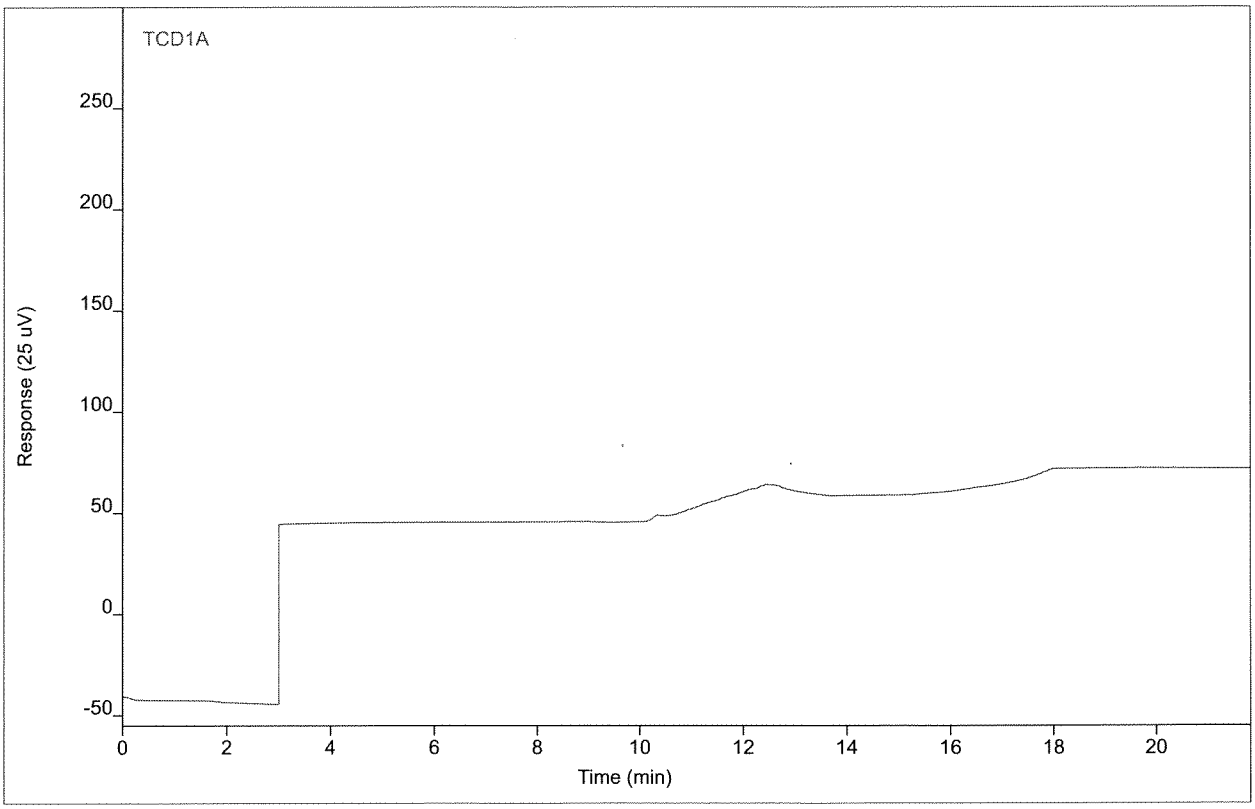
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen		(9.04)				1		
Nitrogen		(10.29)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP374 Method Blank-1
Sequence Name	BETTYP450 1 ver.4
Data File	001F0403.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	9/26/2016 10:16 PM
File Modified	10/18/2016 12:22 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	9/28/2016 8:13 AM
Printed	10/18/2016 5:09 PM



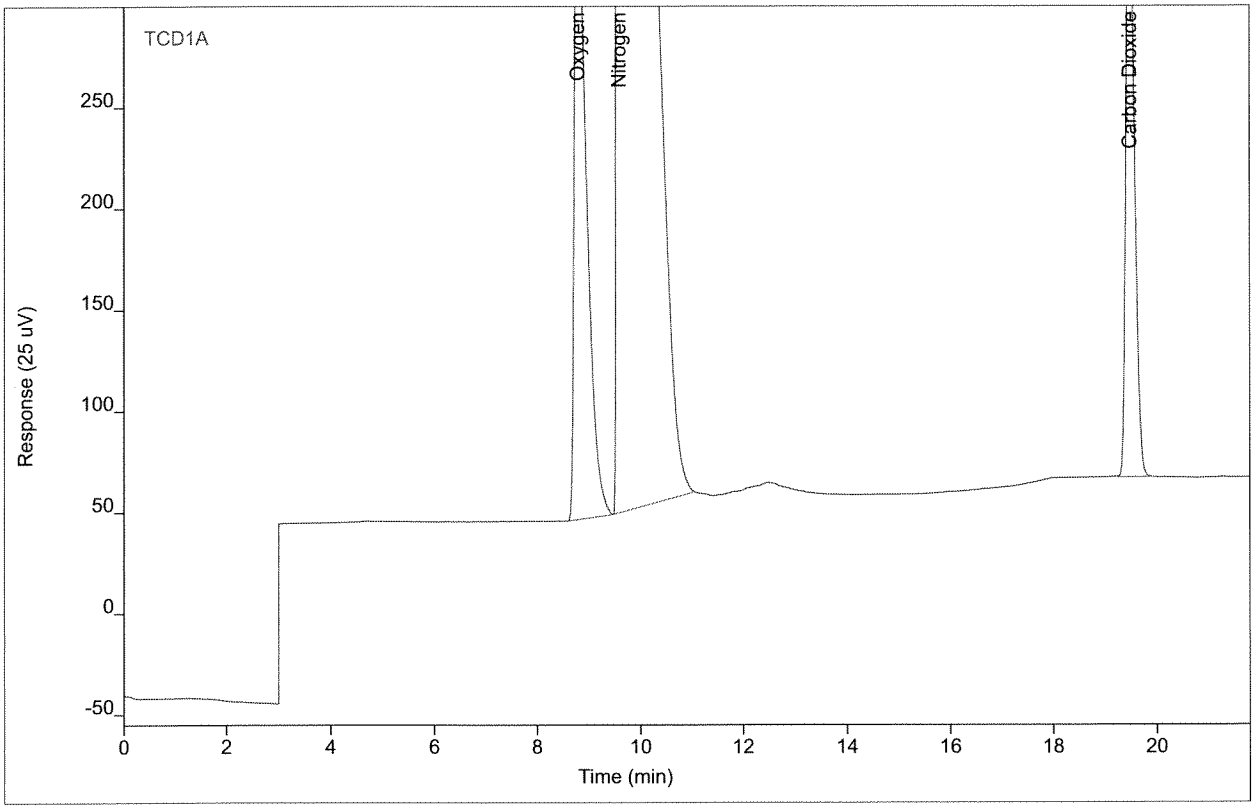
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen		(9.04)				1		
Nitrogen		(10.29)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 2.Bag
Sequence Name	BETTYP454 ver.4
Data File	007F0501.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/28/2016 10:21 PM
File Modified	10/18/2016 12:54 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.79	5275.93	327.893	13.7873	1	13.7873	%
Nitrogen	BB	9.59	31074.0	842.724	72.6159	1	72.6159	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3443.08	307.208	4.77331	1	4.77331	%

Analyst Peak Integration Comments

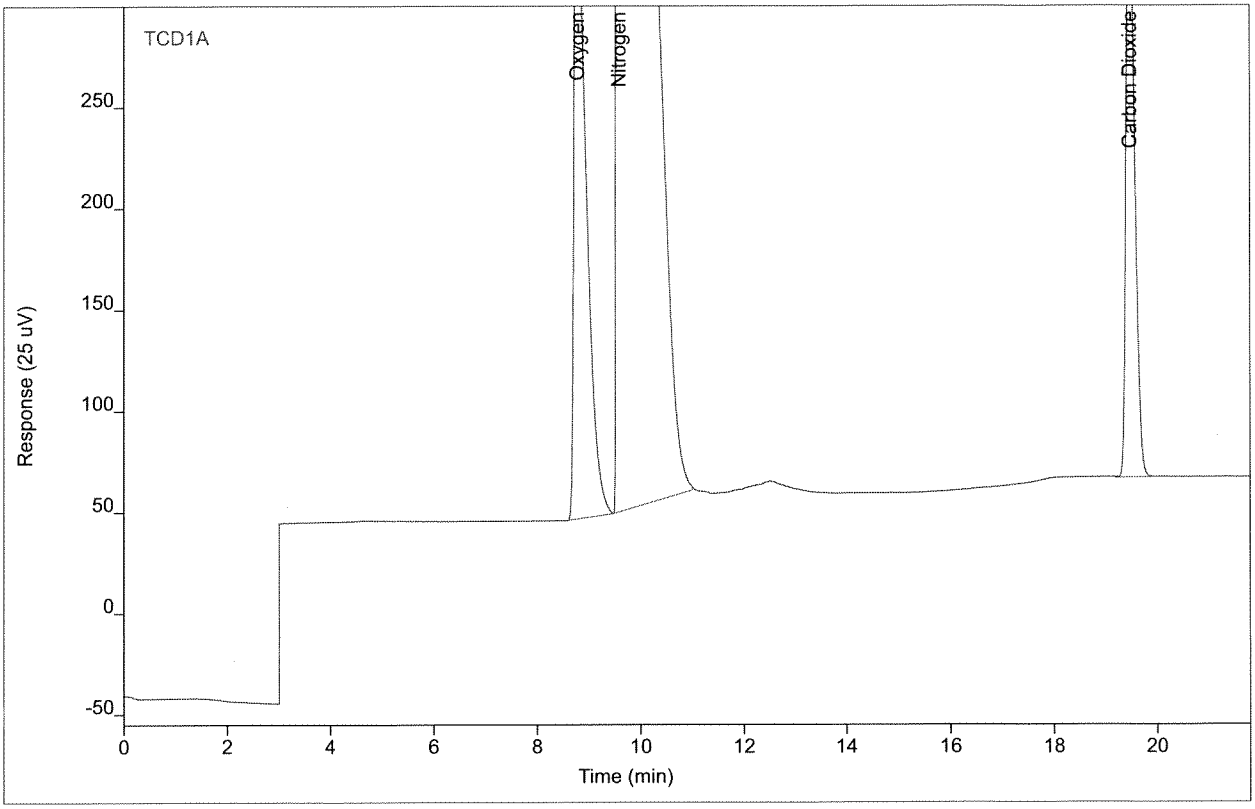
09:21:45 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 2.Bag
Sequence Name	BETTYP454 ver.4
Data File	007F0502.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/28/2016 10:50 PM
File Modified	10/18/2016 12:54 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.79	5276.47	326.804	13.7887	1	13.7887	%
Nitrogen	BB	9.59	31049.3	842.180	72.5580	1	72.5580	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3438.22	307.581	4.76649	1	4.76649	%

Analyst Peak Integration Comments

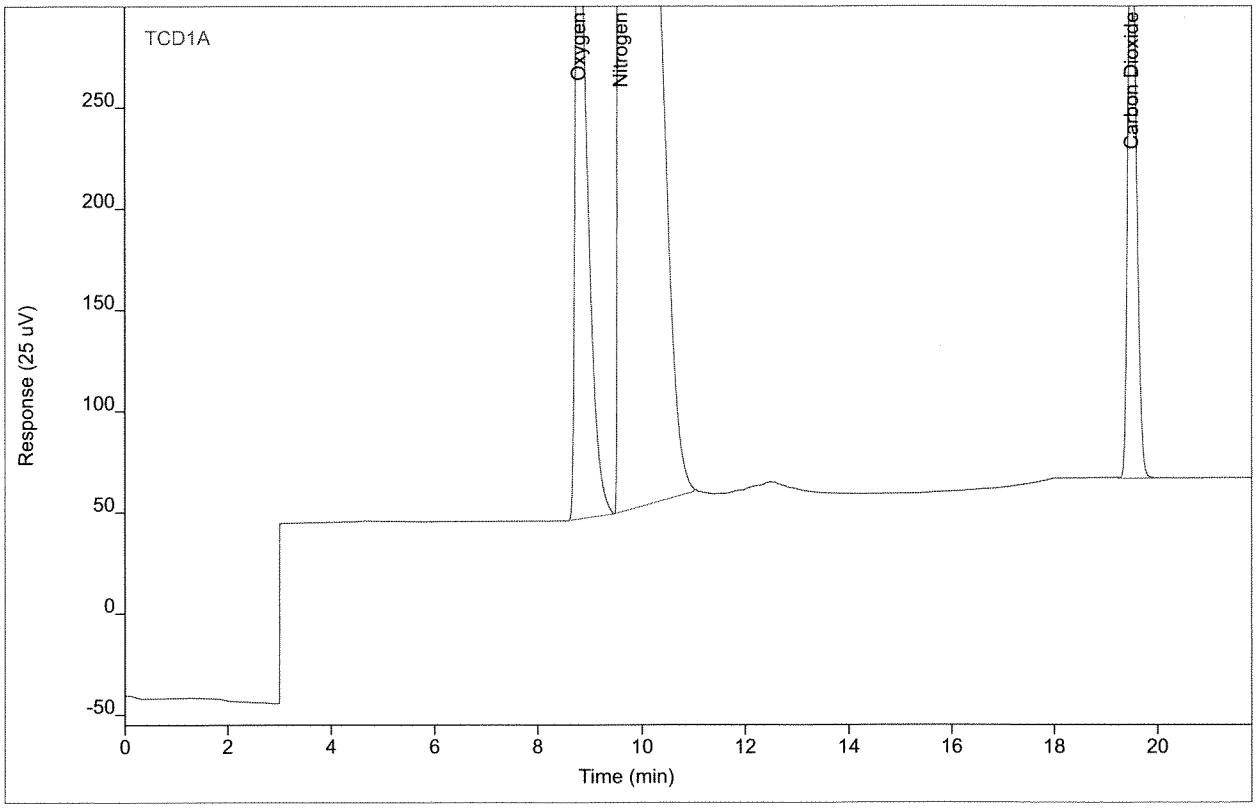
09:21:57 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.Unit 2 C1 Run 2.Bag
Sequence Name	BETTYP454 ver.4
Data File	007F0503.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/28/2016 11:18 PM
File Modified	10/18/2016 12:54 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.79	5329.76	329.465	13.9282	1	13.9282	%
Nitrogen	BB	9.59	31430.5	852.824	73.4497	1	73.4497	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3474.93	309.224	4.81800	1	4.81800	%

Analyst Peak Integration Comments

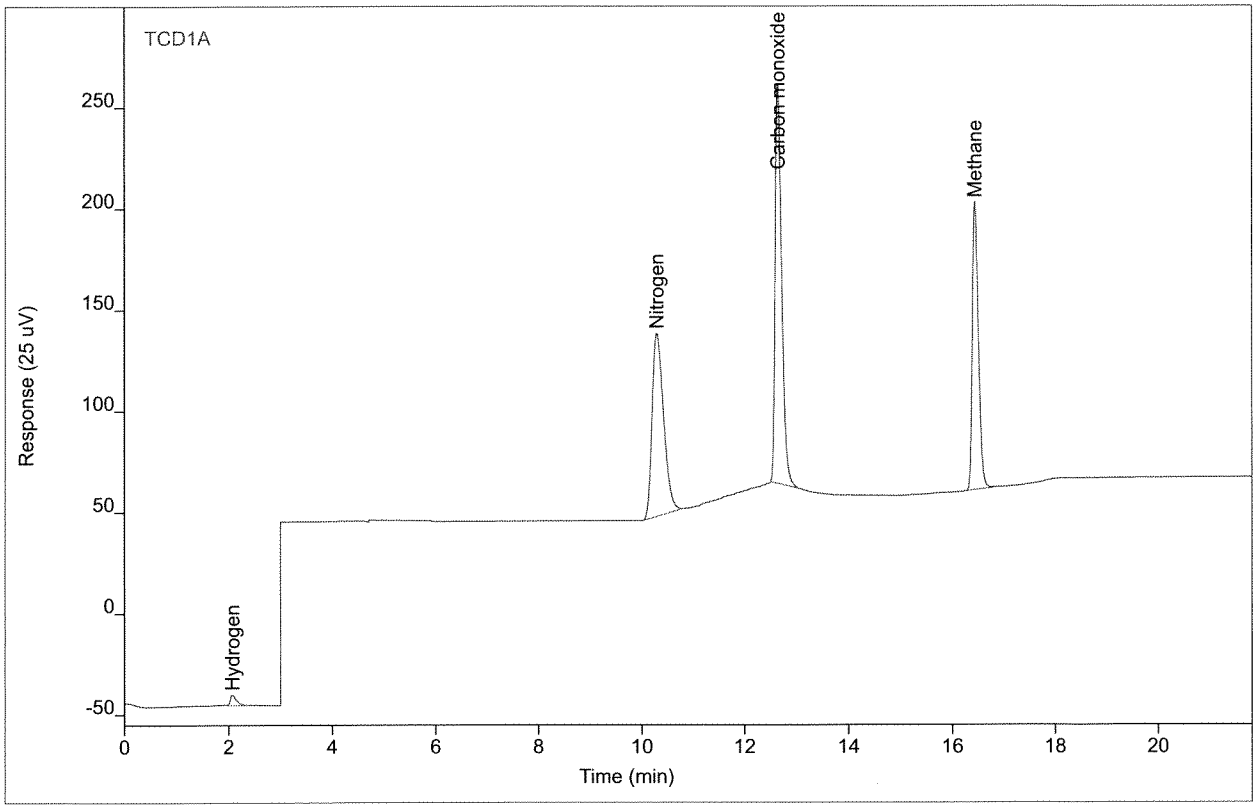
09:22:06 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP454 ver.4
Data File	009F0702.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 1:45 AM
File Modified	10/18/2016 4:52 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	43.9593	5.35168	2.45296	1	2.45296	%
Nitrogen	BB	10.30	1420.21	90.6625	3.26073	1	3.26073	%
Carbon monoxide	MM	12.66	1728.00	197.774	3.26257	1	3.26257	%
Methane	MM	16.45	1172.81	142.074	2.59231	1	2.59231	%

Analyst Peak Integration Comments

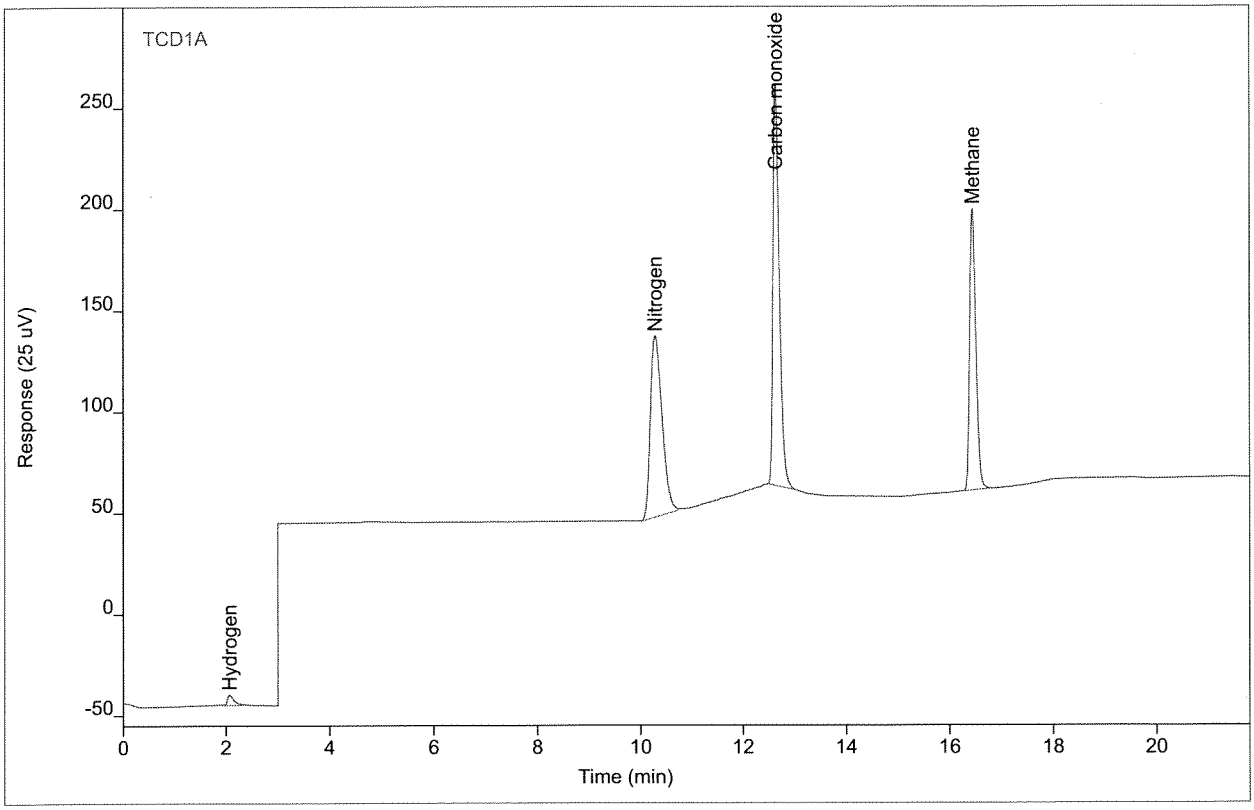
09:23:36 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP454 ver.4
Data File	009F0703.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 2:16 AM
File Modified	10/18/2016 4:52 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	46.7004	5.38157	2.60560	1	2.60560	%
Nitrogen	BB	10.30	1411.93	89.7146	3.24136	1	3.24136	%
Carbon monoxide	MM	12.65	1713.41	198.877	3.23480	1	3.23480	%
Methane	MM	16.45	1158.62	139.109	2.56047	1	2.56047	%

Analyst Peak Integration Comments

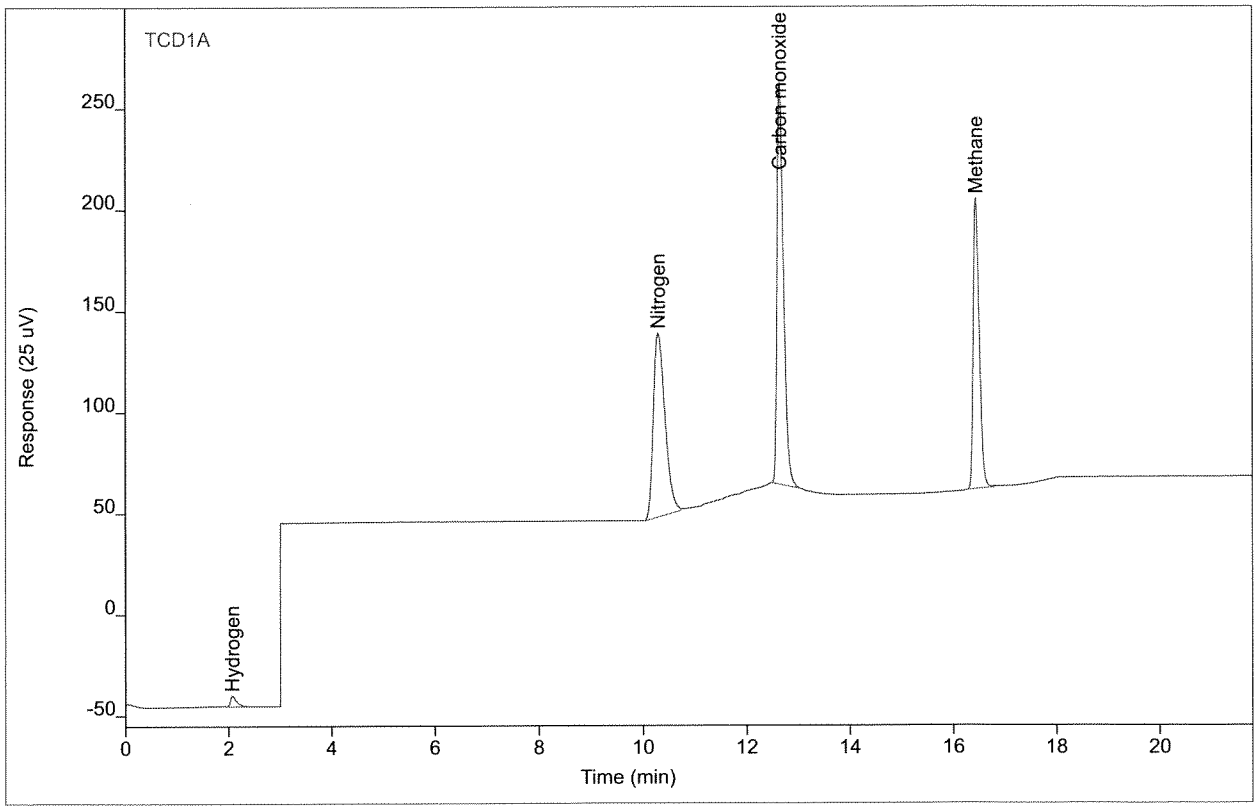
09:23:48 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP454 ver.4
Data File	009F0704.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 2:46 AM
File Modified	10/18/2016 4:52 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	44.4146	5.38831	2.47831	1	2.47831	%
Nitrogen	BB	10.30	1427.07	91.0521	3.27677	1	3.27677	%
Carbon monoxide	MM	12.66	1735.90	198.689	3.27761	1	3.27761	%
Methane	MM	16.45	1182.53	143.495	2.61413	1	2.61413	%

Analyst Peak Integration Comments

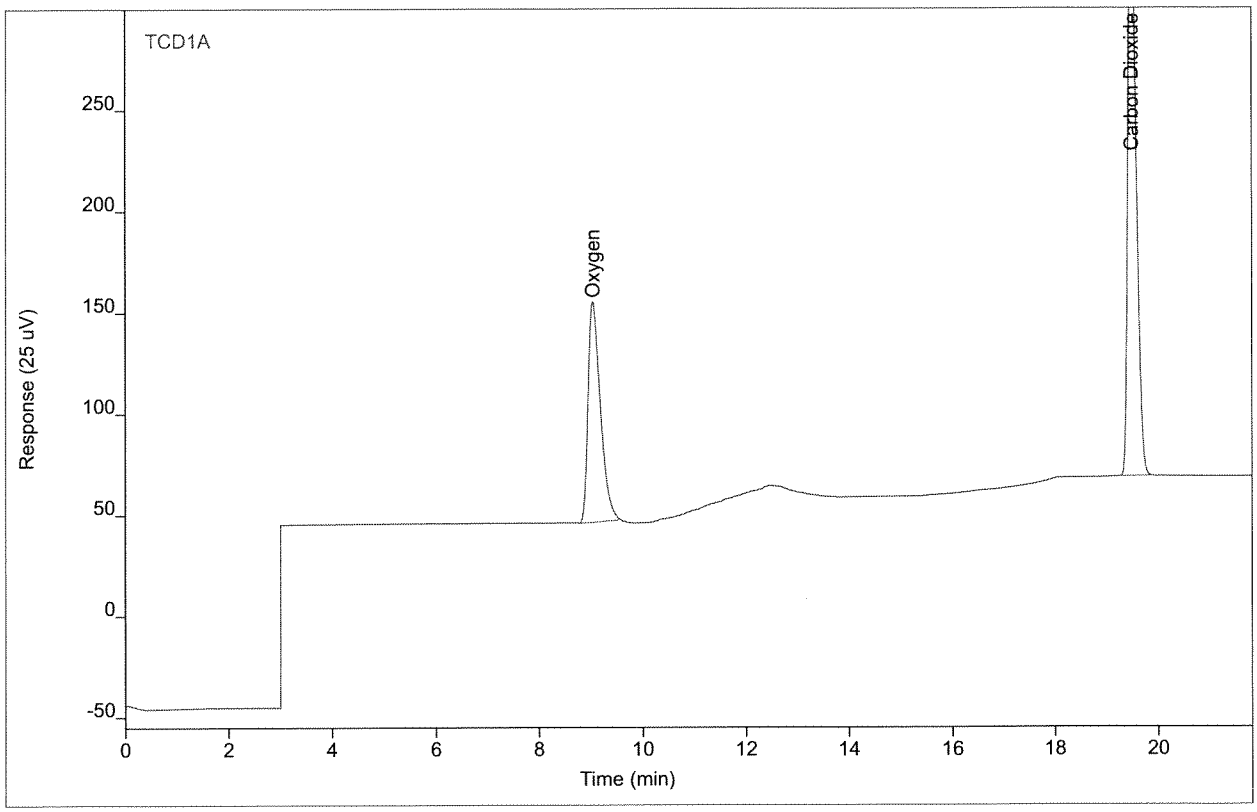
09:24:13 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP454 ver.4
Data File	009F0802.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 3:48 AM
File Modified	10/18/2016 12:58 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.05	1787.14	108.974	4.65198	1	4.65198	%
Carbon Dioxide	MM	19.49	3235.77	290.616	4.48239	1	4.48239	%

Analyst Peak Integration Comments

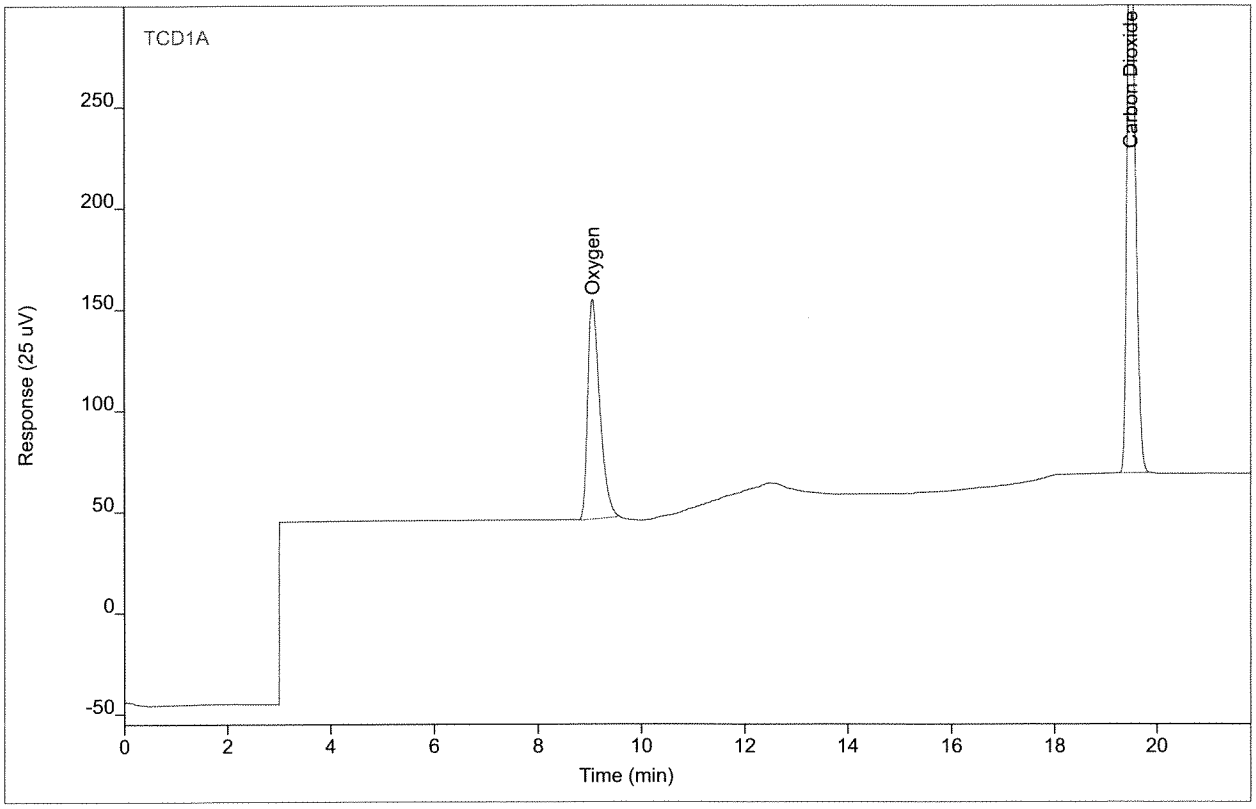
09:24:48 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP454 ver.4
Data File	009F0803.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 4:19 AM
File Modified	10/18/2016 12:58 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.05	1772.71	108.610	4.61421	1	4.61421	%
Carbon Dioxide	MM	19.48	3227.33	289.249	4.47055	1	4.47055	%

Analyst Peak Integration Comments

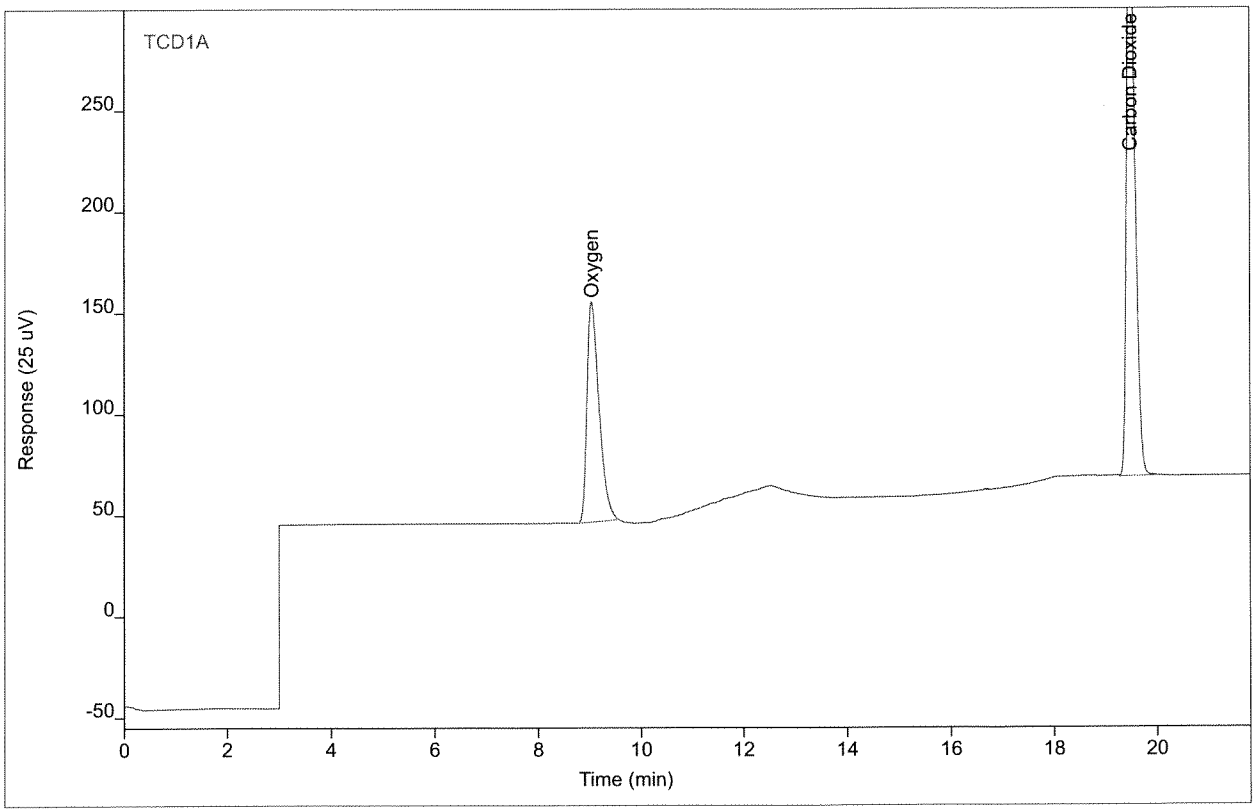
09:24:58 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP454 ver.4
Data File	009F0804.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 4:49 AM
File Modified	10/18/2016 1:02 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 12:50 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.05	1778.65	108.835	4.62976	1	4.62976	%
Carbon Dioxide	MM	19.49	3248.04	290.632	4.49961	1	4.49961	%

Analyst Peak Integration Comments

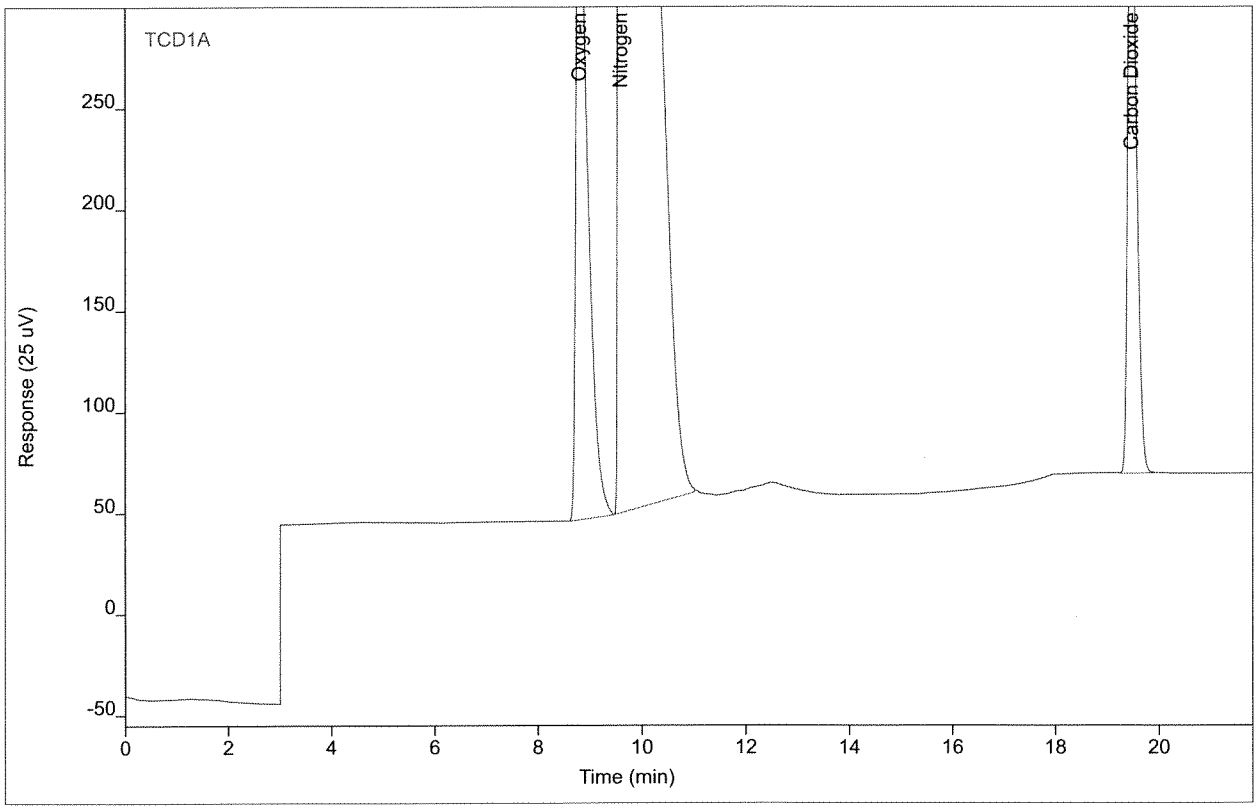
09:25:10 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 1.Bag
Sequence Name	BETTYP455 ver.2
Data File	004F0401.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 12:59 PM
File Modified	10/18/2016 1:16 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:06 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5208.70	323.961	13.6112	1	13.6112	%
Nitrogen	BB	9.59	31375.4	852.071	73.3208	1	73.3208	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3616.19	320.927	5.01623	1	5.01623	%

Analyst Peak Integration Comments

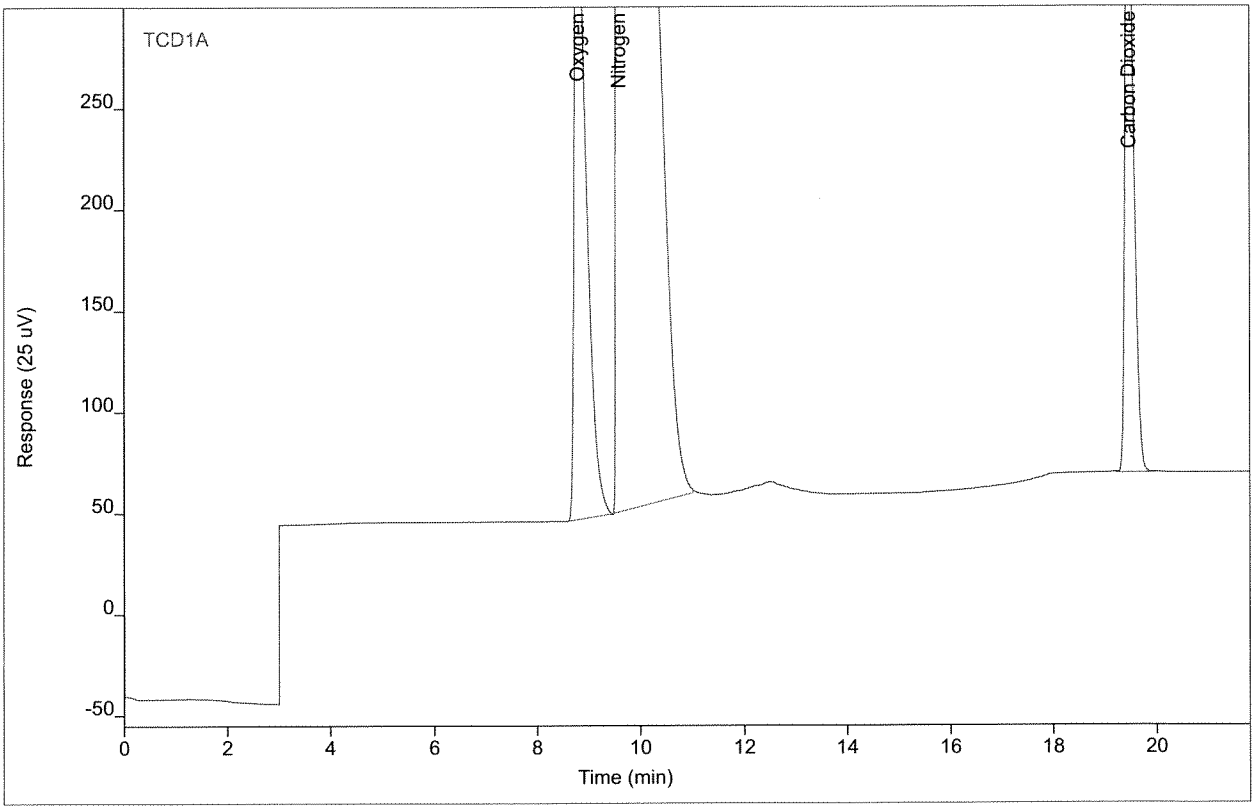
14:24:58 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 1.Bag
Sequence Name	BETTYP455 ver.2
Data File	004F0402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 1:27 PM
File Modified	10/18/2016 1:16 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:06 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5213.81	325.359	13.6246	1	13.6246	%
Nitrogen	BB	9.60	31557.1	856.807	73.7459	1	73.7459	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3634.30	322.837	5.04164	1	5.04164	%

Analyst Peak Integration Comments

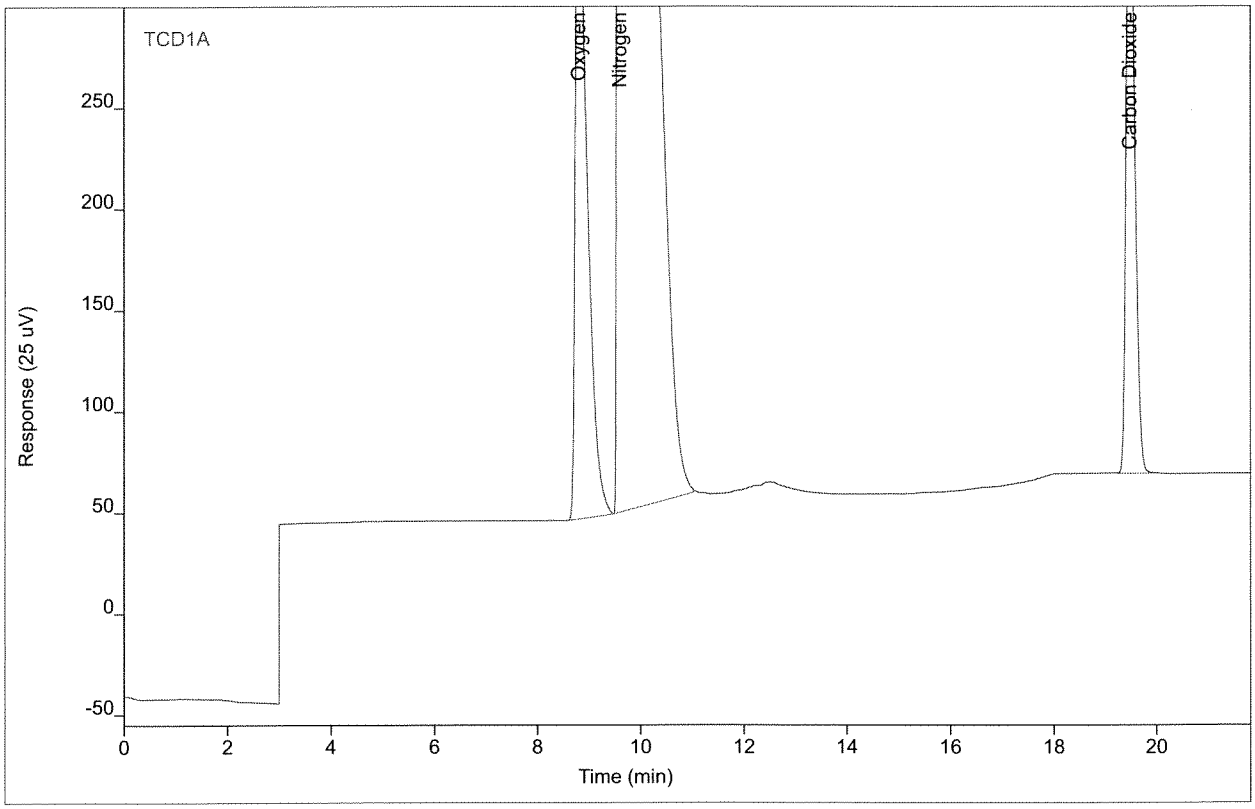
14:25:10 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 1.Bag
Sequence Name	BETTYP455 ver.2
Data File	004F0403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 1:56 PM
File Modified	10/18/2016 1:16 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:06 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5221.58	324.657	13.6450	1	13.6450	%
Nitrogen	BB	9.60	31436.9	856.720	73.4646	1	73.4646	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3628.88	323.463	5.03404	1	5.03404	%

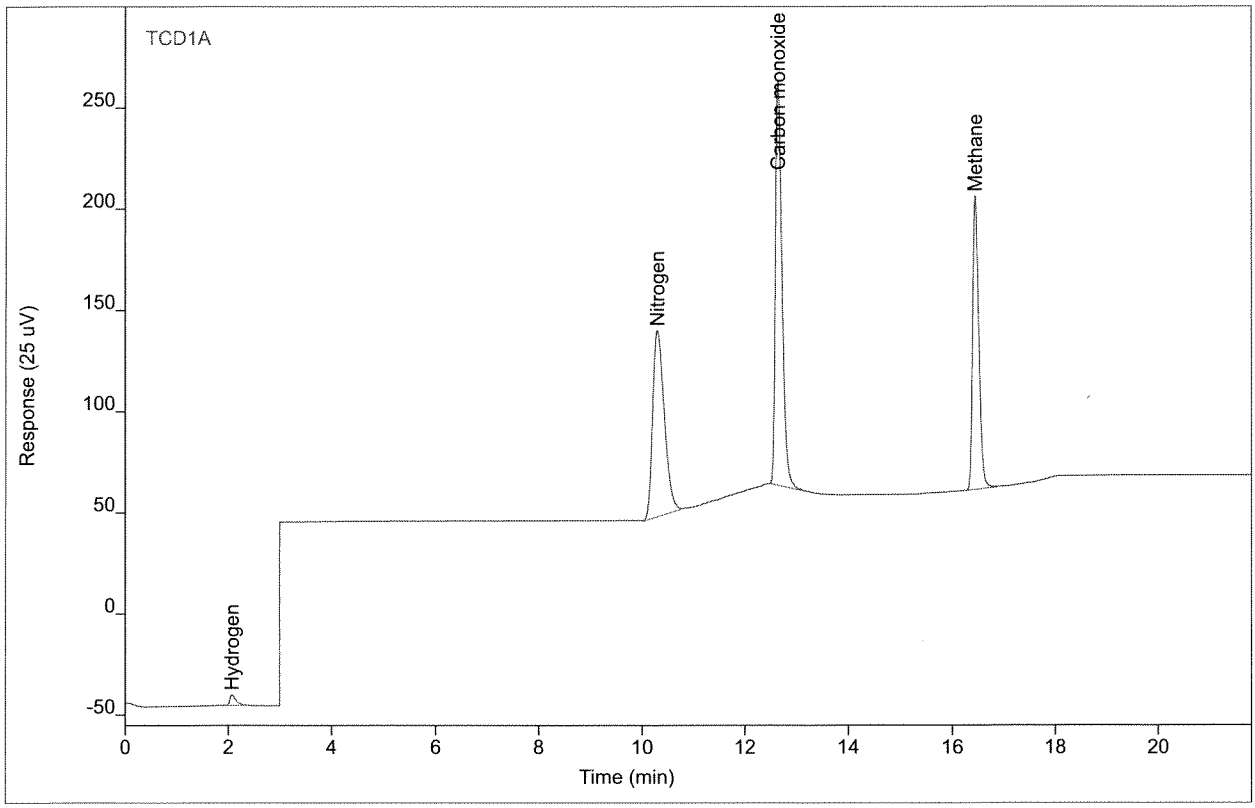
Analyst Peak Integration Comments

14:25:19 09/29/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP455 ver.2	Vial Number	Vial 9
Data File	009F0602.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	9/29/2016 4:22 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 1:16 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 1:06 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.7849	5.49877	2.55462	1	2.55462	%
Nitrogen	BB	10.30	1443.76	92.1639	3.31580	1	3.31580	%
Carbon monoxide	MM	12.66	1769.32	199.455	3.34124	1	3.34124	%
Methane	MM	16.45	1201.33	145.028	2.65631	1	2.65631	%

Analyst Peak Integration Comments

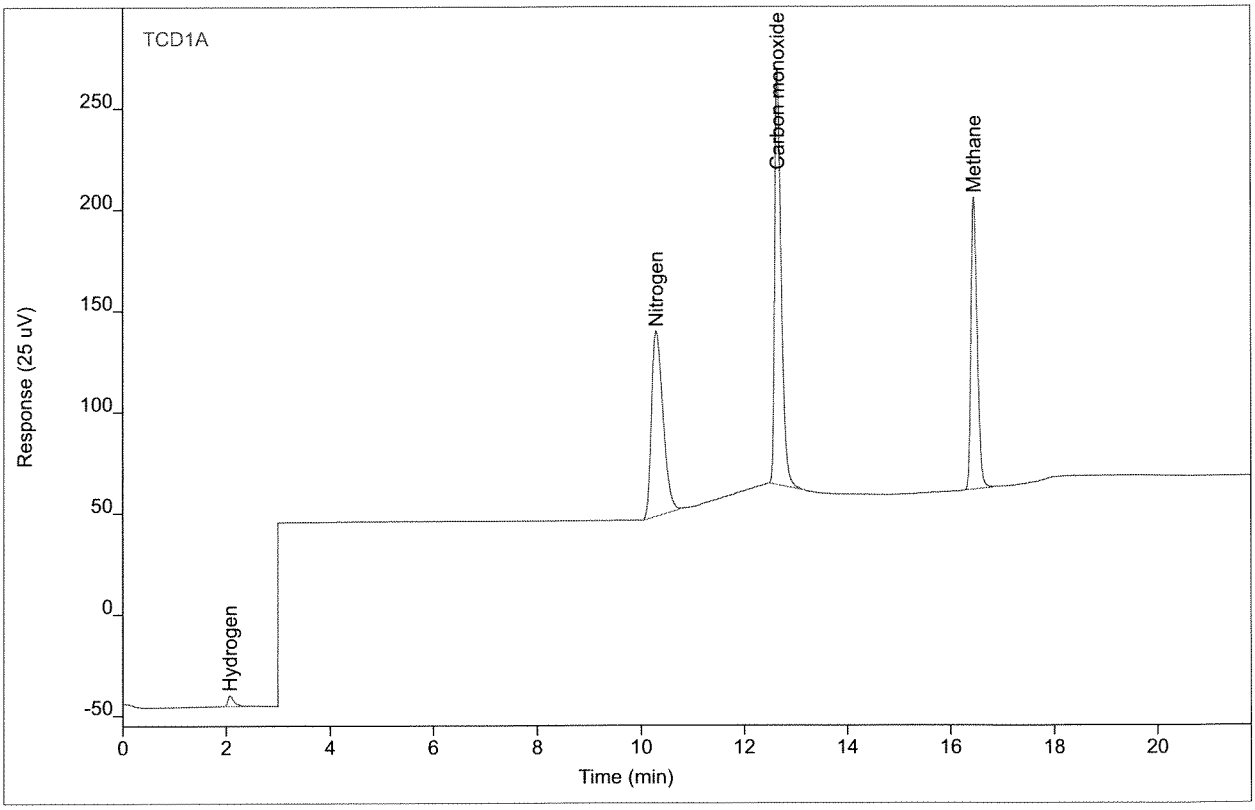
08:07:40 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP455 ver.2
Data File	009F0603.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 4:53 PM
File Modified	10/18/2016 1:16 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:06 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.0311	5.46551	2.51264	1	2.51264	%
Nitrogen	BB	10.30	1435.94	91.6664	3.29751	1	3.29751	%
Carbon monoxide	MM	12.66	1767.95	205.190	3.33862	1	3.33862	%
Methane	MM	16.45	1192.33	144.239	2.63610	1	2.63610	%

Analyst Peak Integration Comments

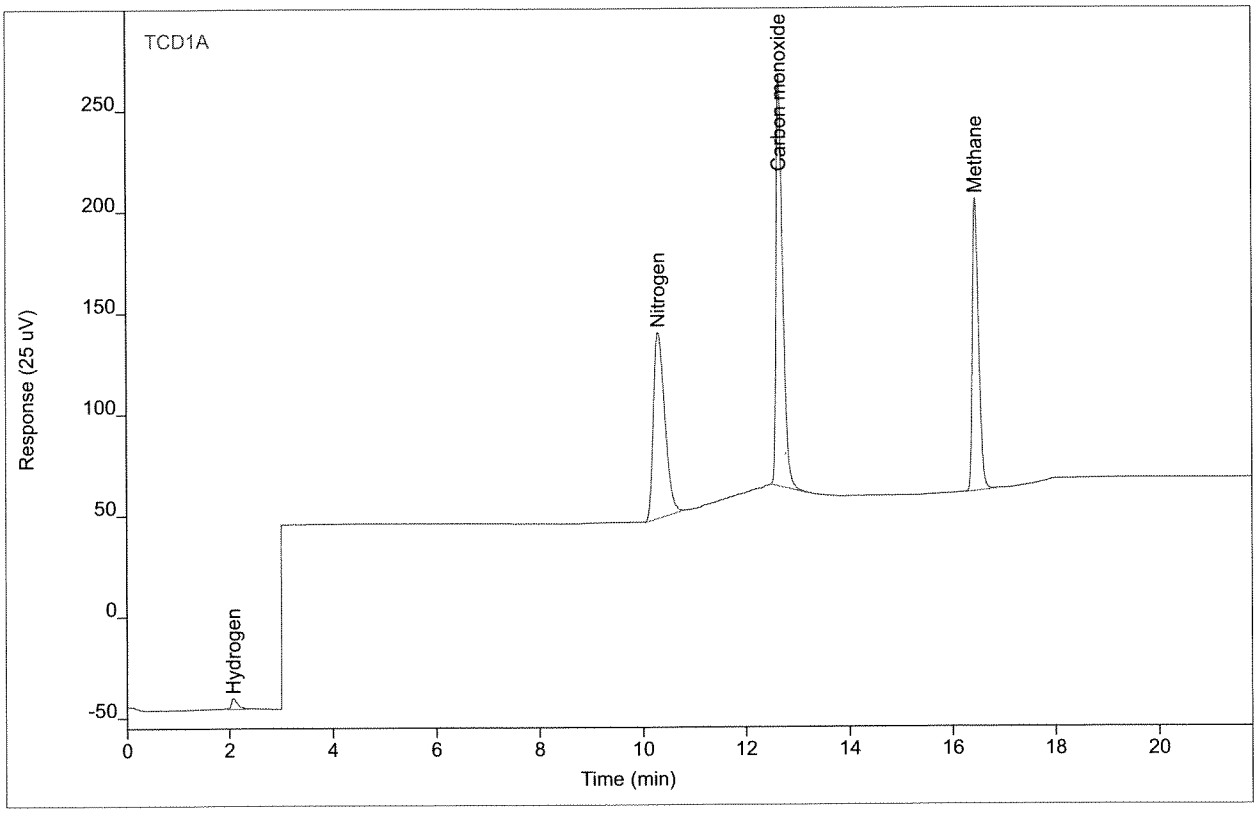
08:07:54 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP455 ver.2
Data File	009F0604.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 5:24 PM
File Modified	10/18/2016 1:16 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:06 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.7693	5.38512	2.55375	1	2.55375	%
Nitrogen	BB	10.31	1446.29	92.3175	3.32172	1	3.32172	%
Carbon monoxide	MM	12.66	1771.29	202.761	3.34499	1	3.34499	%
Methane	MM	16.45	1196.48	144.699	2.64541	1	2.64541	%

Analyst Peak Integration Comments

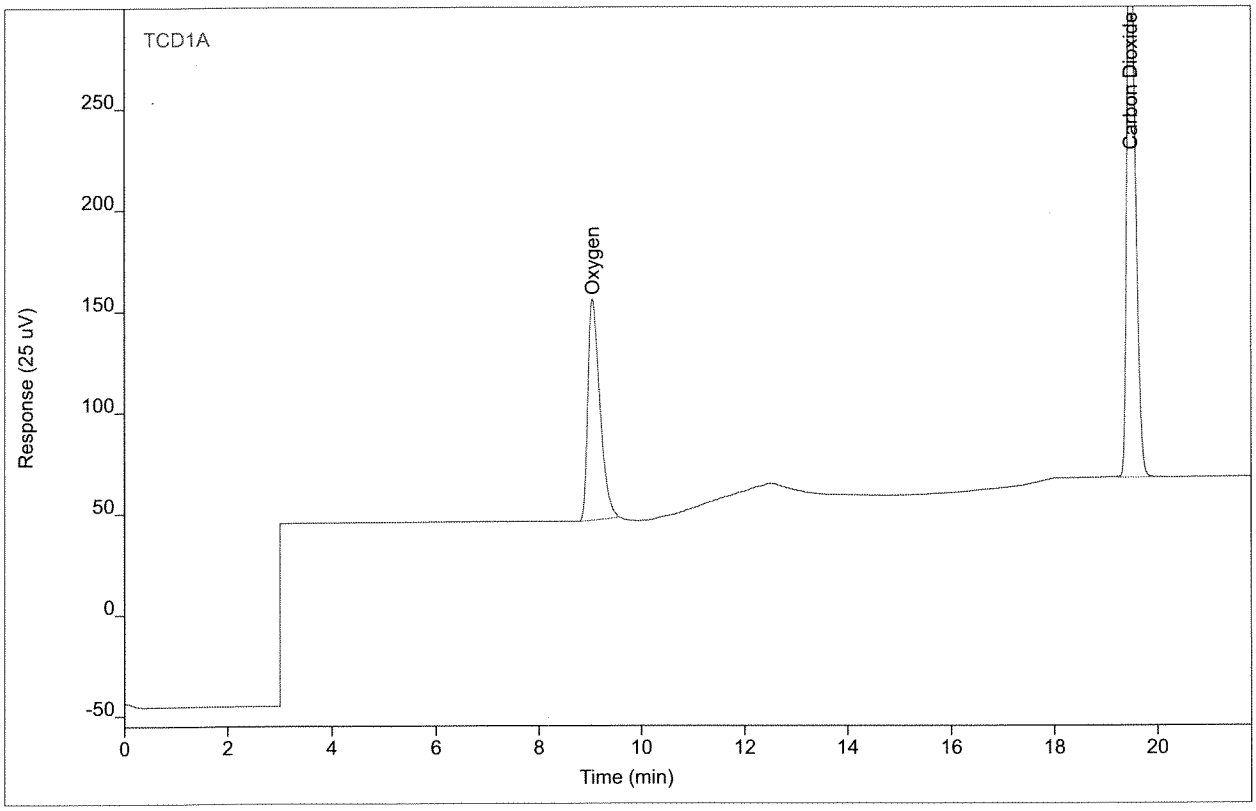
08:08:07 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP455 ver.2
Data File	009F0702.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/29/2016 6:25 PM
File Modified	10/18/2016 1:17 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:06 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.06	1793.21	109.252	4.66788	1	4.66788	%
Carbon Dioxide	MM	19.49	3263.23	292.969	4.52092	1	4.52092	%

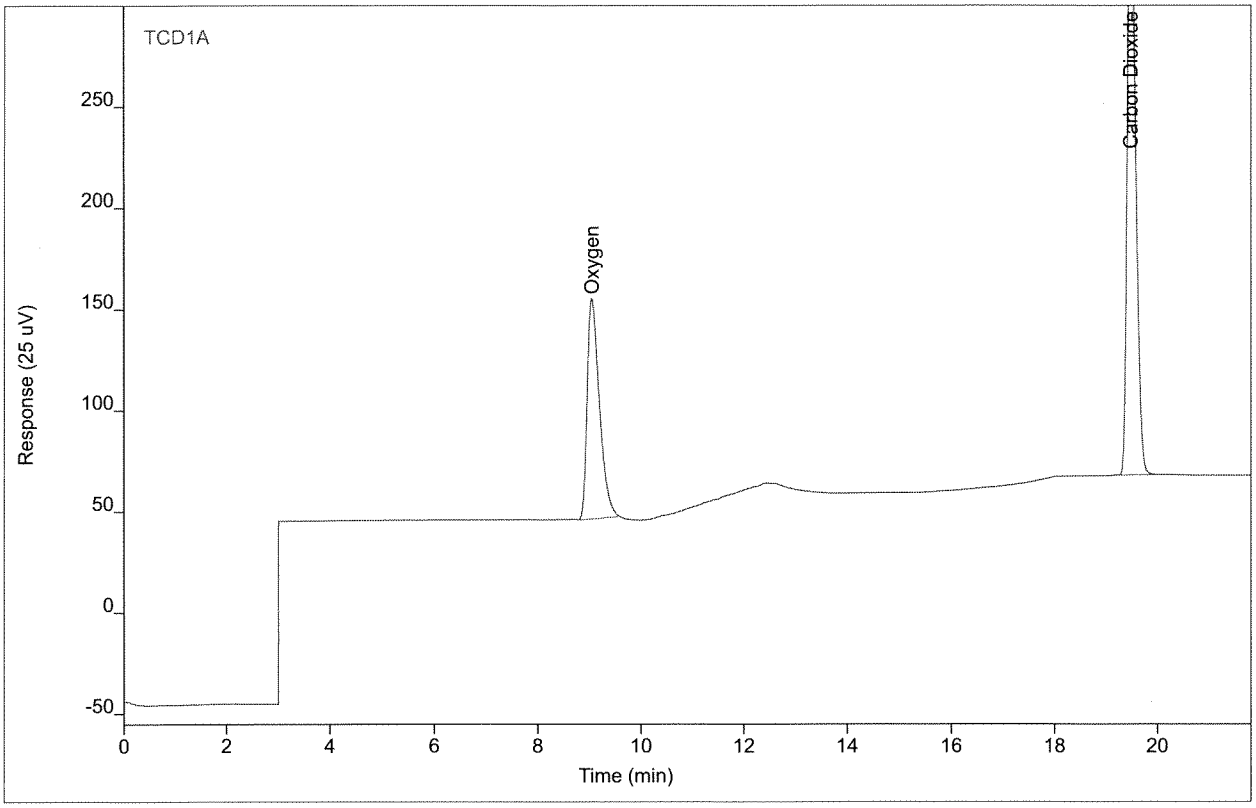
Analyst Peak Integration Comments

08:08:48 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP455 ver.2	Vial Number	Vial 9
Data File	009F0703.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 4
Injection Date	9/29/2016 6:56 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 1:17 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 1:06 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.05	1788.82	109.030	4.65638	1	4.65638	%
Carbon Dioxide	MM	19.48	3297.63	296.389	4.56921	1	4.56921	%

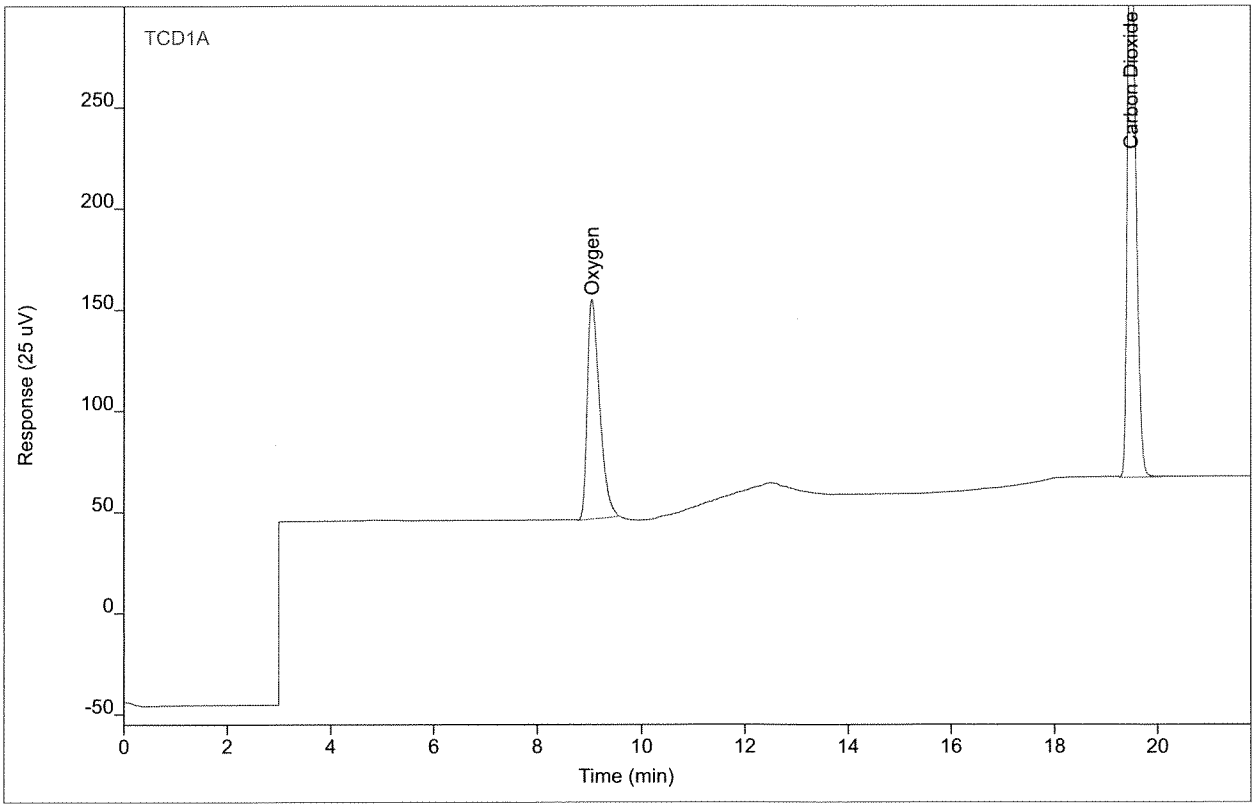
Analyst Peak Integration Comments

08:08:58 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP455 ver.2	Vial Number	Vial 9
Data File	009F0704.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	4 of 4
Injection Date	9/29/2016 7:27 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 1:17 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 1:06 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.06	1778.91	108.563	4.63043	1	4.63043	%
Carbon Dioxide	MM	19.49	3253.15	291.408	4.50679	1	4.50679	%

Analyst Peak Integration Comments

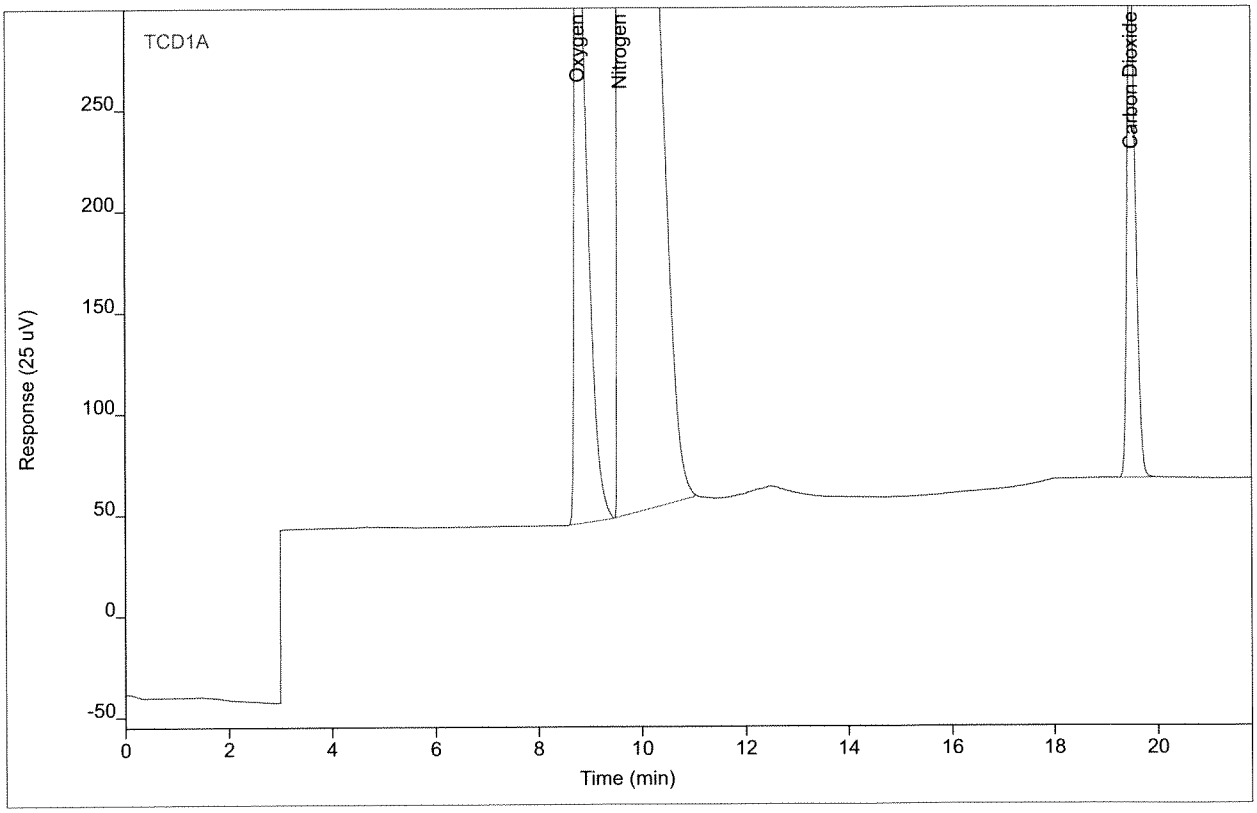
08:09:07 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 3.Bag
Sequence Name	BETTYP456 ver.2
Data File	003F0101.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 9:40 AM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



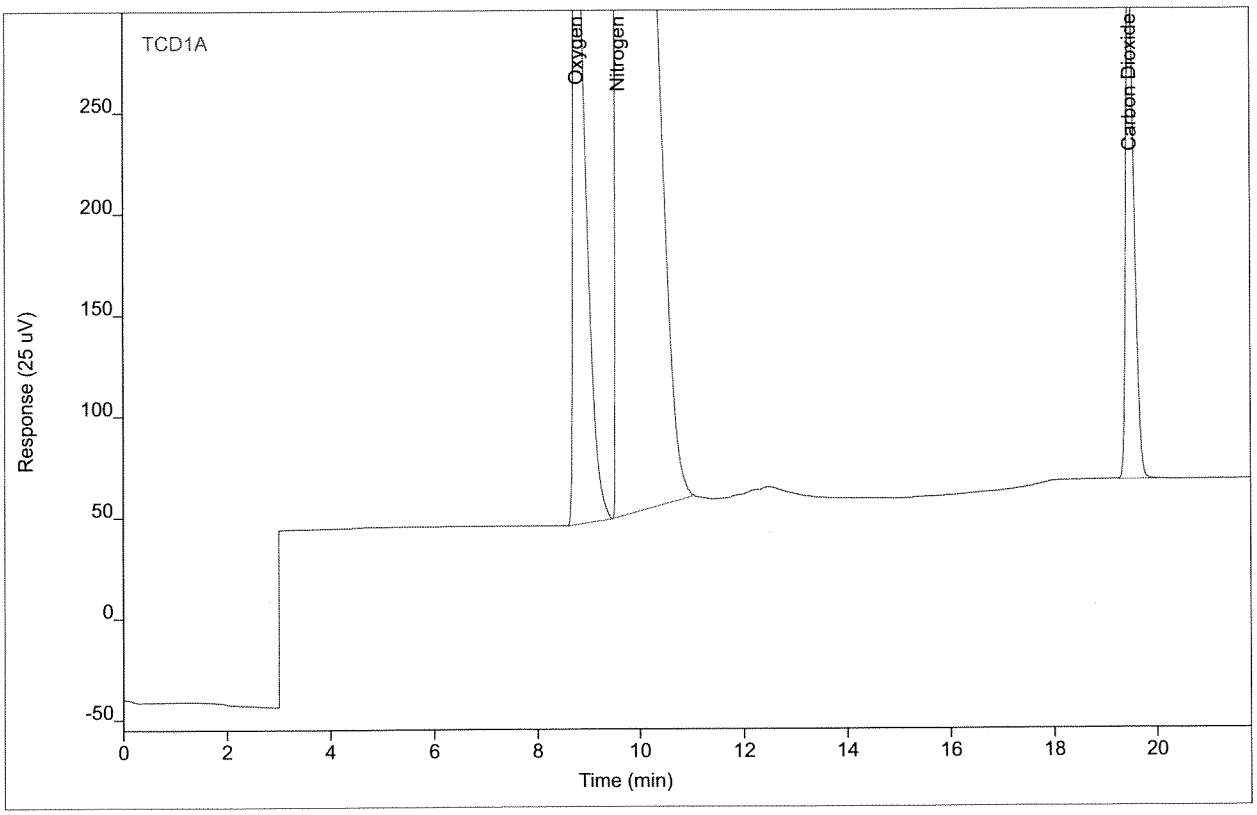
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.78	5767.36	349.996	15.0741	1	15.0741	%
Nitrogen	BB	9.60	30801.9	837.561	71.9794	1	71.9794	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.49	2834.92	256.594	3.91989	1	3.91989	%

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 3.Bag
Sequence Name	BETTYP456 ver.2
Data File	003F0102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 10:08 AM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.78	5786.75	350.809	15.1248	1	15.1248	%
Nitrogen	BB	9.60	30923.0	845.769	72.2627	1	72.2627	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.49	2828.52	255.276	3.91090	1	3.91090	%

Analyst Peak Integration Comments

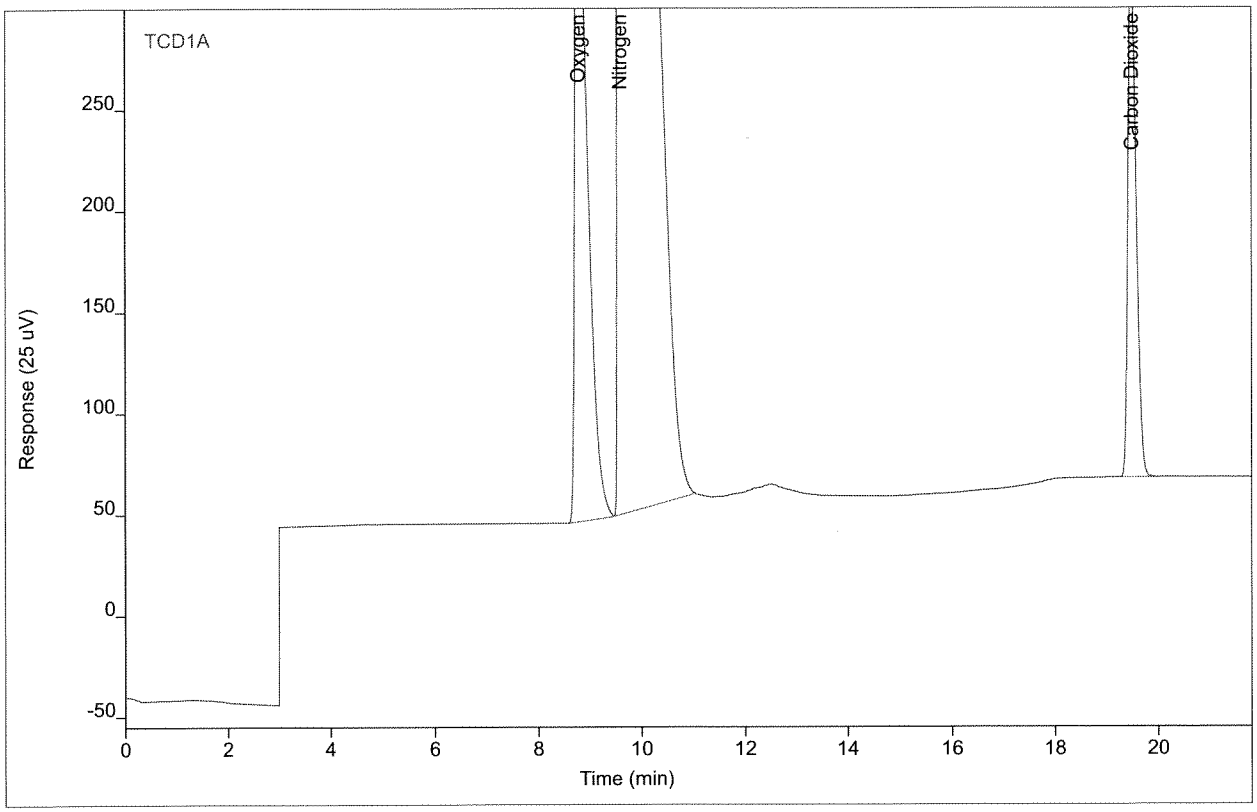
10:37:31 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C1 Run 3.Bag
Sequence Name	BETTYP456 ver.2
Data File	003F0103.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 10:37 AM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



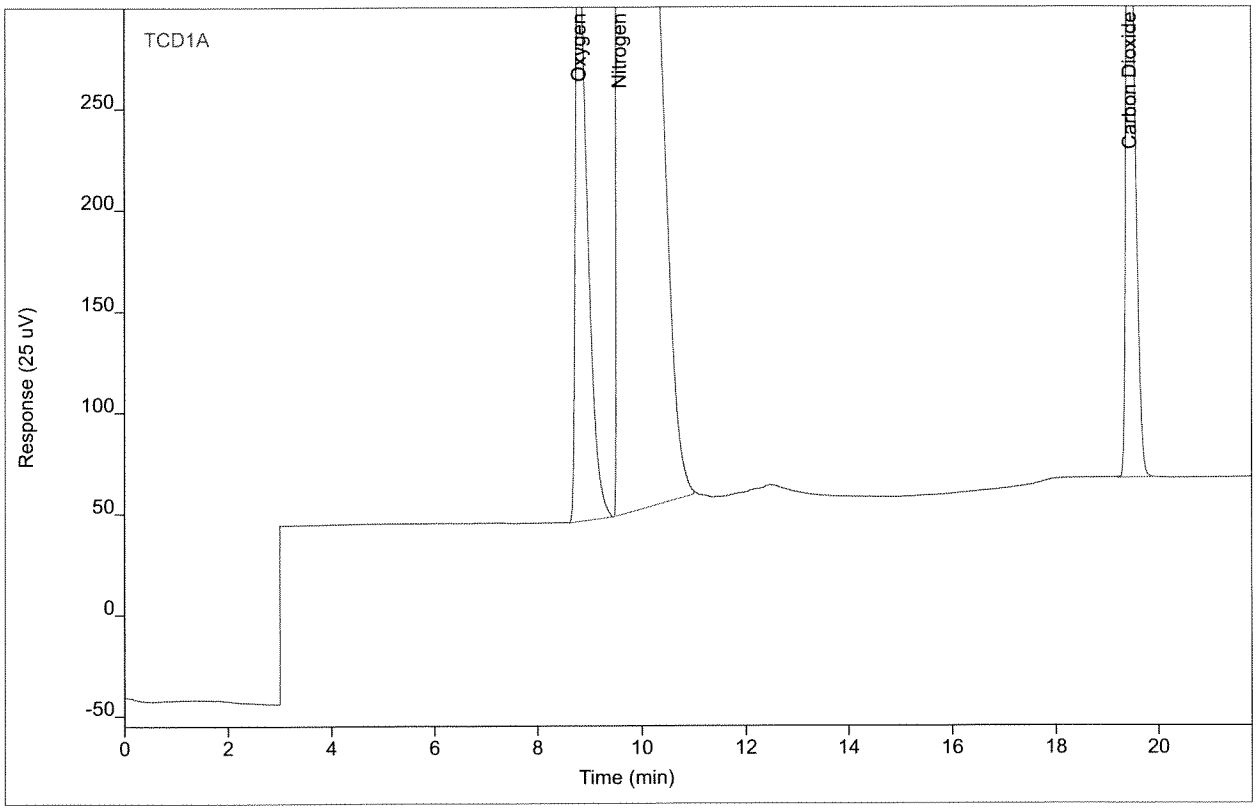
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.78	5857.61	354.624	15.3104	1	15.3104	%
Nitrogen	BB	9.60	31156.7	846.684	72.8093	1	72.8093	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.49	2843.74	256.513	3.93226	1	3.93226	%

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 1.Bag
Sequence Name	BETTYP456 ver.2
Data File	003F0301.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 11:28 AM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	4661.65	298.463	12.1788	1	12.1788	%
Nitrogen	BB	9.59	31433.3	852.798	73.4563	1	73.4563	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	4161.92	363.899	5.78205	1	5.78205	%

Analyst Peak Integration Comments

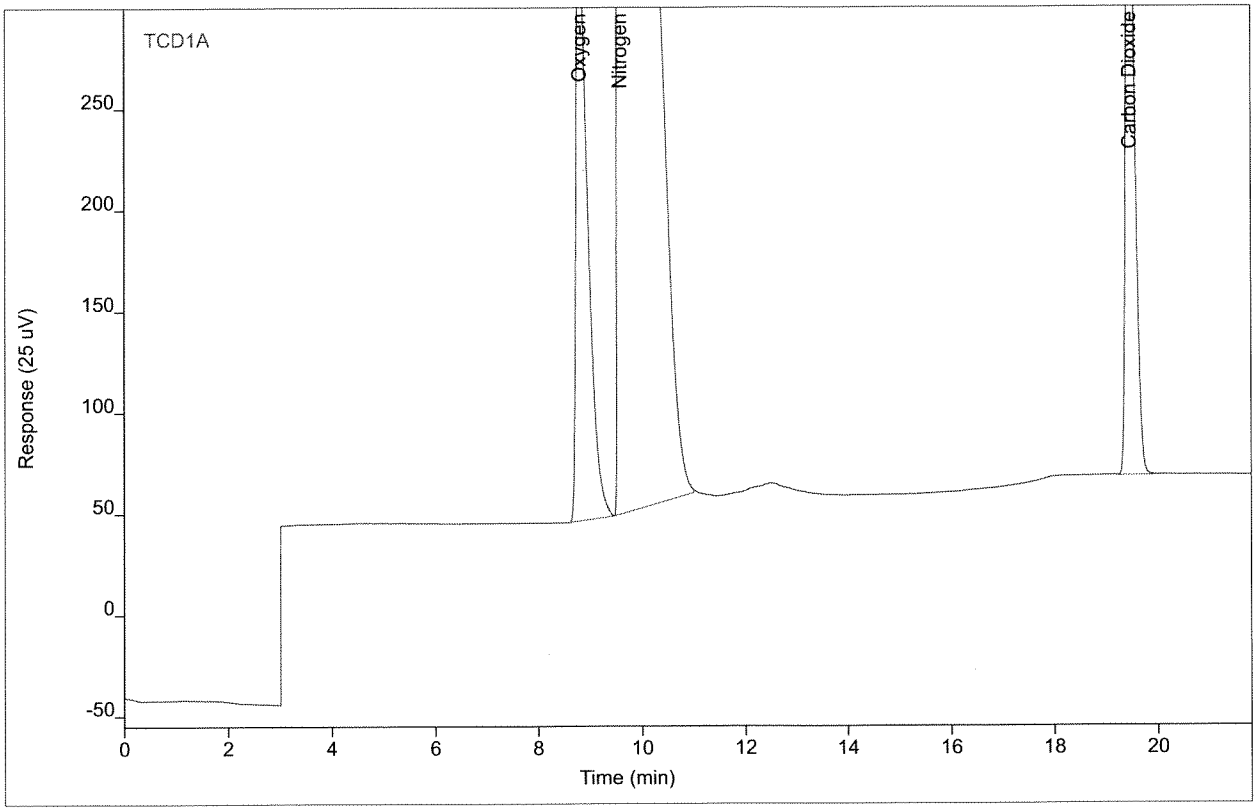
12:33:22 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 1.Bag
Sequence Name	BETTYP456 ver.2
Data File	003F0302.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 11:57 AM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	4708.50	301.368	12.3015	1	12.3015	%
Nitrogen	BB	9.59	31647.2	858.092	73.9565	1	73.9565	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	4216.49	371.081	5.85862	1	5.85862	%

Analyst Peak Integration Comments

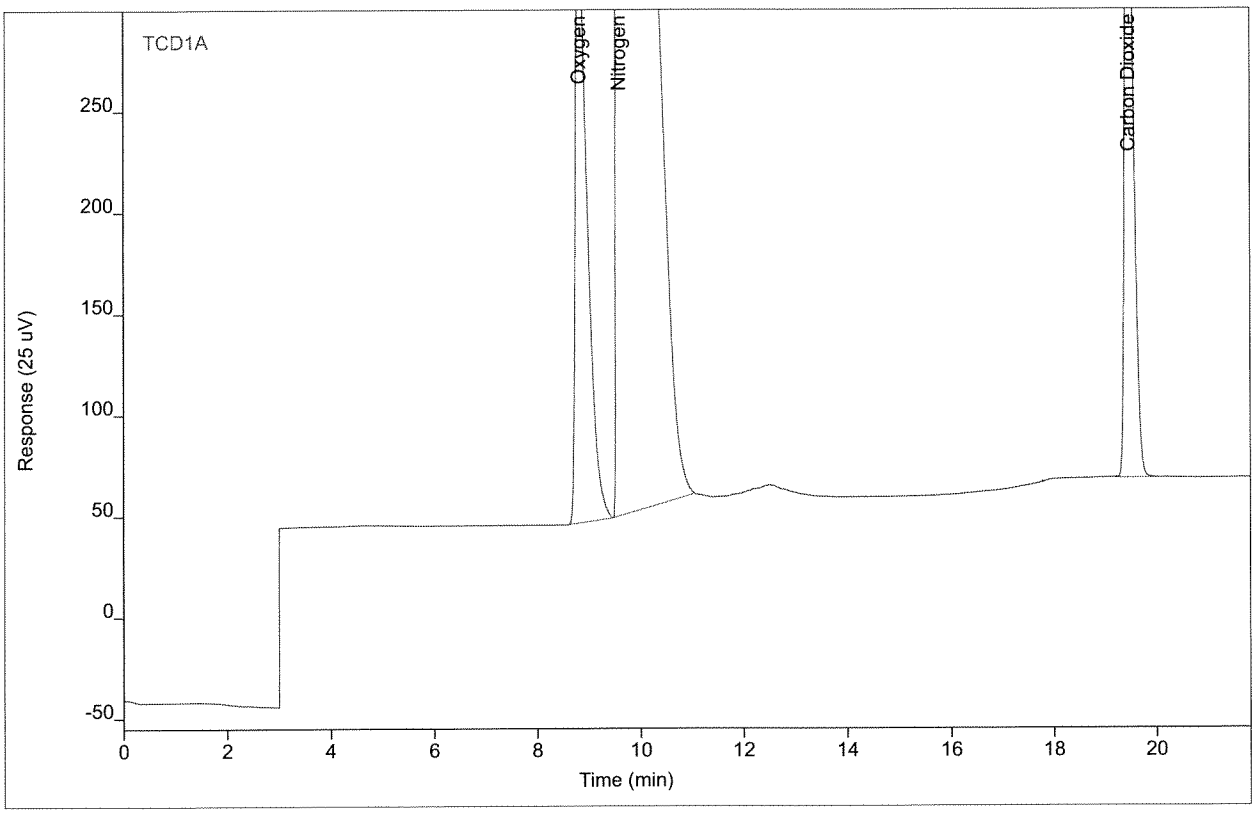
12:33:32 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 1.Bag
Sequence Name	BETTYP456 ver.2
Data File	003F0303.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 12:26 PM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	4737.97	303.474	12.3787	1	12.3787	%
Nitrogen	BB	9.60	31815.7	860.772	74.3506	1	74.3506	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	4216.31	368.149	5.85837	1	5.85837	%

Analyst Peak Integration Comments

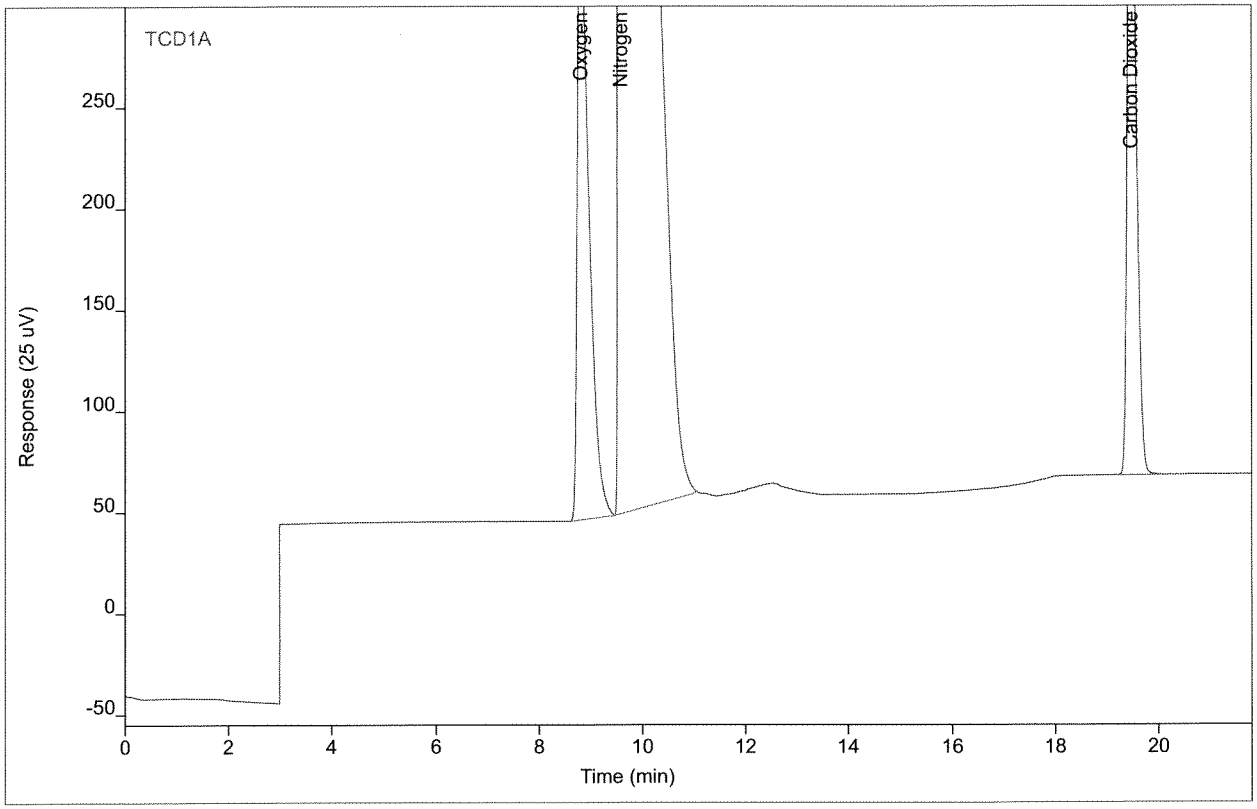
15:40:34 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	004F0401.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 12:54 PM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	4765.76	303.112	12.4514	1	12.4514	%
Nitrogen	BB	9.59	31593.7	854.248	73.8315	1	73.8315	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	4143.37	363.517	5.75601	1	5.75601	%

Analyst Peak Integration Comments

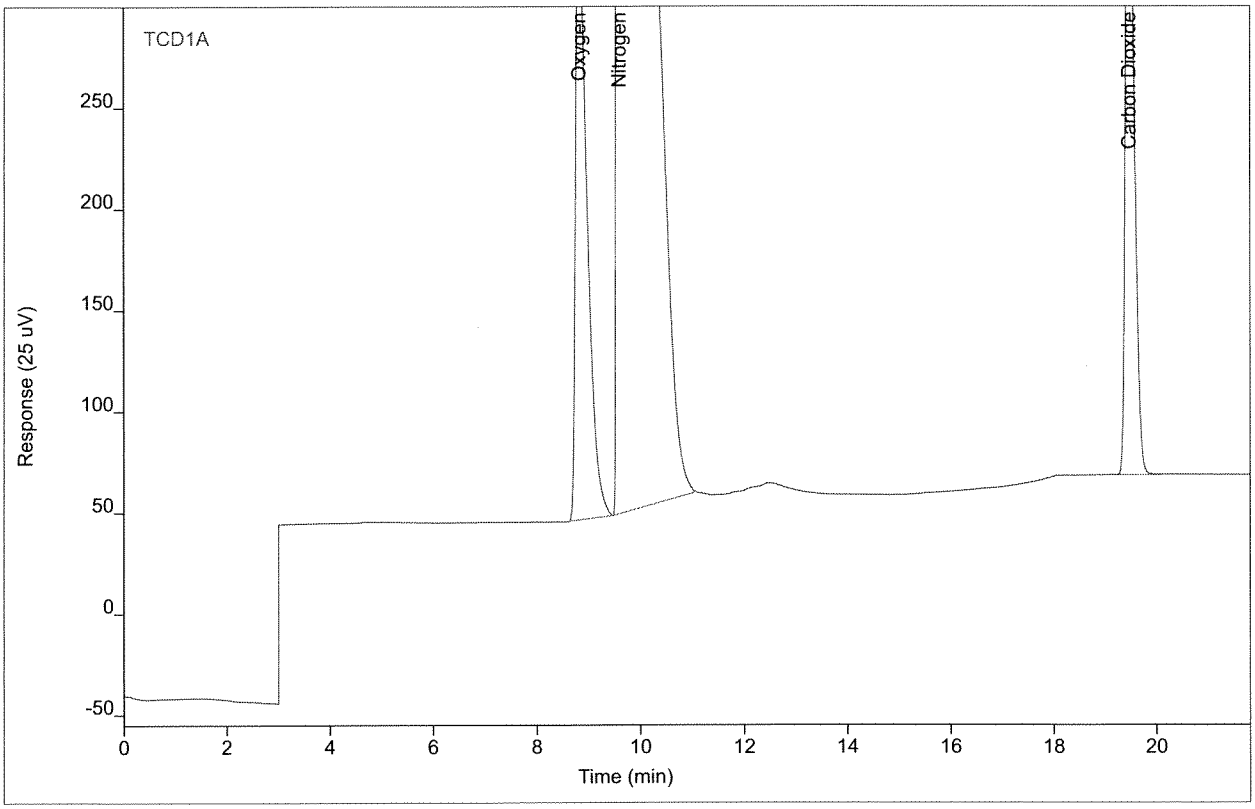
15:40:42 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	004F0402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 1:23 PM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	4728.23	301.777	12.3531	1	12.3531	%
Nitrogen	BB	9.60	31361.9	852.969	73.2893	1	73.2893	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	4111.68	362.185	5.71154	1	5.71154	%

Analyst Peak Integration Comments

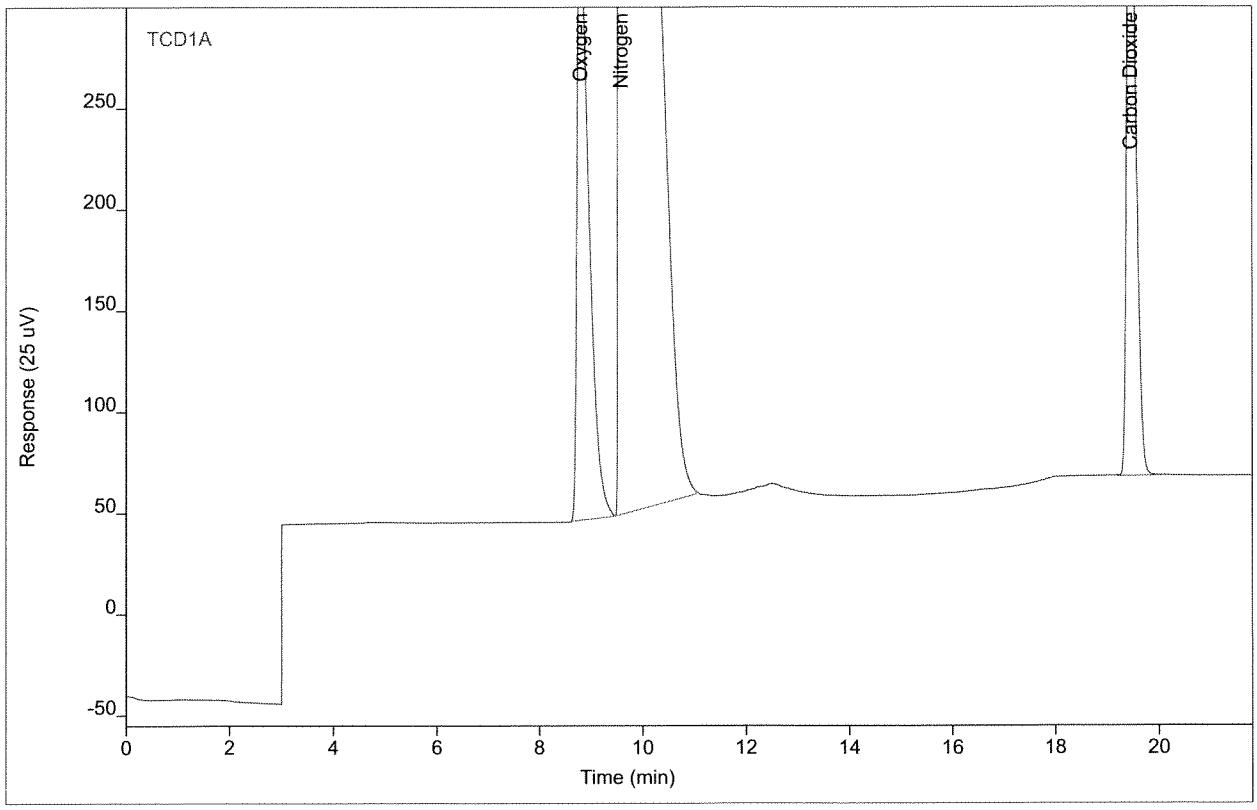
15:40:53 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	004F0403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 1:52 PM
File Modified	10/18/2016 2:25 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	4753.89	303.118	12.4203	1	12.4203	%
Nitrogen	BB	9.59	31500.2	853.820	73.6128	1	73.6128	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	4100.15	360.098	5.69536	1	5.69536	%

Analyst Peak Integration Comments

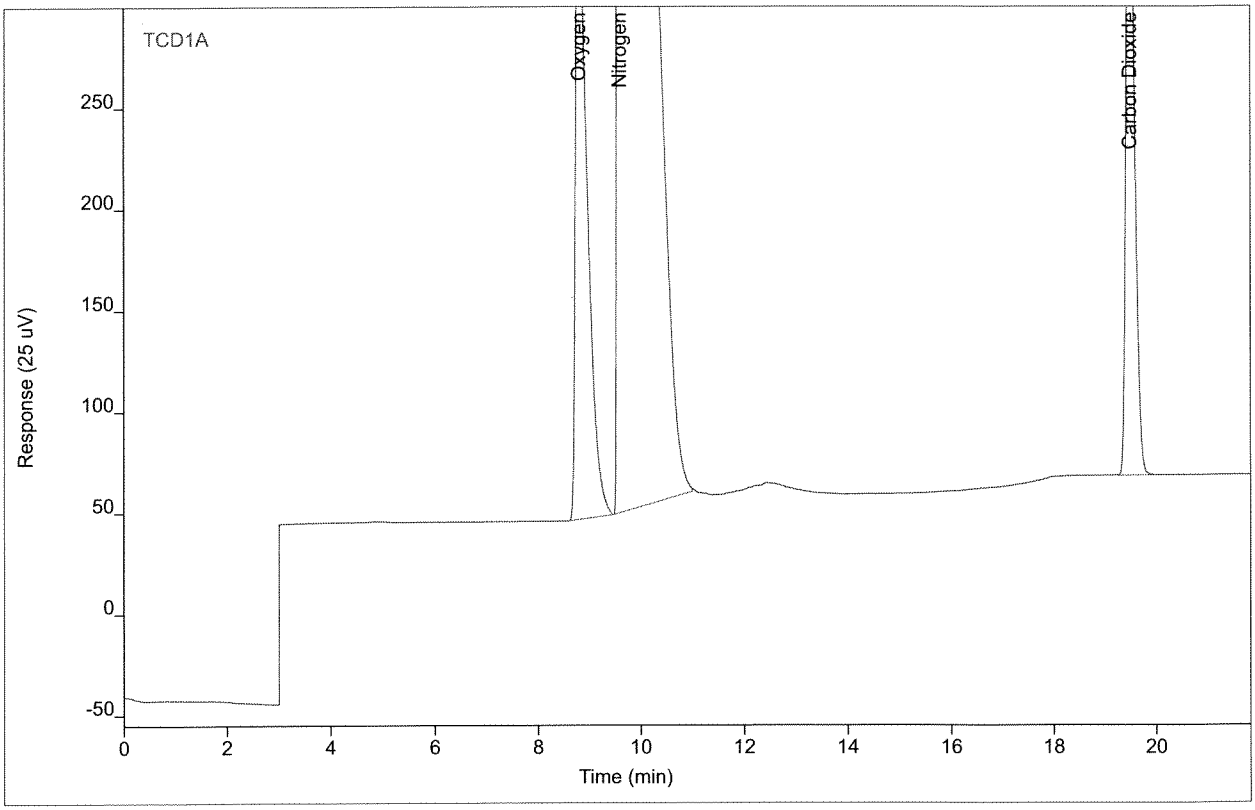
15:41:00 09/30/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	007F0701.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 5:14 PM
File Modified	10/18/2016 2:26 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	4986.79	314.659	13.0302	1	13.0302	%
Nitrogen	BB	9.60	31157.0	850.365	72.8101	1	72.8101	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3797.26	336.528	5.27032	1	5.27032	%

Analyst Peak Integration Comments

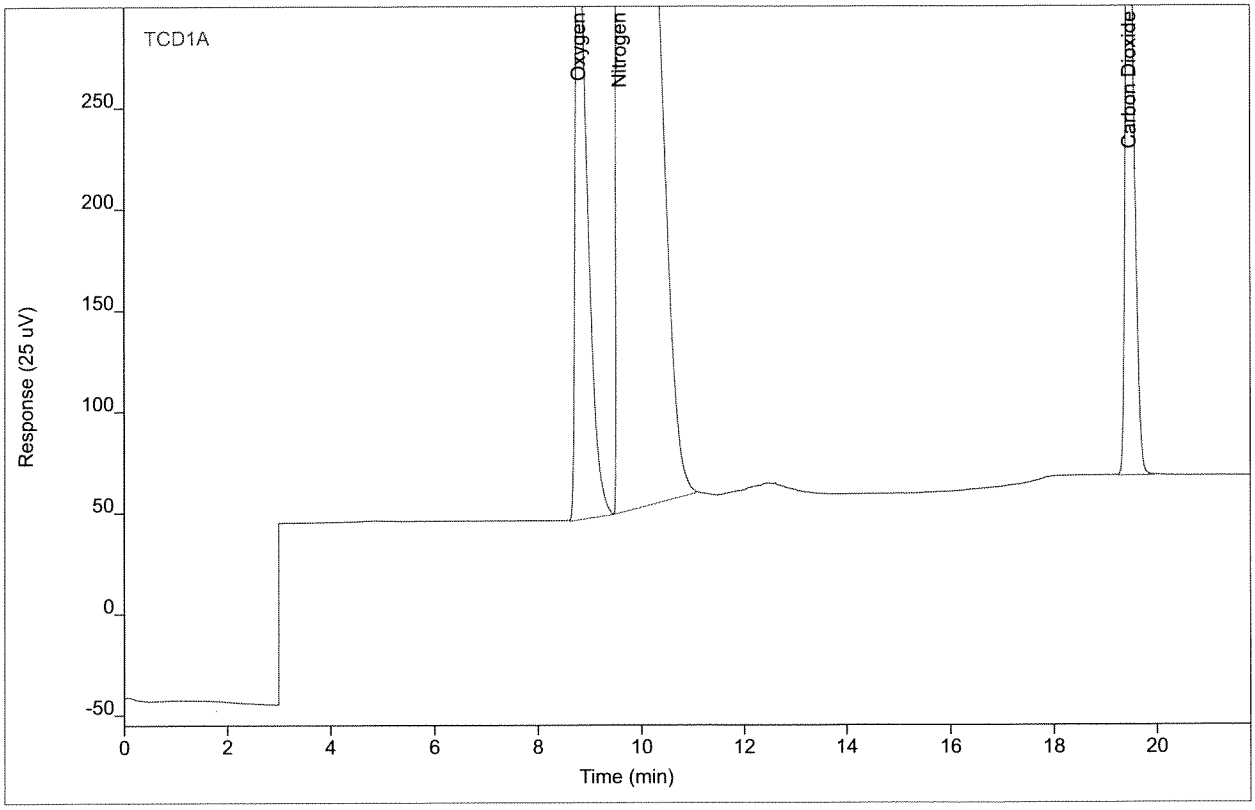
08:55:59 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	007F0702.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 5:43 PM
File Modified	10/18/2016 2:26 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5060.06	316.900	13.2220	1	13.2220	%
Nitrogen	BB	9.60	31594.9	854.153	73.8343	1	73.8343	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	3833.73	339.028	5.32150	1	5.32150	%

Analyst Peak Integration Comments

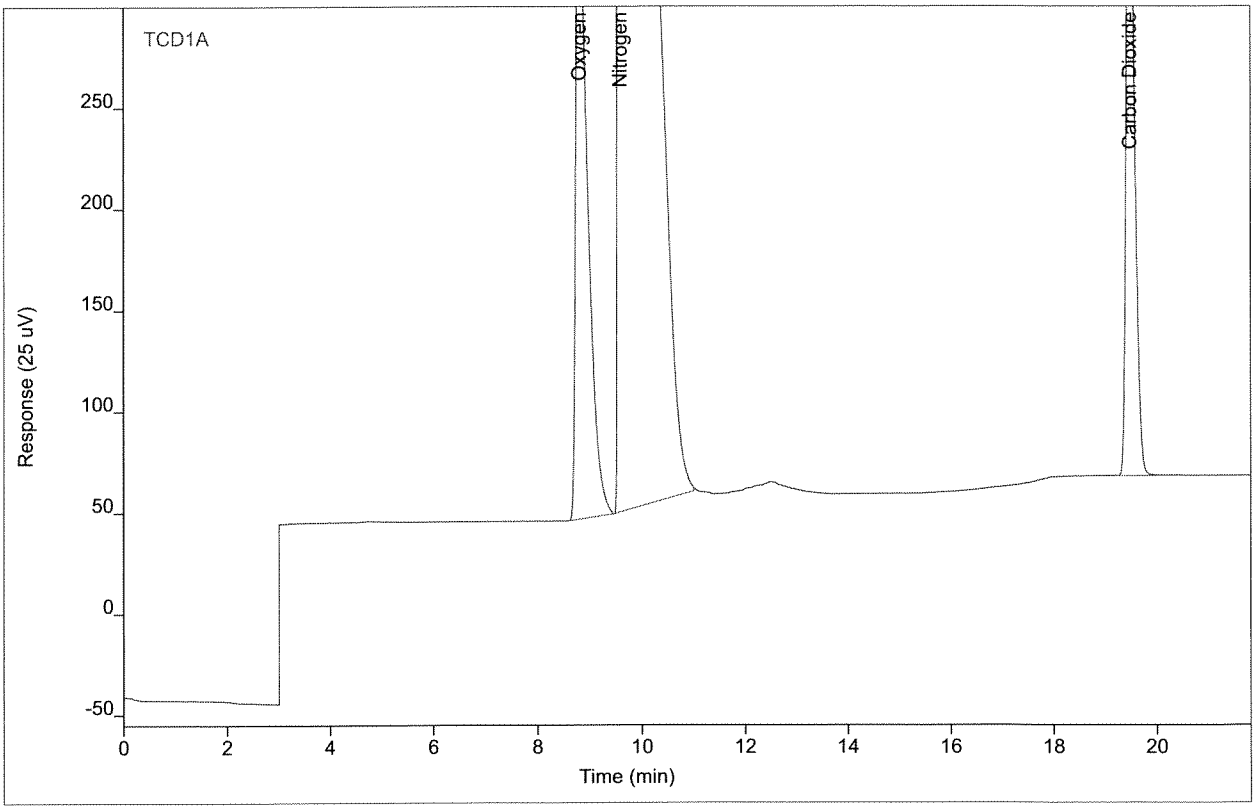
08:56:13 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	007F0703.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	9/30/2016 6:12 PM
File Modified	10/18/2016 2:26 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 7
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5009.96	316.051	13.0908	1	13.0908	%
Nitrogen	BB	9.59	31366.0	852.041	73.2989	1	73.2989	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.46	3815.36	338.085	5.29572	1	5.29572	%

Analyst Peak Integration Comments

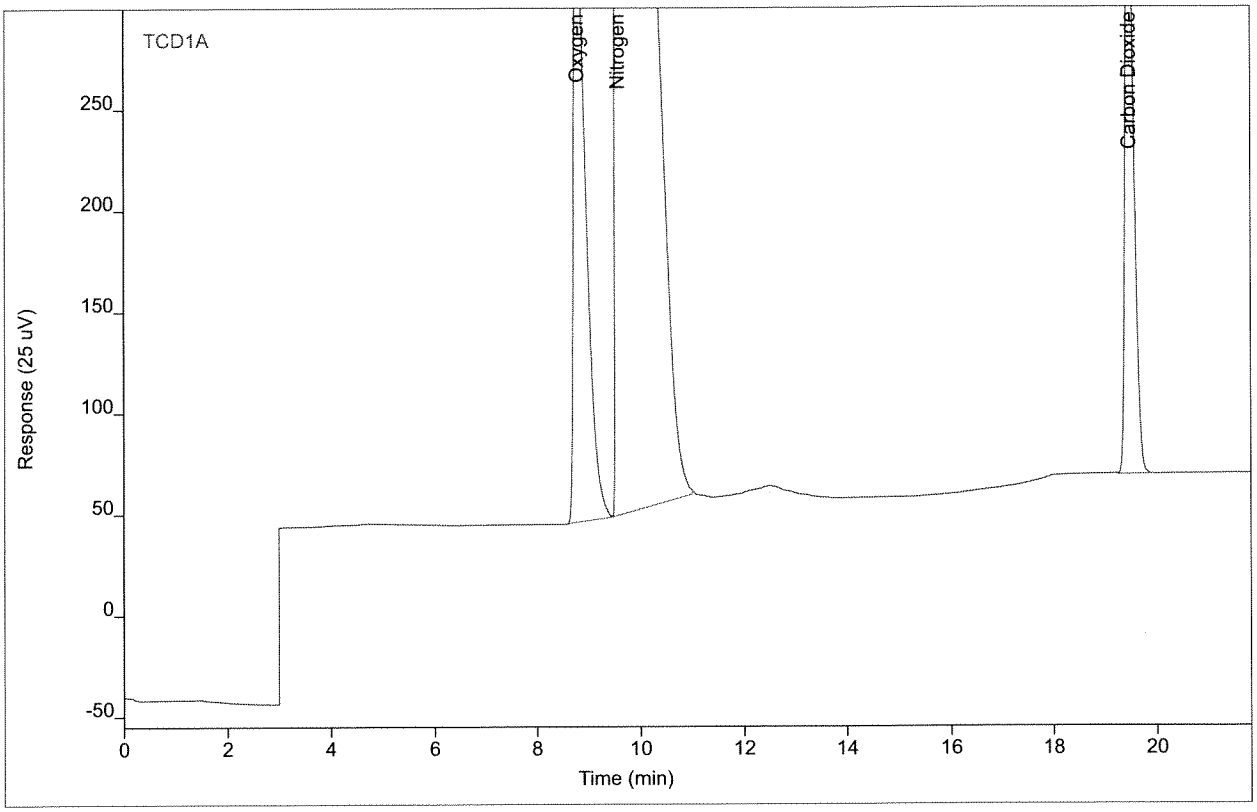
08:56:26 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C4 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	004F1201.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 12:25 AM
File Modified	10/18/2016 2:27 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5117.50	317.563	13.3724	1	13.3724	%
Nitrogen	BB	9.59	30962.2	838.757	72.3543	1	72.3543	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3536.35	314.020	4.90419	1	4.90419	%

Analyst Peak Integration Comments

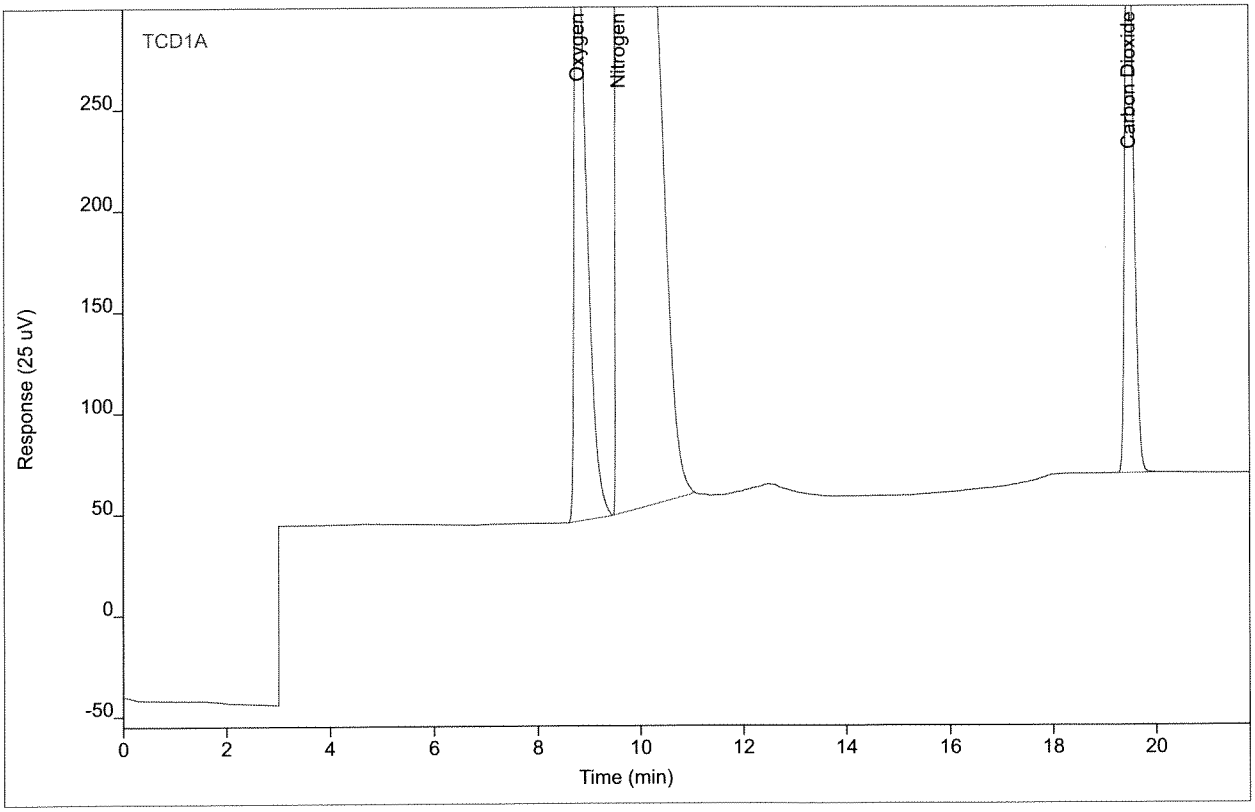
08:58:53 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C4 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	004F1202.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 12:53 AM
File Modified	10/18/2016 2:27 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5125.19	319.327	13.3926	1	13.3926	%
Nitrogen	BB	9.60	31027.2	838.024	72.5065	1	72.5065	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3540.90	314.575	4.91058	1	4.91058	%

Analyst Peak Integration Comments

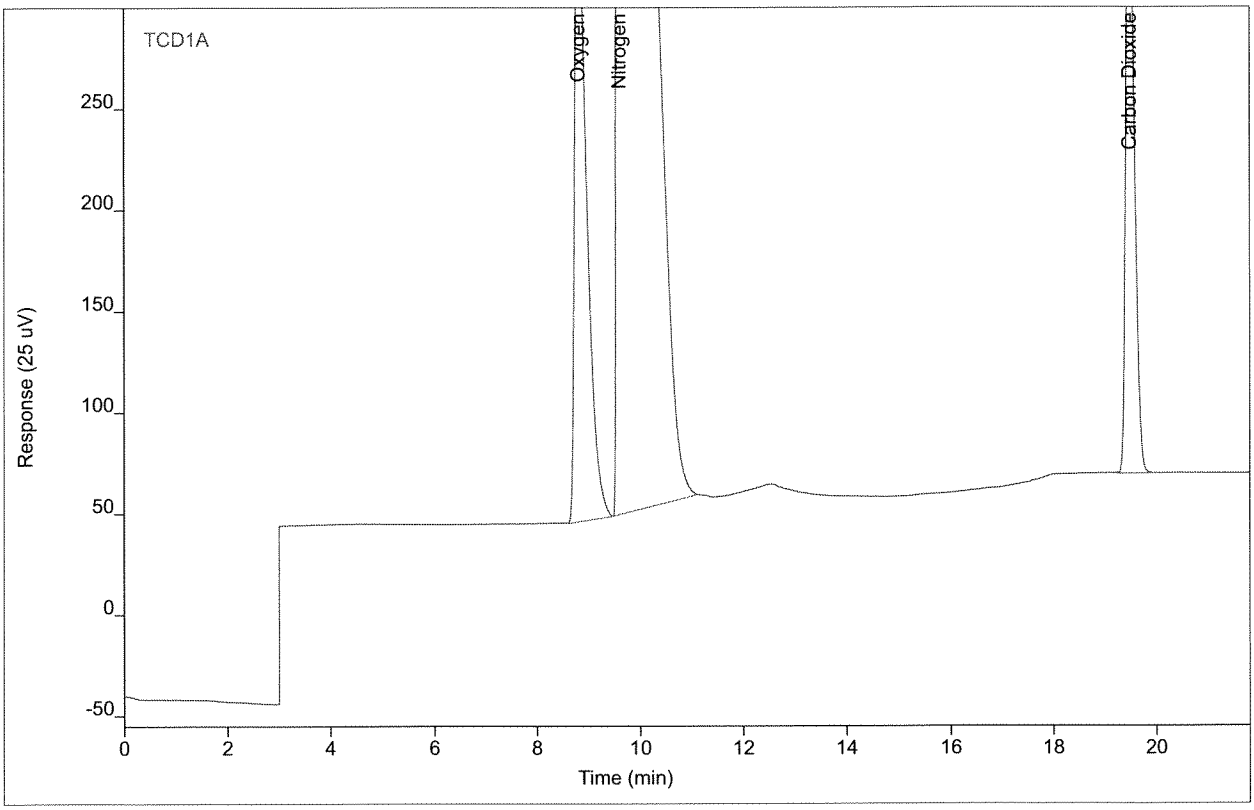
08:59:03 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C4 Run 2.Bag
Sequence Name	BETTYP456 ver.2
Data File	004F1203.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 1:22 AM
File Modified	10/18/2016 2:27 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5149.36	319.312	13.4559	1	13.4559	%
Nitrogen	BB	9.60	31070.7	841.036	72.6082	1	72.6082	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.47	3553.34	315.801	4.92804	1	4.92804	%

Analyst Peak Integration Comments

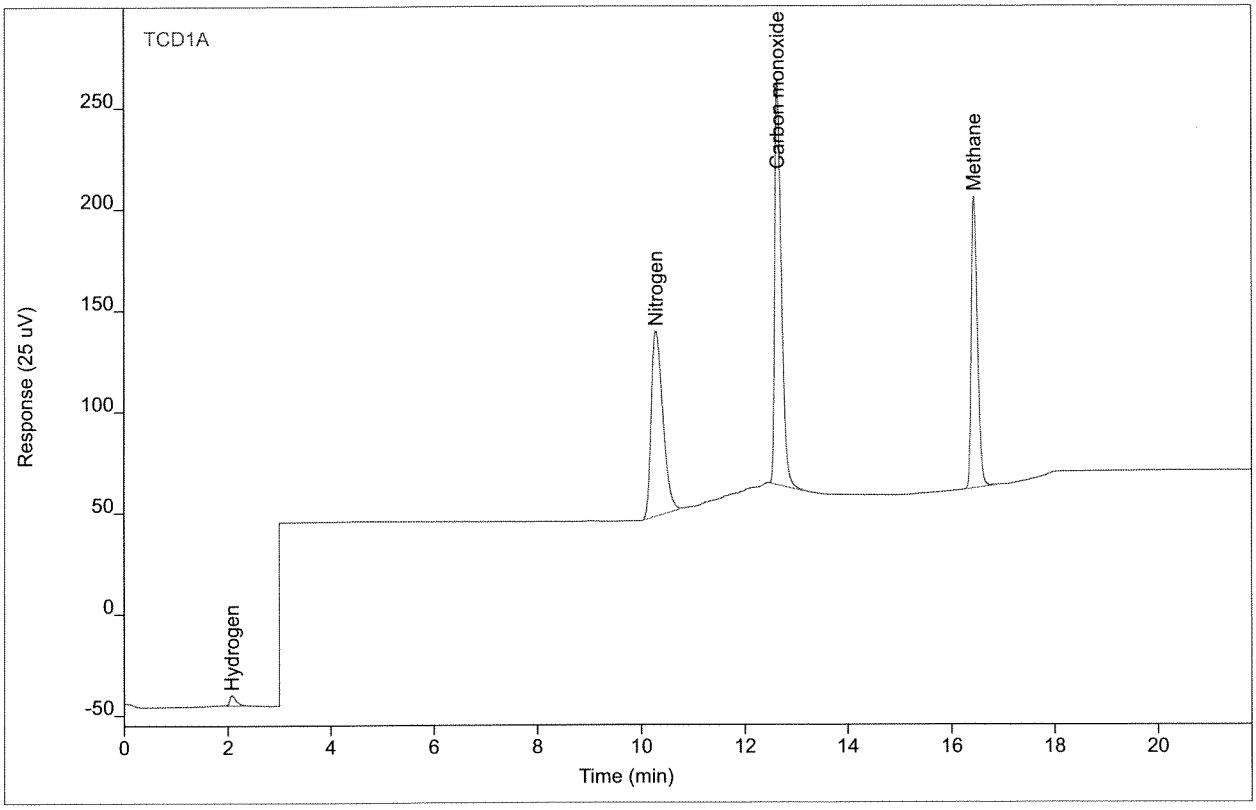
09:17:34 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP456 ver.2
Data File	009F1402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 3:50 AM
File Modified	10/18/2016 2:28 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.4288	5.42332	2.53479	1	2.53479	%
Nitrogen	BB	10.30	1447.72	91.8828	3.32507	1	3.32507	%
Carbon monoxide	MM	12.66	1778.07	200.216	3.35790	1	3.35790	%
Methane	MM	16.45	1193.70	144.486	2.63919	1	2.63919	%

Analyst Peak Integration Comments

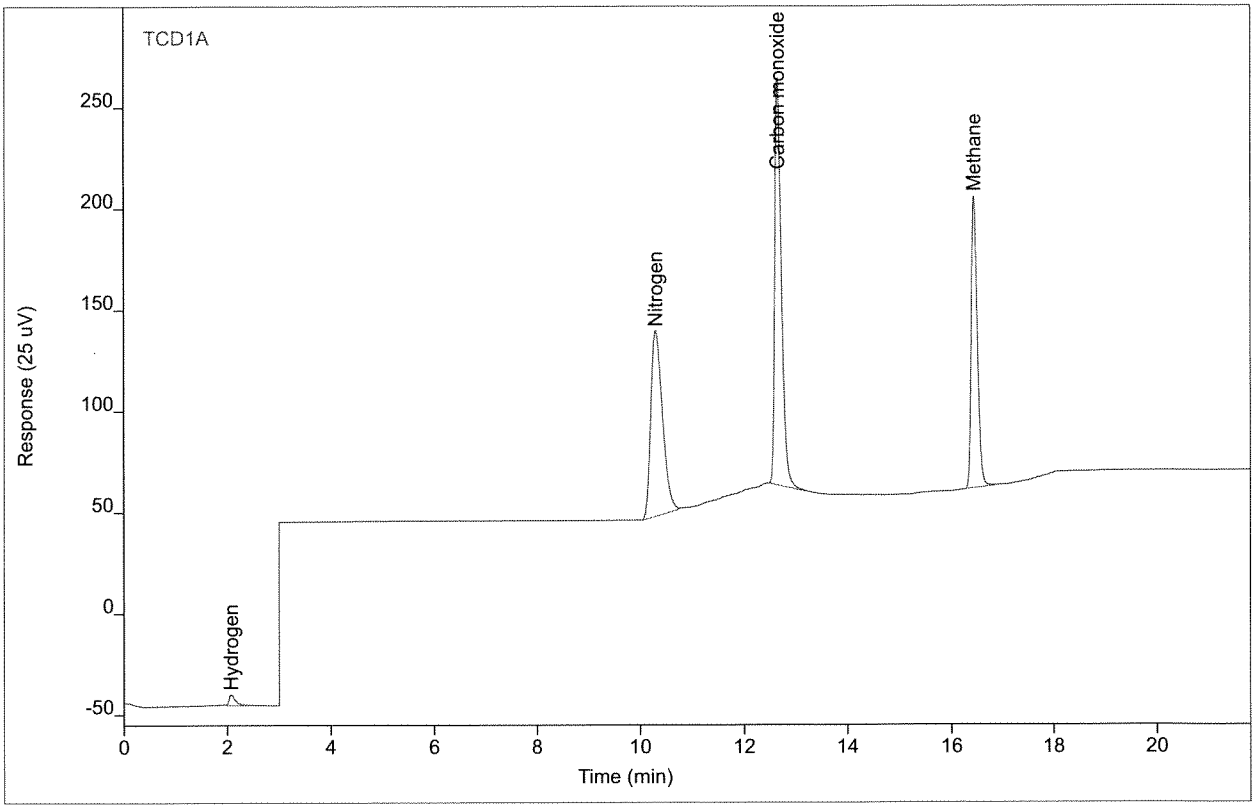
09:18:52 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP456 ver.2
Data File	009F1403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 4:21 AM
File Modified	10/18/2016 2:28 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	46.1060	5.53206	2.57250	1	2.57250	%
Nitrogen	BB	10.30	1439.97	91.8044	3.30694	1	3.30694	%
Carbon monoxide	MM	12.66	1778.28	201.135	3.35829	1	3.35829	%
Methane	MM	16.45	1194.50	144.307	2.64097	1	2.64097	%

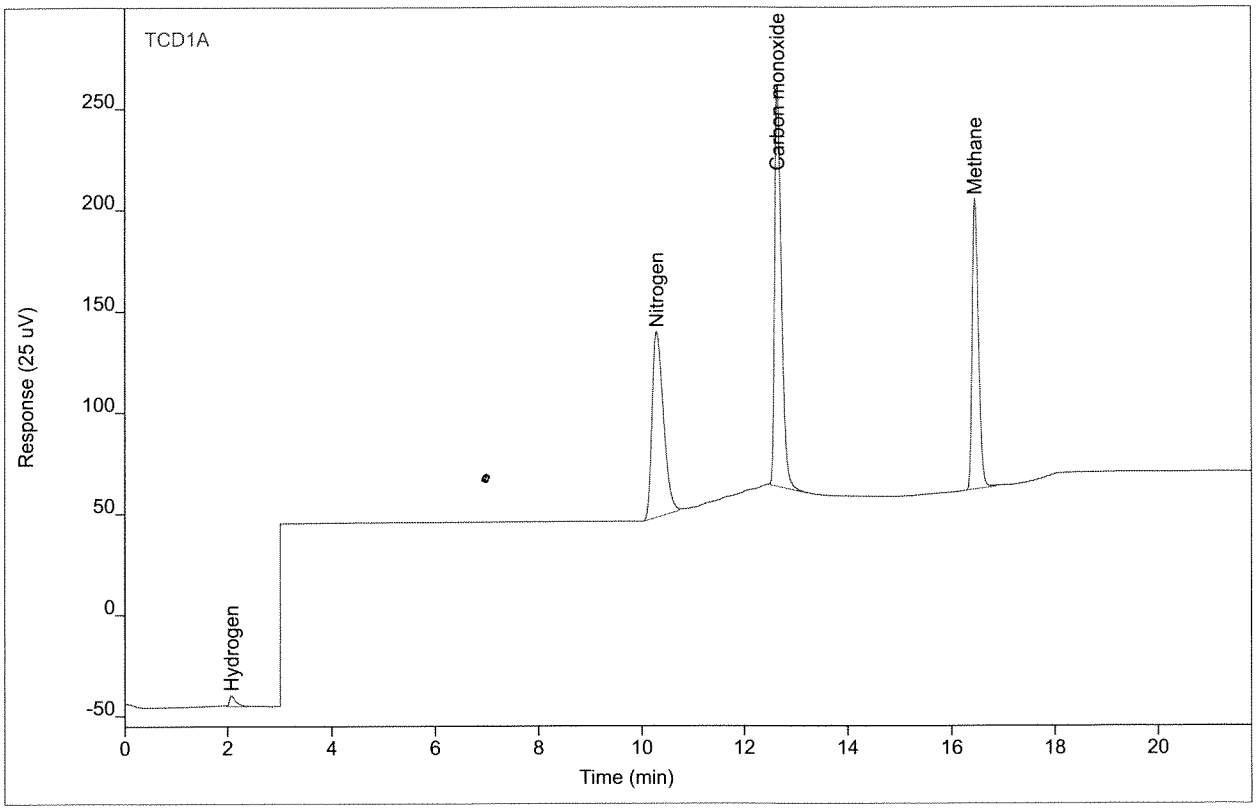
Analyst Peak Integration Comments

09:19:08 10/03/16 Nicholas Traversa II-BL
09:21:37 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP456 ver.2	Vial Number	Vial 9
Data File	009F1404.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	4 of 4
Injection Date	10/1/2016 4:52 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 2:28 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 1:55 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	47.1393	5.50435	2.63004	1	2.63004	%
Nitrogen	BB	10.30	1434.22	91.7671	3.29350	1	3.29350	%
Carbon monoxide	MM	12.66	1770.74	198.722	3.34394	1	3.34394	%
Methane	MM	16.45	1185.53	143.198	2.62085	1	2.62085	%

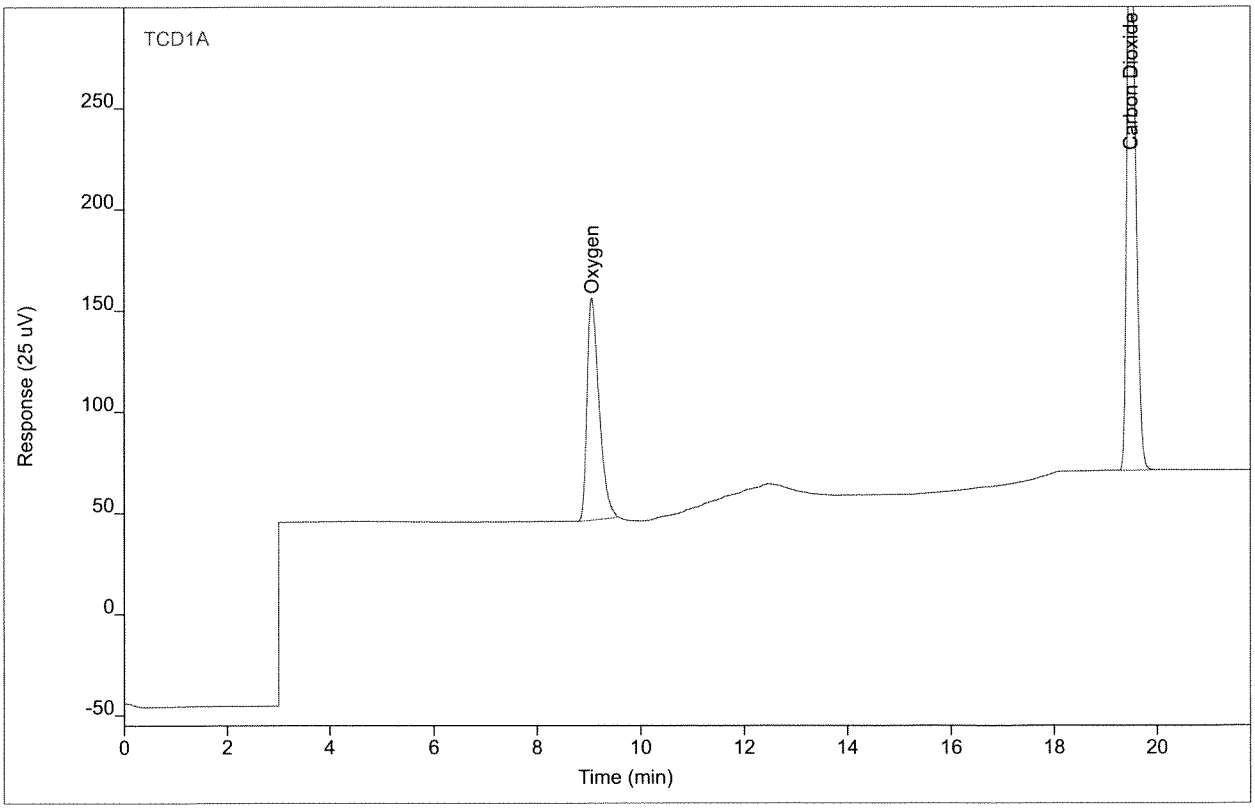
Analyst Peak Integration Comments

09:19:23 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP456 ver.2	Vial Number	Vial 9
Data File	009F1502.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/1/2016 5:54 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 2:28 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 1:55 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.05	1793.22	109.806	4.66791	1	4.66791	%
Carbon Dioxide	MM	19.49	3280.98	295.821	4.54583	1	4.54583	%

Analyst Peak Integration Comments

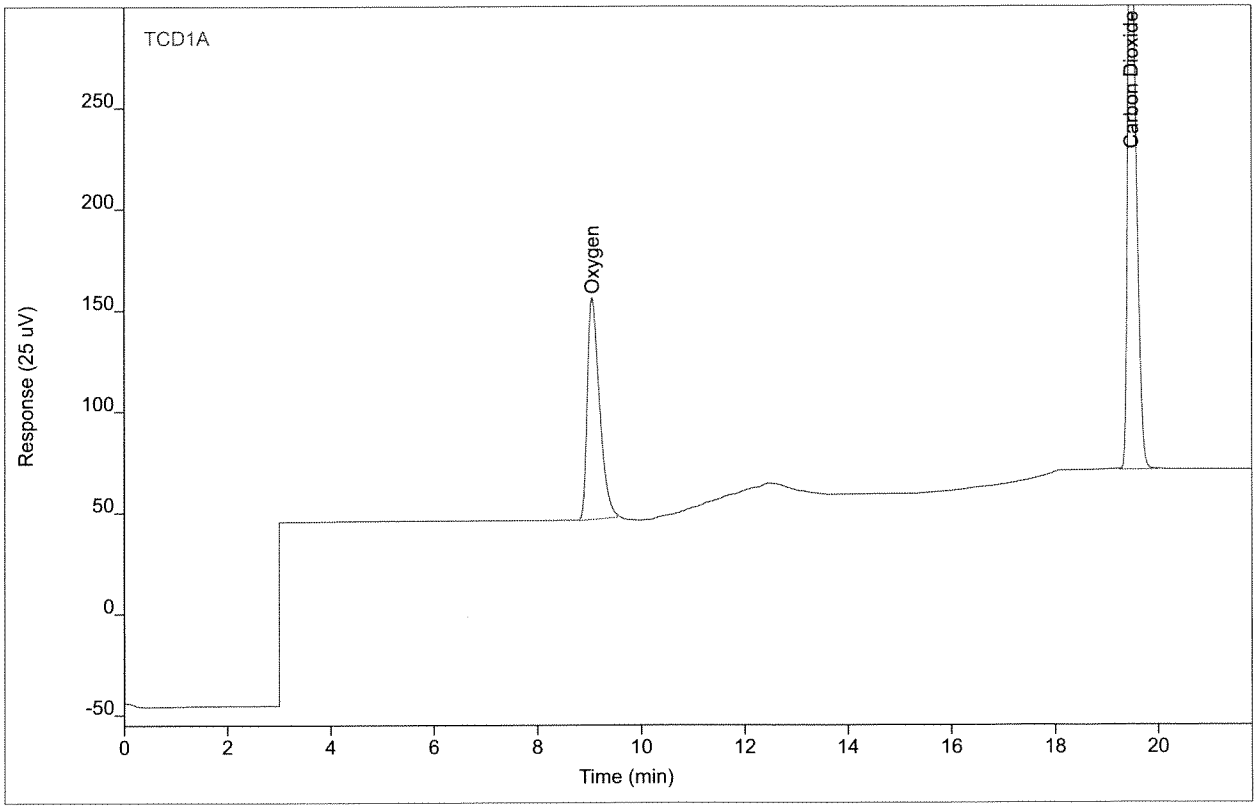
09:20:00 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP456 ver.2
Data File	009F1503.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 6:25 AM
File Modified	10/18/2016 2:28 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.06	1795.82	109.417	4.67471	1	4.67471	%
Carbon Dioxide	MM	19.49	3279.40	294.940	4.54362	1	4.54362	%

Analyst Peak Integration Comments

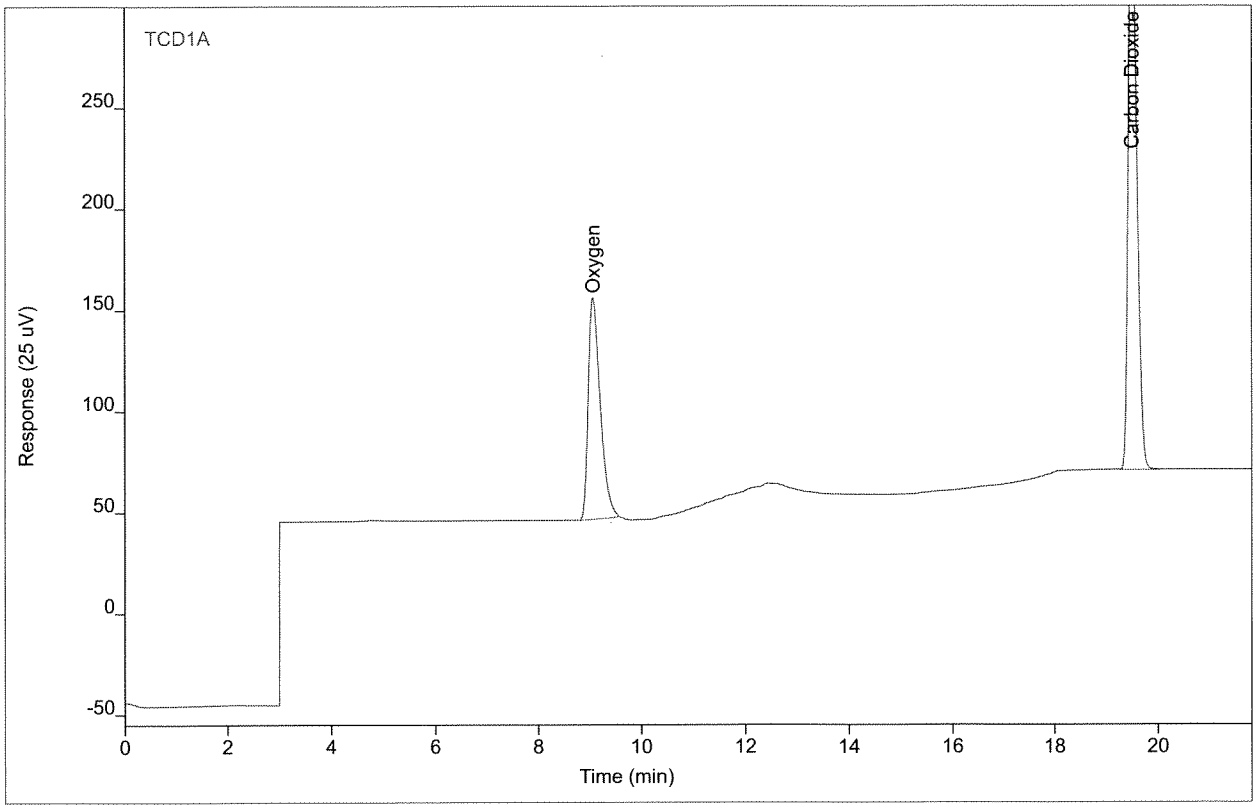
09:20:09 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP456 ver.2
Data File	009F1504.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/1/2016 6:56 AM
File Modified	10/18/2016 2:28 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 1:55 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.06	1792.31	109.722	4.66553	1	4.66553	%
Carbon Dioxide	MM	19.49	3279.49	293.057	4.54375	1	4.54375	%

Analyst Peak Integration Comments

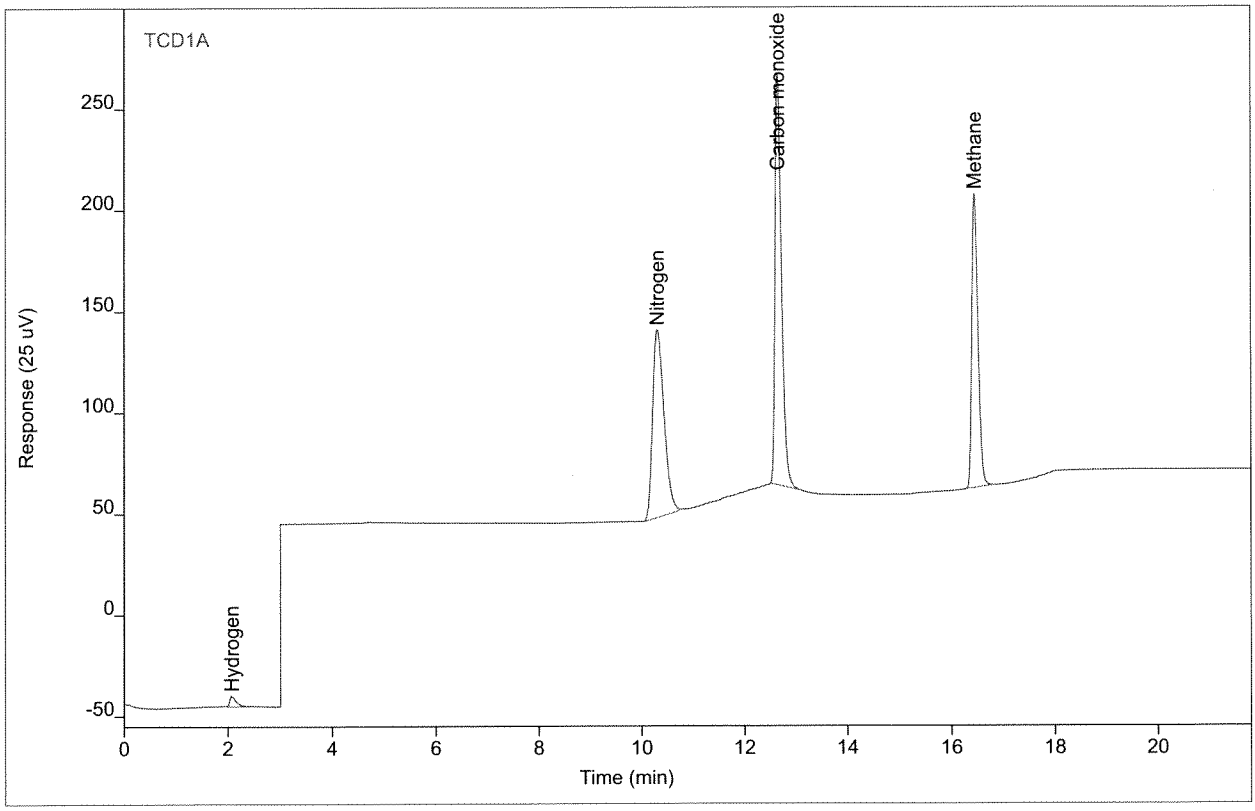
09:20:19 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP457 ver.2
Data File	009F0102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 10:11 AM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.8794	5.47143	2.55988	1	2.55988	%
Nitrogen	BB	10.31	1449.88	93.0307	3.33012	1	3.33012	%
Carbon monoxide	MM	12.66	1754.25	203.975	3.31254	1	3.31254	%
Methane	MM	16.46	1194.71	145.283	2.64146	1	2.64146	%

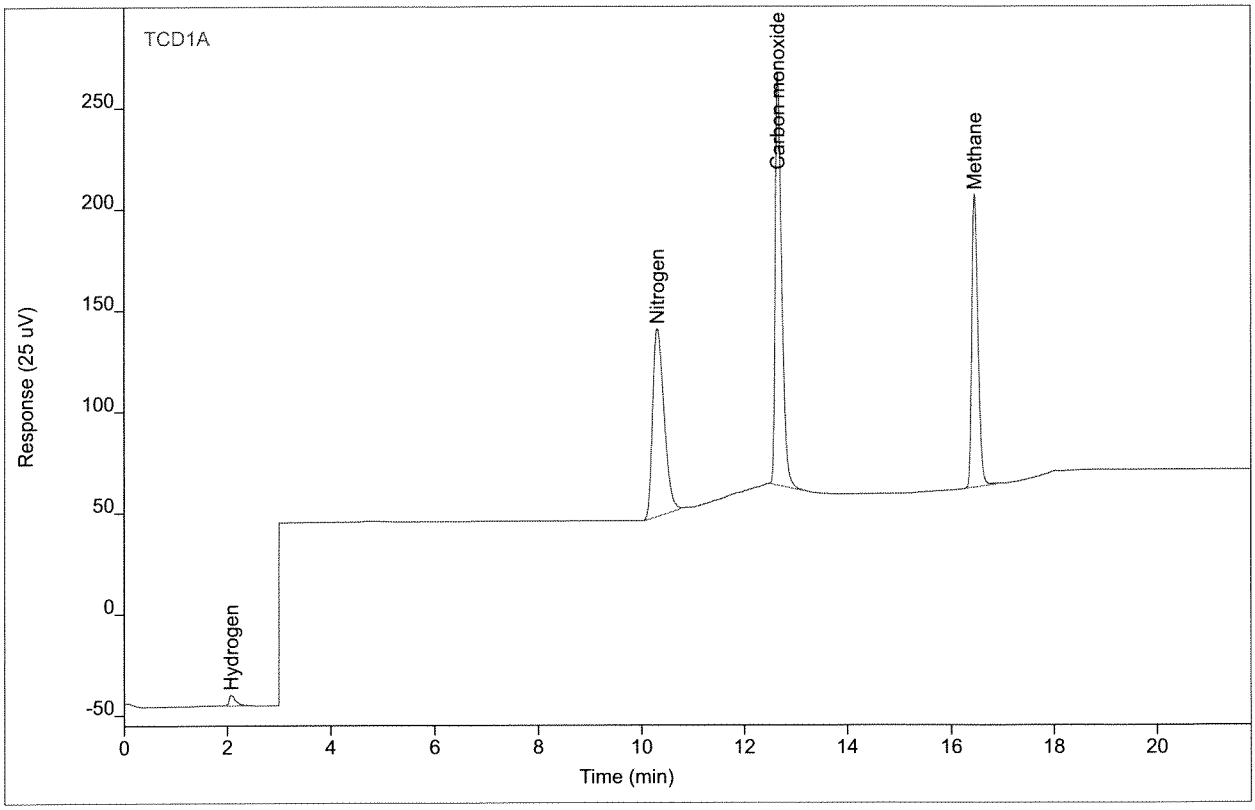
Analyst Peak Integration Comments

10:35:20 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP457 ver.2	Vial Number	Vial 9
Data File	009F0103.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 4
Injection Date	10/3/2016 10:42 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 2:43 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 2:43 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	47.3692	5.52949	2.64285	1	2.64285	%
Nitrogen	BB	10.32	1446.93	93.1372	3.32323	1	3.32323	%
Carbon monoxide	MM	12.66	1768.02	204.233	3.33876	1	3.33876	%
Methane	MM	16.46	1199.97	144.820	2.65326	1	2.65326	%

Analyst Peak Integration Comments

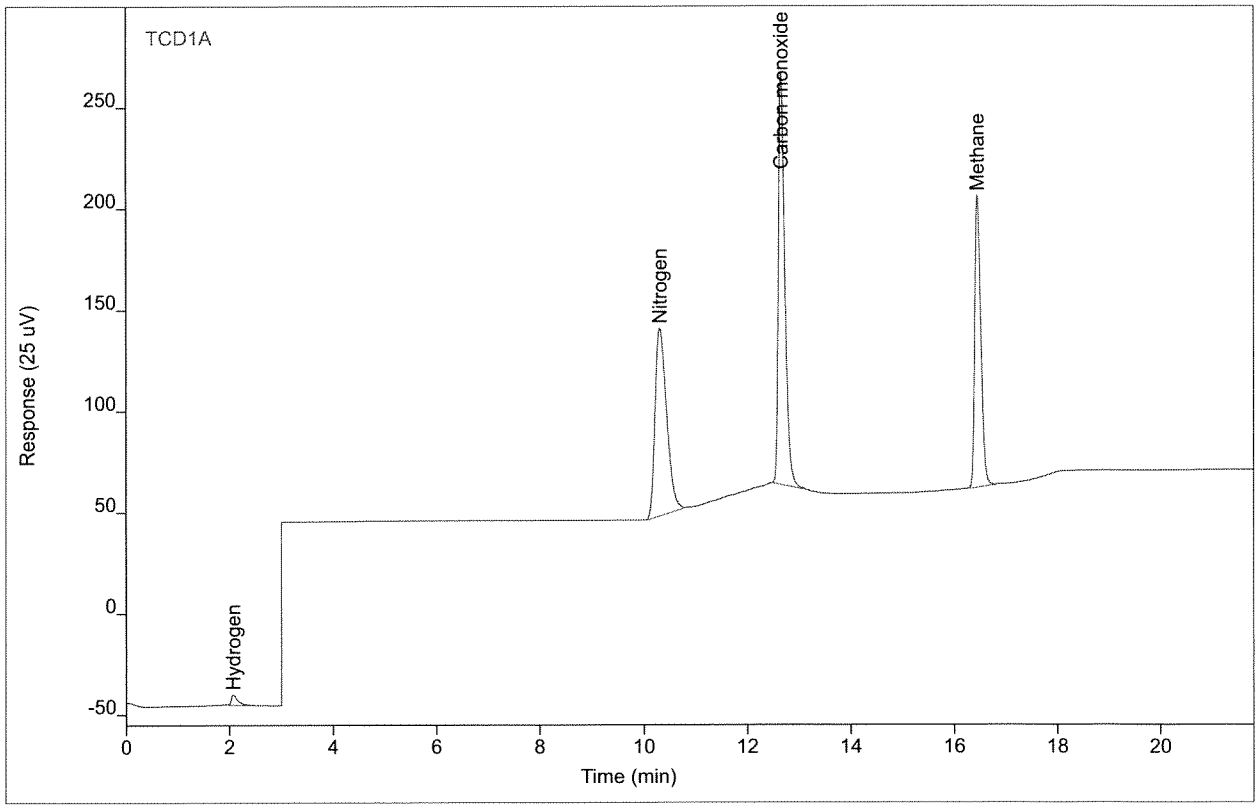
11:52:11 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP457 ver.2
Data File	009F0104.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 11:13 AM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	48.0761	5.46327	2.68221	1	2.68221	%
Nitrogen	BB	10.31	1447.15	93.0893	3.32374	1	3.32374	%
Carbon monoxide	MM	12.66	1762.82	204.106	3.32886	1	3.32886	%
Methane	MM	16.46	1193.51	144.226	2.63877	1	2.63877	%

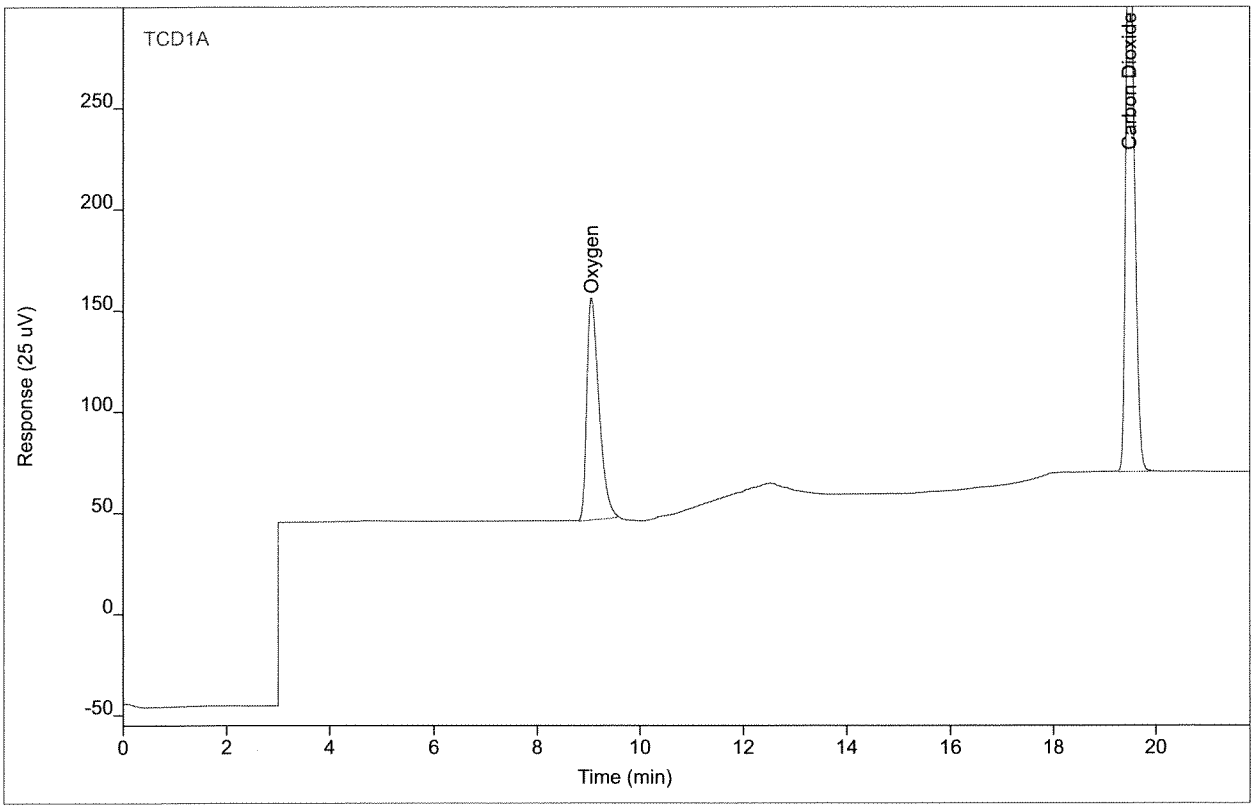
Analyst Peak Integration Comments

11:52:30 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP457 ver.2	Vial Number	Vial 9
Data File	009F0202.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/3/2016 12:15 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 2:43 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 2:43 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.06	1806.32	109.775	4.70220	1	4.70220	%
Carbon Dioxide	MM	19.49	3290.46	294.049	4.55914	1	4.55914	%

Analyst Peak Integration Comments

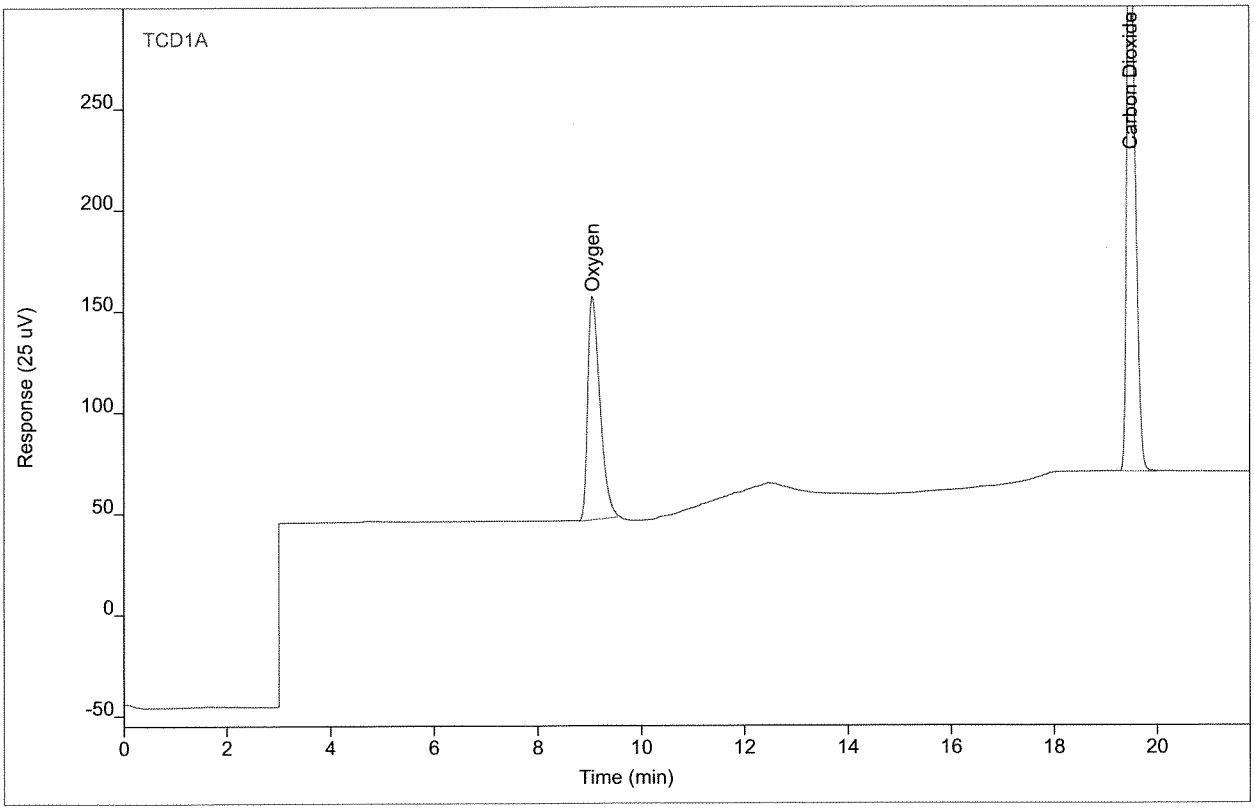
13:21:40 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP457 ver.2
Data File	009F0203.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 12:46 PM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.07	1818.73	110.610	4.73472	1	4.73472	%
Carbon Dioxide	MM	19.49	3308.82	295.899	4.58490	1	4.58490	%

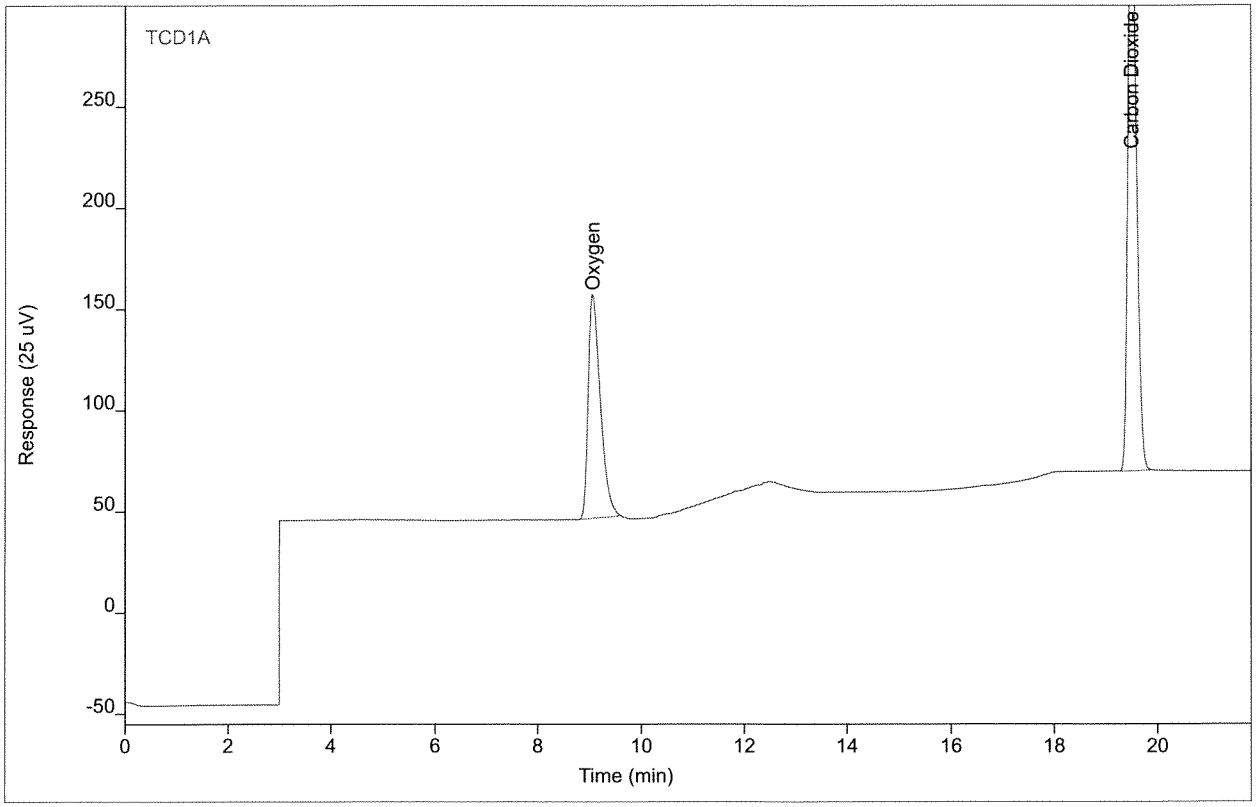
Analyst Peak Integration Comments

13:21:49 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP457 ver.2	Vial Number	Vial 9
Data File	009F0204.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	4 of 4
Injection Date	10/3/2016 1:17 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 2:43 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 2:43 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.07	1808.60	110.652	4.70817	1	4.70817	%
Carbon Dioxide	MM	19.49	3290.55	294.280	4.55927	1	4.55927	%

Analyst Peak Integration Comments

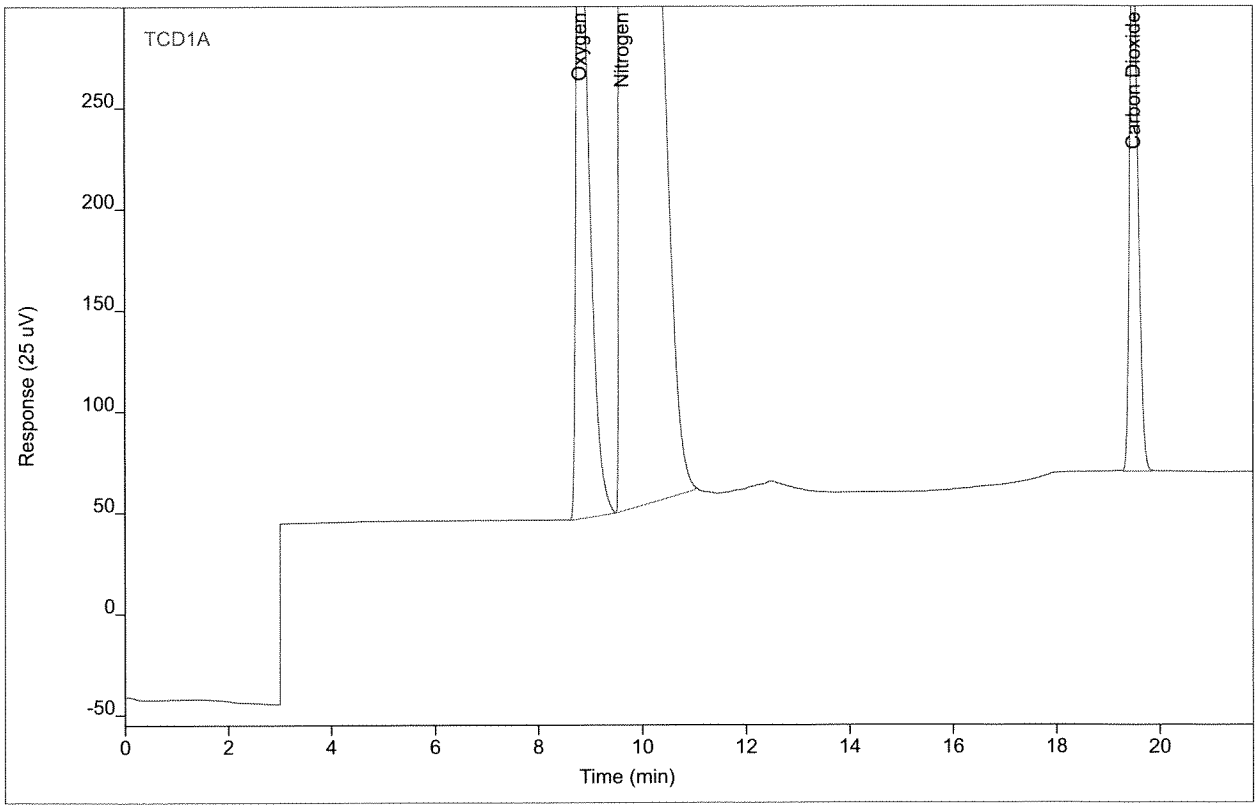
15:46:59 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 3.Bag
Sequence Name	BETTYP457 ver.2
Data File	005F0301.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 1:45 PM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:10 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5861.03	355.757	15.3193	1	15.3193	%
Nitrogen	BB	9.61	31691.9	863.479	74.0610	1	74.0610	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2964.15	267.592	4.10123	1	4.10123	%

Analyst Peak Integration Comments

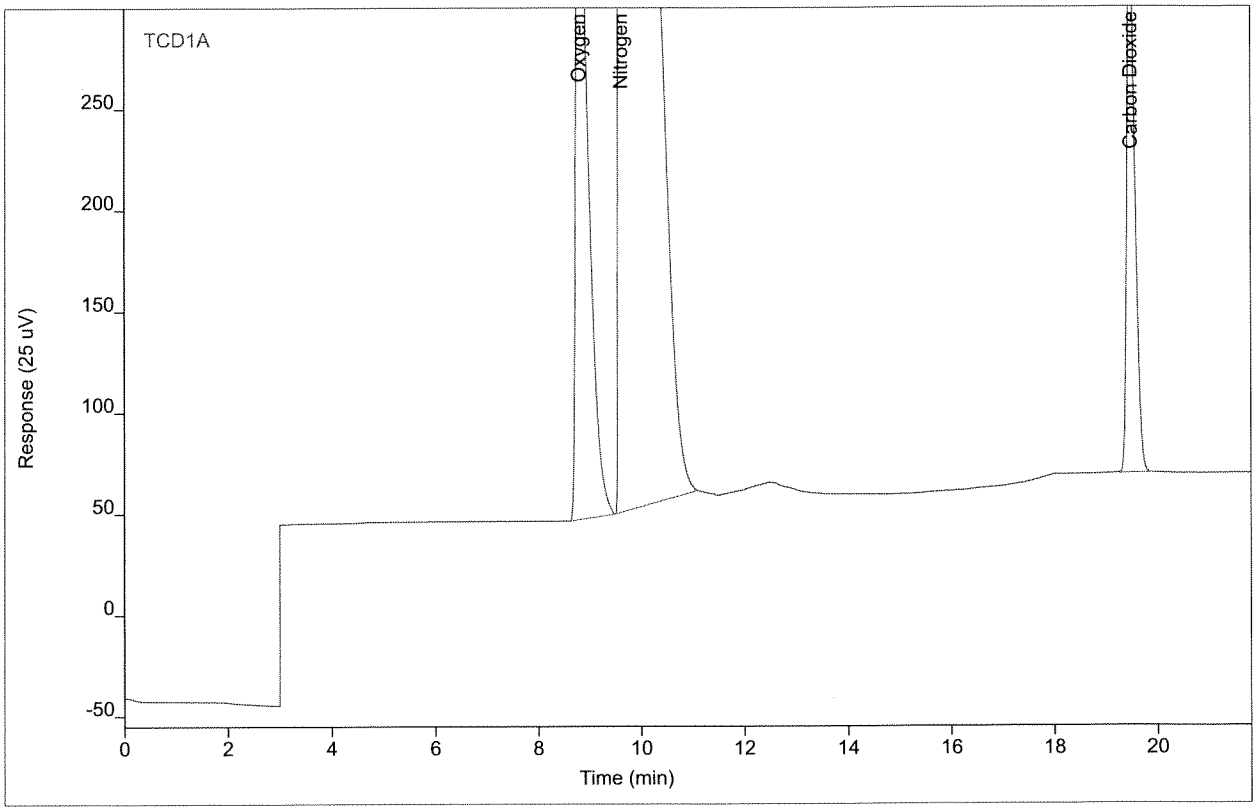
15:47:20 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 3.Bag
Sequence Name	BETTYP457 ver.2
Data File	005F0302.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 2:13 PM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5814.14	351.417	15.1966	1	15.1966	%
Nitrogen	BB	9.62	31397.1	850.432	73.3715	1	73.3715	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2922.29	263.502	4.04248	1	4.04248	%

Analyst Peak Integration Comments

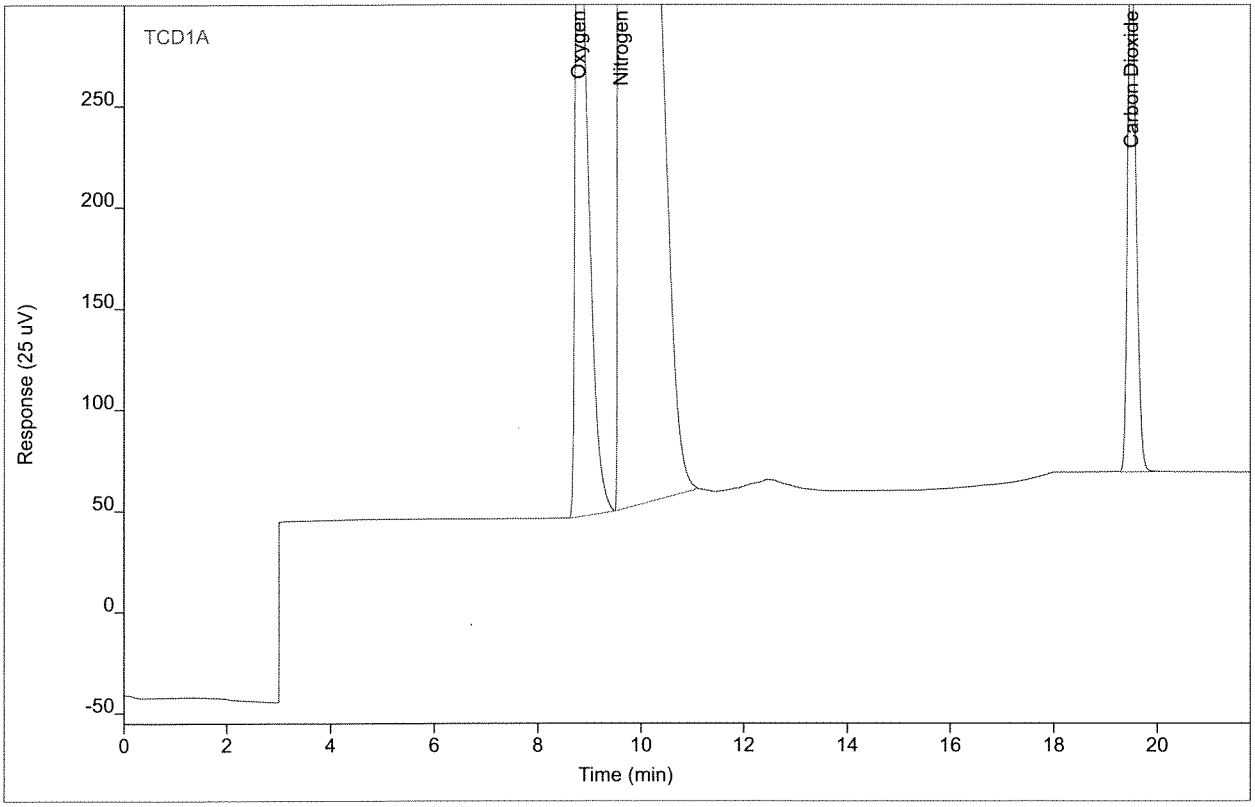
15:47:32 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C2 Run 3.Bag
Sequence Name	BETTYP457 ver.2
Data File	005F0303.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 2:42 PM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 5
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.80	5875.16	355.734	15.3564	1	15.3564	%
Nitrogen	BB	9.62	31677.4	865.221	74.0272	1	74.0272	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2953.44	266.501	4.08620	1	4.08620	%

Analyst Peak Integration Comments

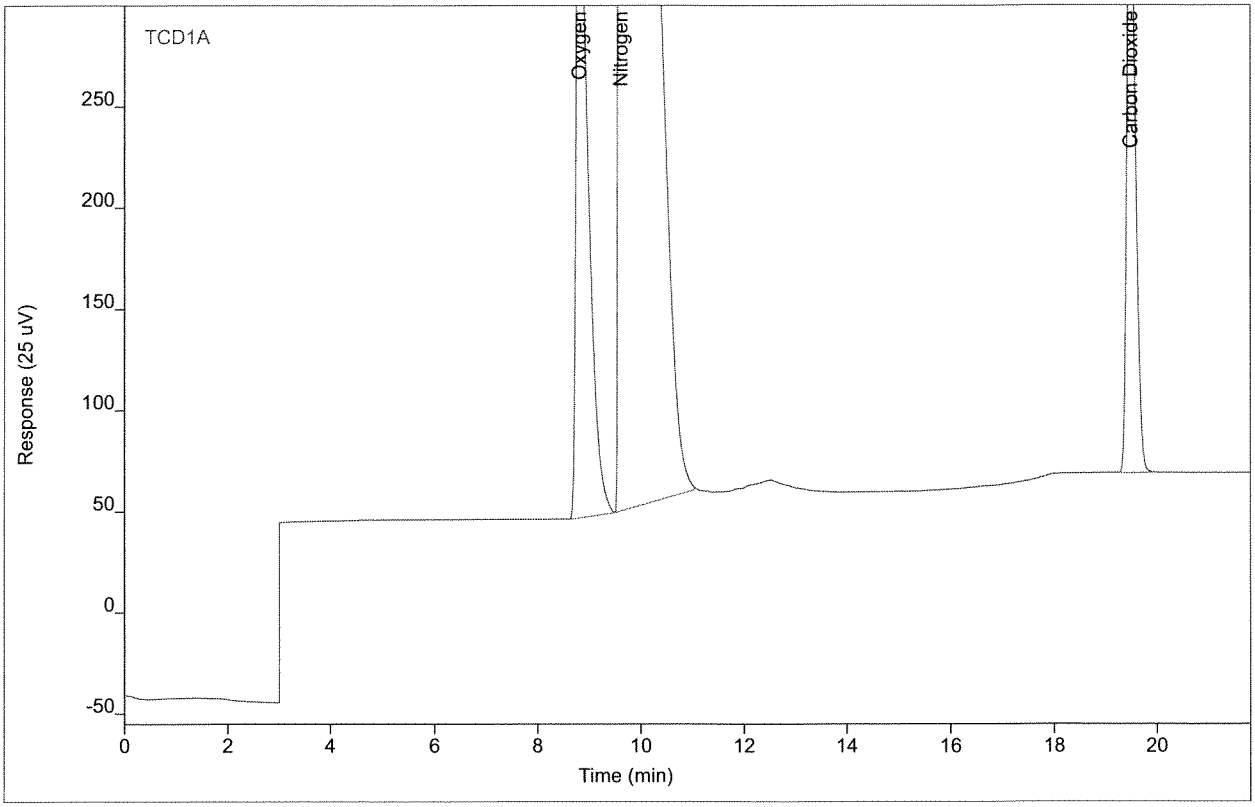
15:47:45 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.Unit 2 C3 Run 1.Bag
Sequence Name	BETTYP457 ver.2
Data File	006F0401.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 3:10 PM
File Modified	10/18/2016 2:43 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	5396.68	334.632	14.1035	1	14.1035	%
Nitrogen	BB	9.62	31531.2	848.180	73.6852	1	73.6852	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.48	3459.03	310.065	4.79569	1	4.79569	%

Analyst Peak Integration Comments

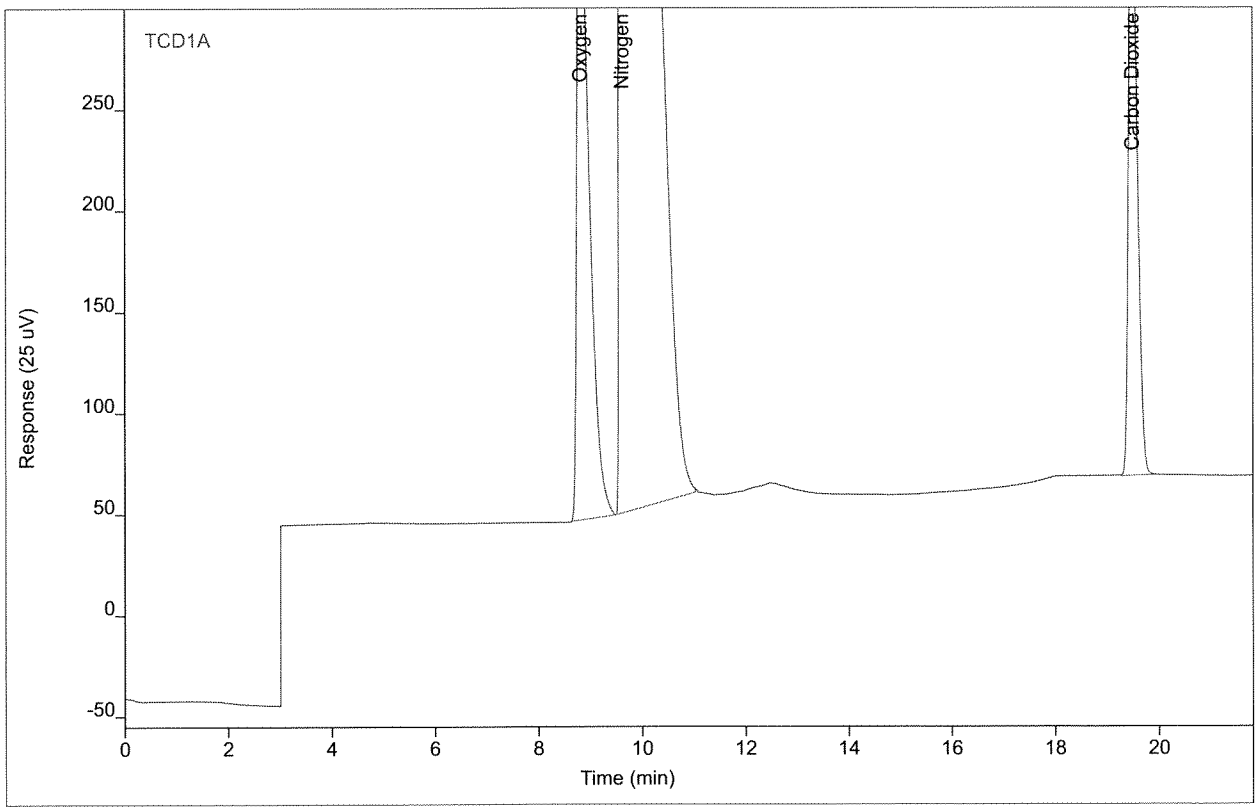
15:47:57 10/03/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 1.Bag
Sequence Name	BETTYP457 ver.2
Data File	006F0402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 3:39 PM
File Modified	10/18/2016 2:44 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	5400.94	333.627	14.1146	1	14.1146	%
Nitrogen	BB	9.62	31616.0	856.085	73.8834	1	73.8834	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.48	3471.86	310.313	4.81369	1	4.81369	%

Analyst Peak Integration Comments

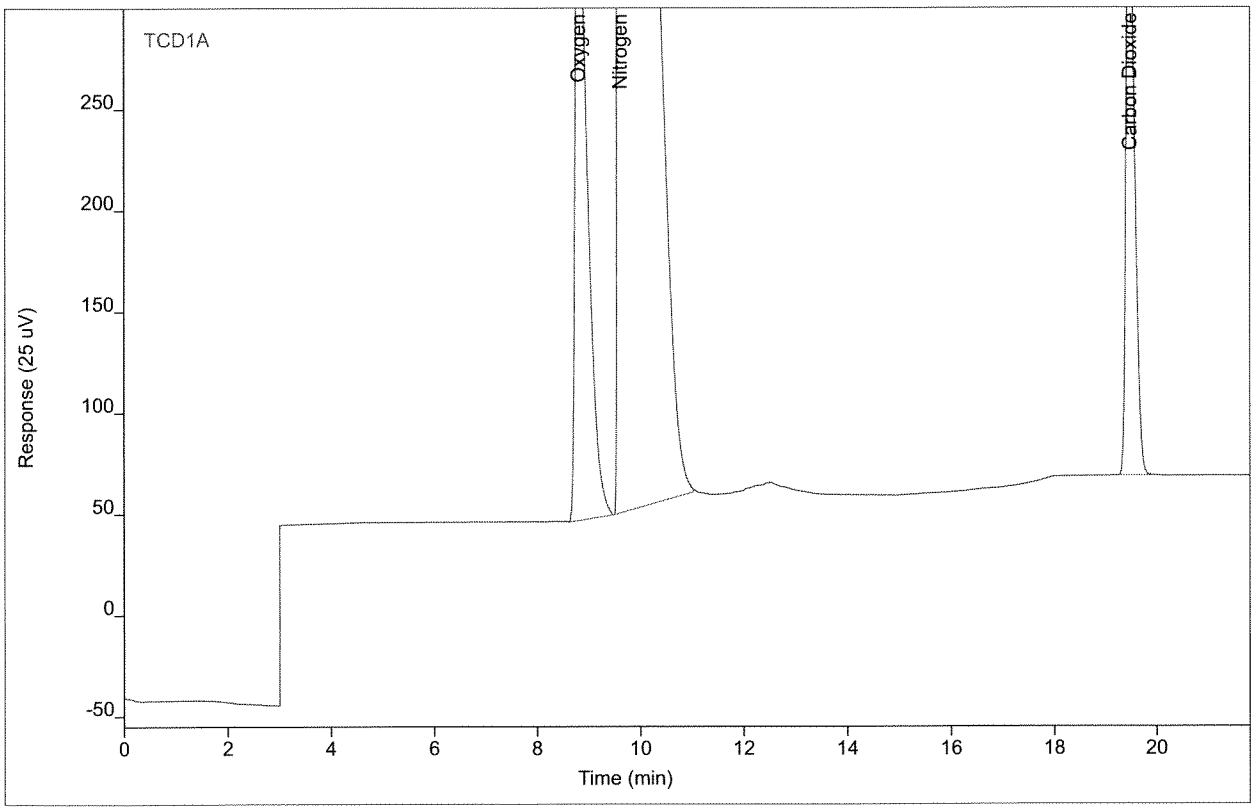
08:14:57 10/04/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.Unit 2 C3 Run 1.Bag
Sequence Name	BETTYP457 ver.2
Data File	006F0403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 4:07 PM
File Modified	10/18/2016 2:44 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.81	5428.21	335.125	14.1860	1	14.1860	%
Nitrogen	BB	9.61	31654.2	856.069	73.9728	1	73.9728	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.48	3472.76	310.418	4.81496	1	4.81496	%

Analyst Peak Integration Comments

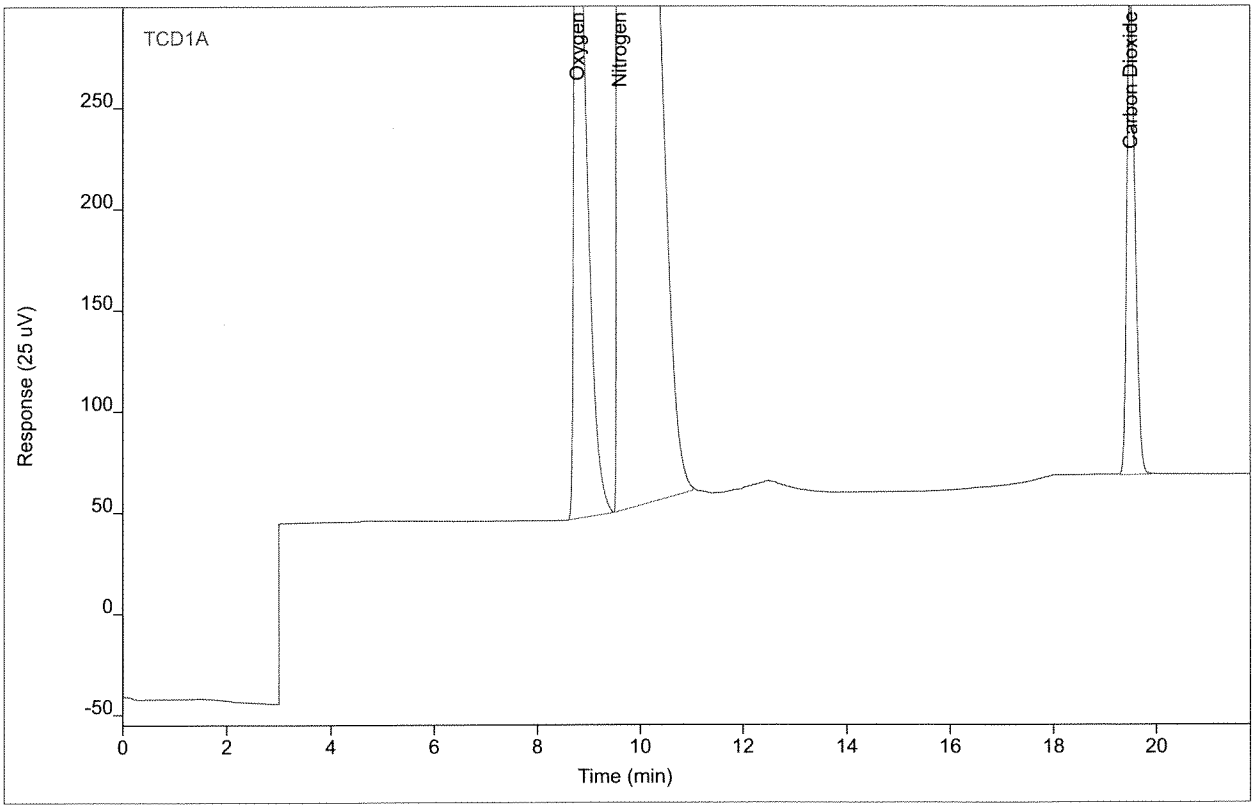
08:15:07 10/04/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 3.Bag
Sequence Name	BETTYP457 ver.2
Data File	008F0501.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 4:36 PM
File Modified	10/18/2016 2:44 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.79	6117.91	365.551	15.9920	1	15.9920	%
Nitrogen	BB	9.62	31290.6	846.446	73.1225	1	73.1225	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2629.09	237.923	3.63105	1	3.63105	%

Analyst Peak Integration Comments

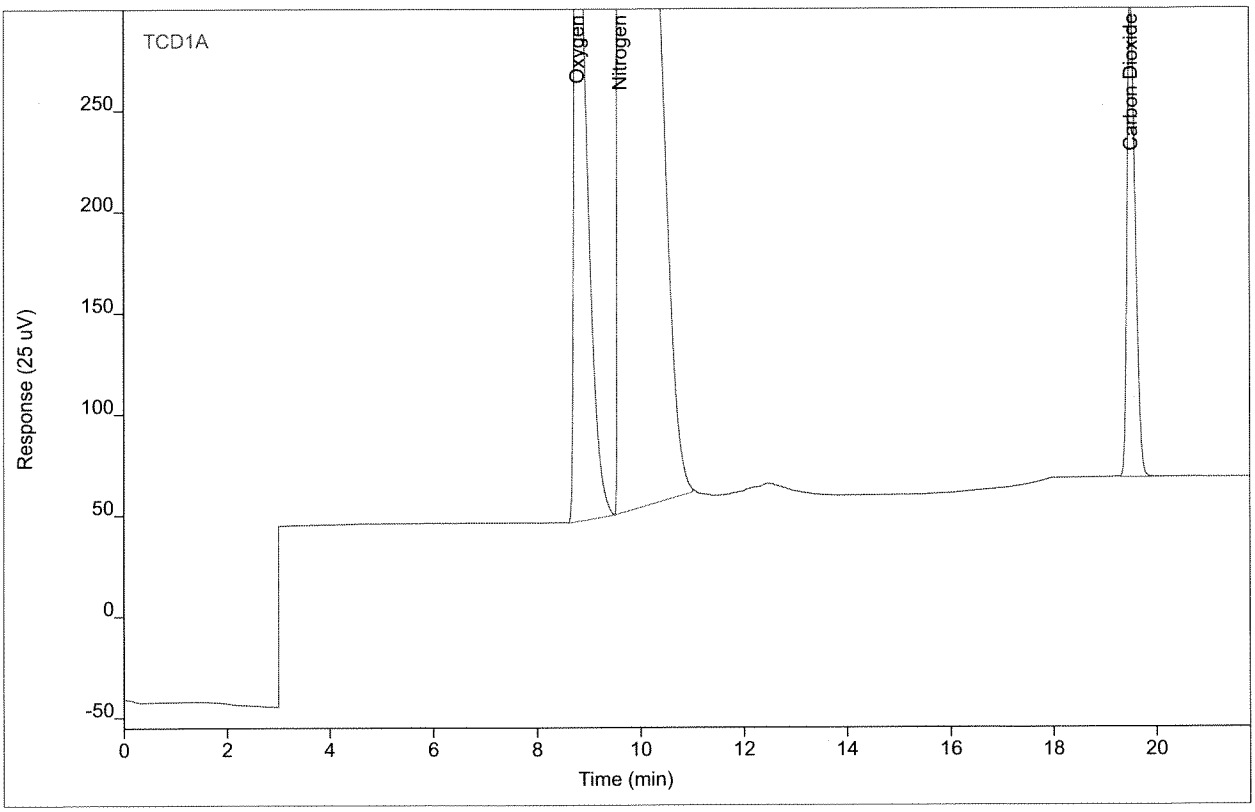
08:15:16 10/04/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 3.Bag
Sequence Name	BETTYP457 ver.2
Data File	008F0502.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 5:04 PM
File Modified	10/18/2016 2:44 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.79	6126.13	367.712	16.0135	1	16.0135	%
Nitrogen	BB	9.62	31281.6	847.552	73.1013	1	73.1013	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2615.74	237.195	3.61231	1	3.61231	%

Analyst Peak Integration Comments

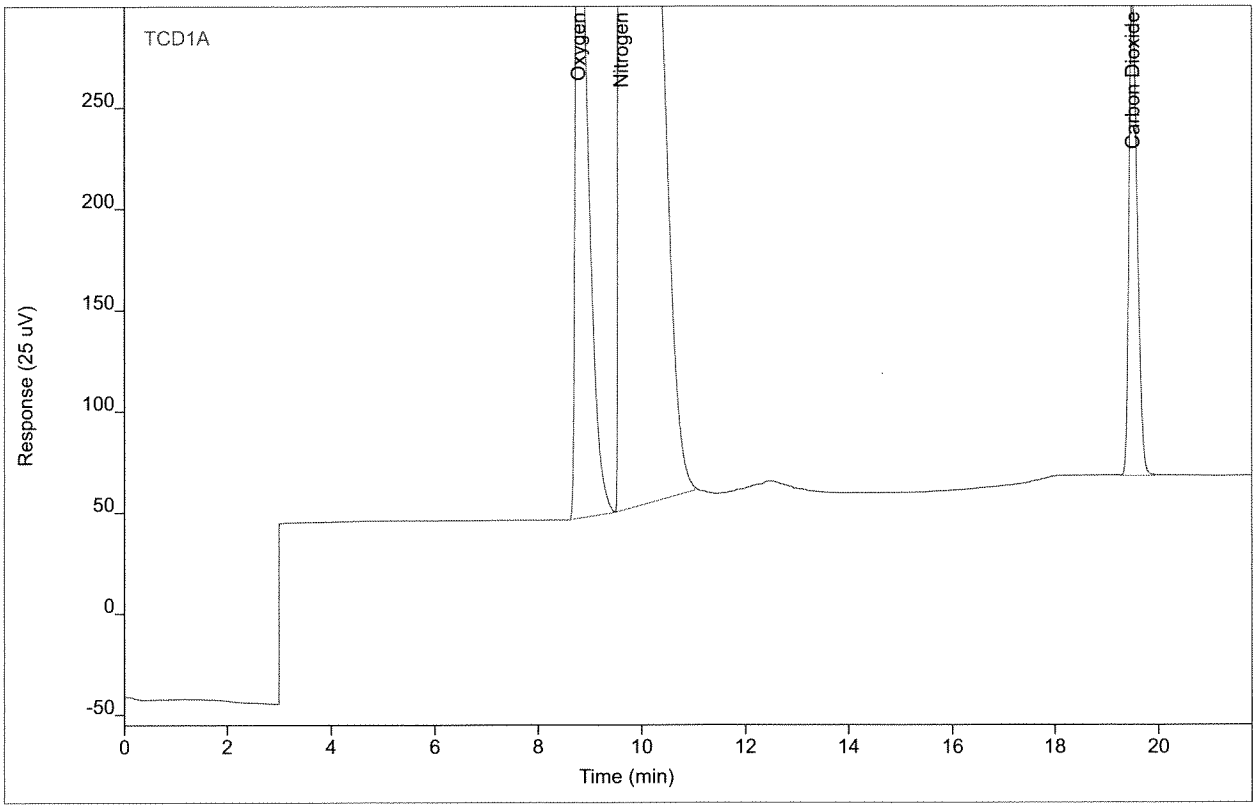
08:15:25 10/04/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	0816-140.Unit 2 C3 Run 3.Bag
Sequence Name	BETTYP457 ver.2
Data File	008F0503.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/3/2016 5:33 PM
File Modified	10/18/2016 2:44 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:43 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BV	8.79	6156.42	368.367	16.0928	1	16.0928	%
Nitrogen	VB	9.61	31453.1	847.870	73.5026	1	73.5026	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2626.62	237.953	3.62758	1	3.62758	%

Analyst Peak Integration Comments

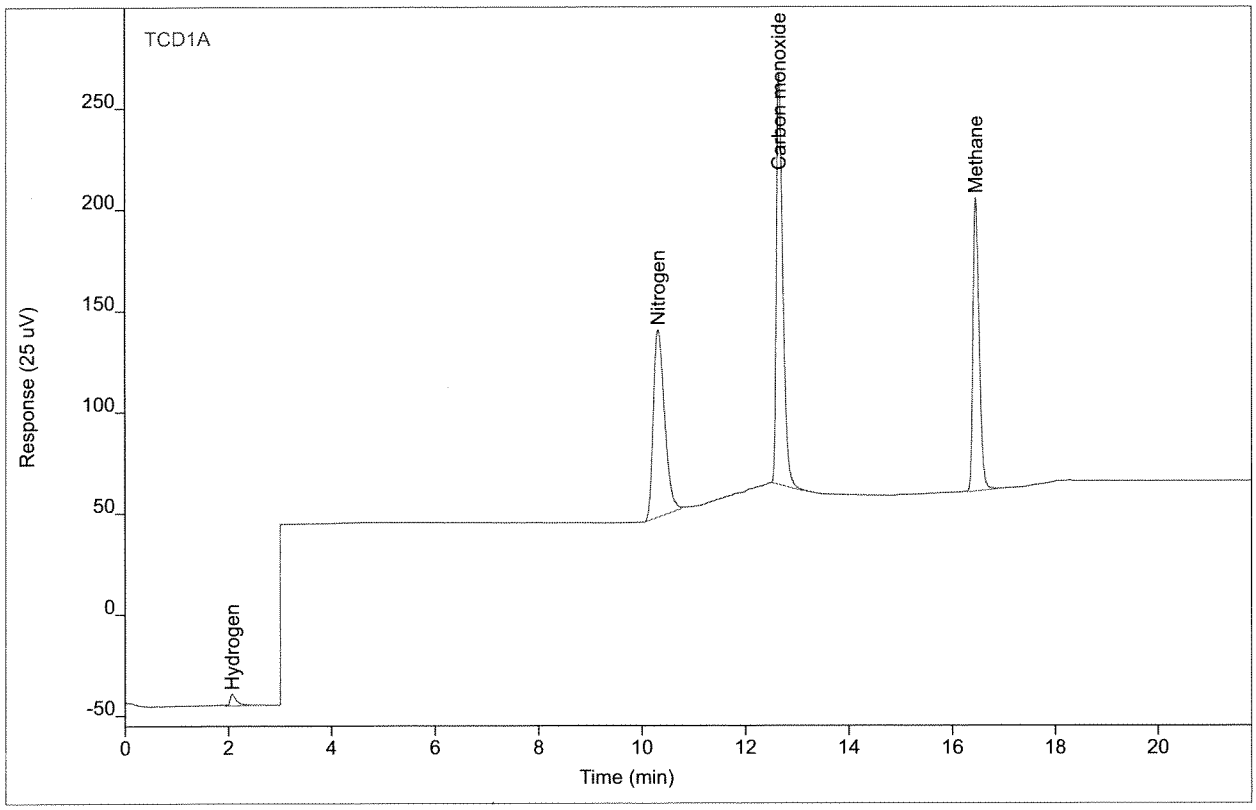
08:15:34 10/04/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP458 ver.4
Data File	009F0503.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	10/5/2016 8:33 PM
File Modified	10/18/2016 2:53 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 5
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:53 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	VB	2.07	53.4370	5.70336	2.98074	1	2.98074	%
Nitrogen	BB	10.32	1430.32	92.7824	3.28438	1	3.28438	%
Carbon monoxide	MM	12.67	1756.55	203.415	3.31693	1	3.31693	%
Methane	MM	16.46	1212.49	144.994	2.68135	1	2.68135	%

Analyst Peak Integration Comments

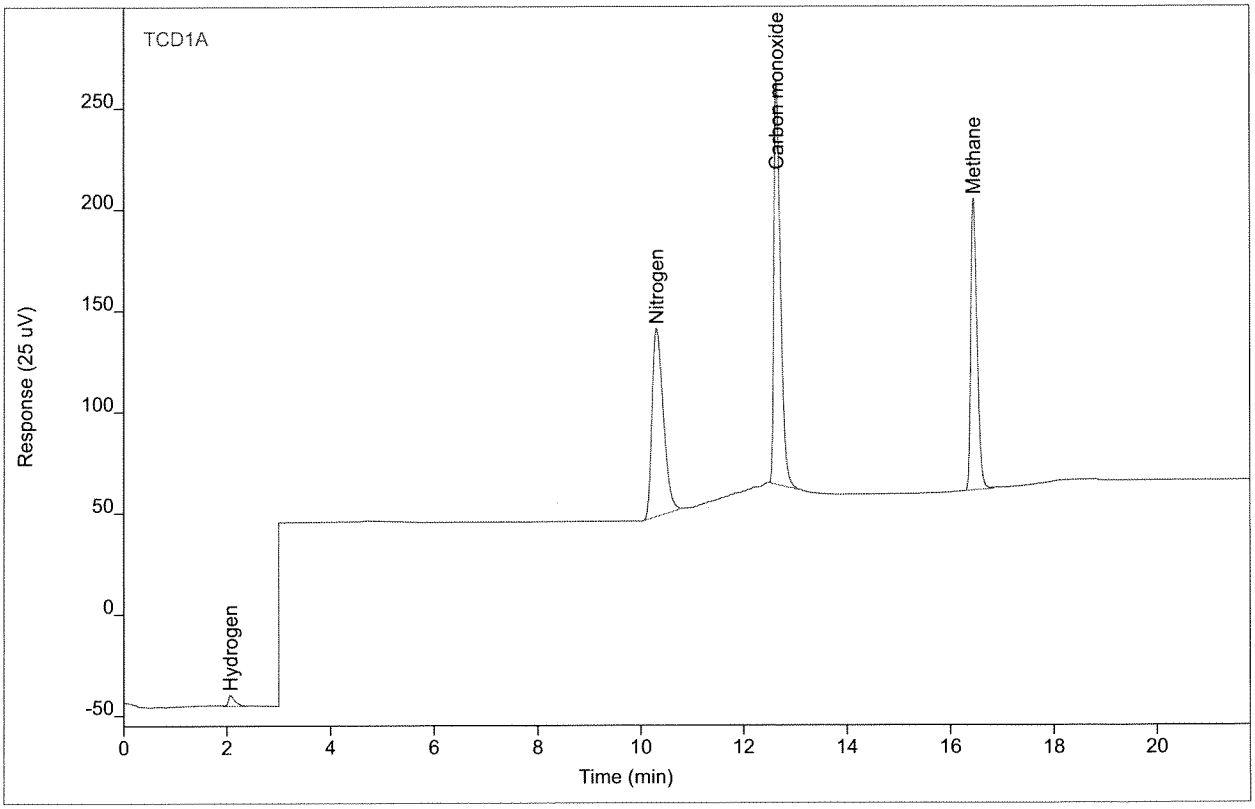
07:25:26 10/06/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP458 ver.4
Data File	009F0504.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	10/5/2016 9:03 PM
File Modified	10/18/2016 2:53 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 5
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:53 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	50.6021	5.59466	2.82288	1	2.82288	%
Nitrogen	BB	10.32	1429.15	93.0555	3.28164	1	3.28164	%
Carbon monoxide	MM	12.67	1742.64	199.643	3.29044	1	3.29044	%
Methane	MM	16.46	1188.11	143.900	2.62664	1	2.62664	%

Analyst Peak Integration Comments

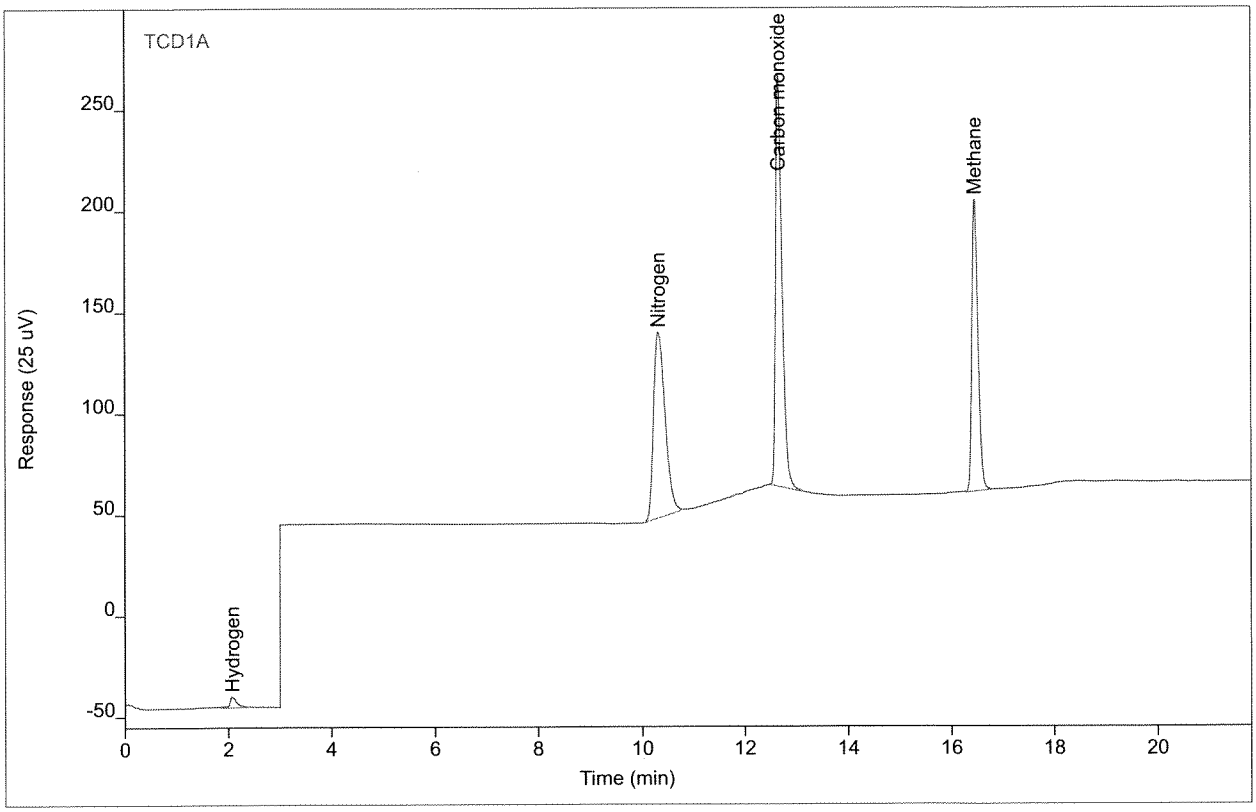
07:25:40 10/06/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP458 ver.4
Data File	009F0505.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	10/5/2016 9:33 PM
File Modified	10/18/2016 2:53 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	5 of 5
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:53 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	VB	2.07	53.1978	5.61380	2.96742	1	2.96742	%
Nitrogen	BB	10.32	1440.33	92.0891	3.30780	1	3.30780	%
Carbon monoxide	MM	12.67	1767.96	204.210	3.33865	1	3.33865	%
Methane	MM	16.46	1196.45	144.421	2.64536	1	2.64536	%

Analyst Peak Integration Comments

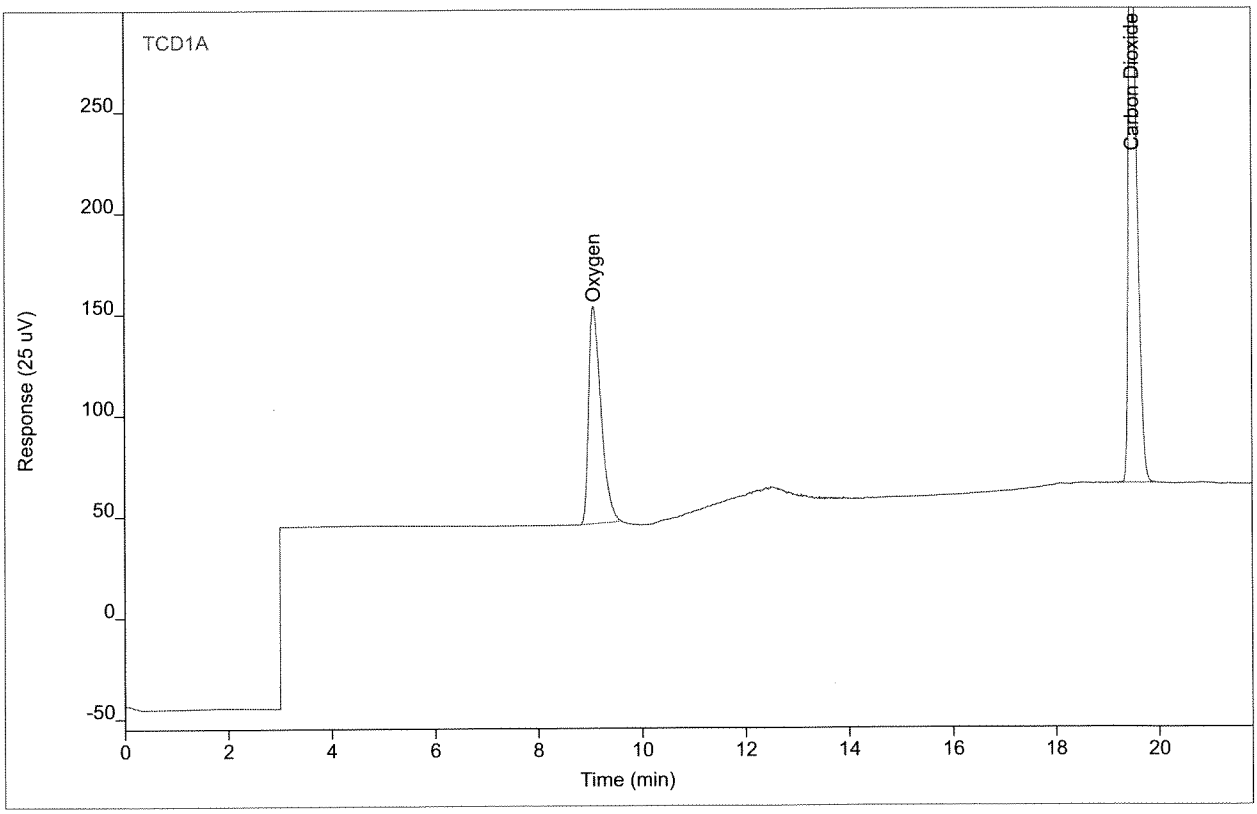
07:25:51 10/06/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP458 ver.4
Data File	009F0603.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	10/5/2016 11:02 PM
File Modified	10/18/2016 2:53 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 5
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:53 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.07	1765.44	107.434	4.59517	1	4.59517	%
Carbon Dioxide	MM	19.50	3201.00	286.866	4.43360	1	4.43360	%

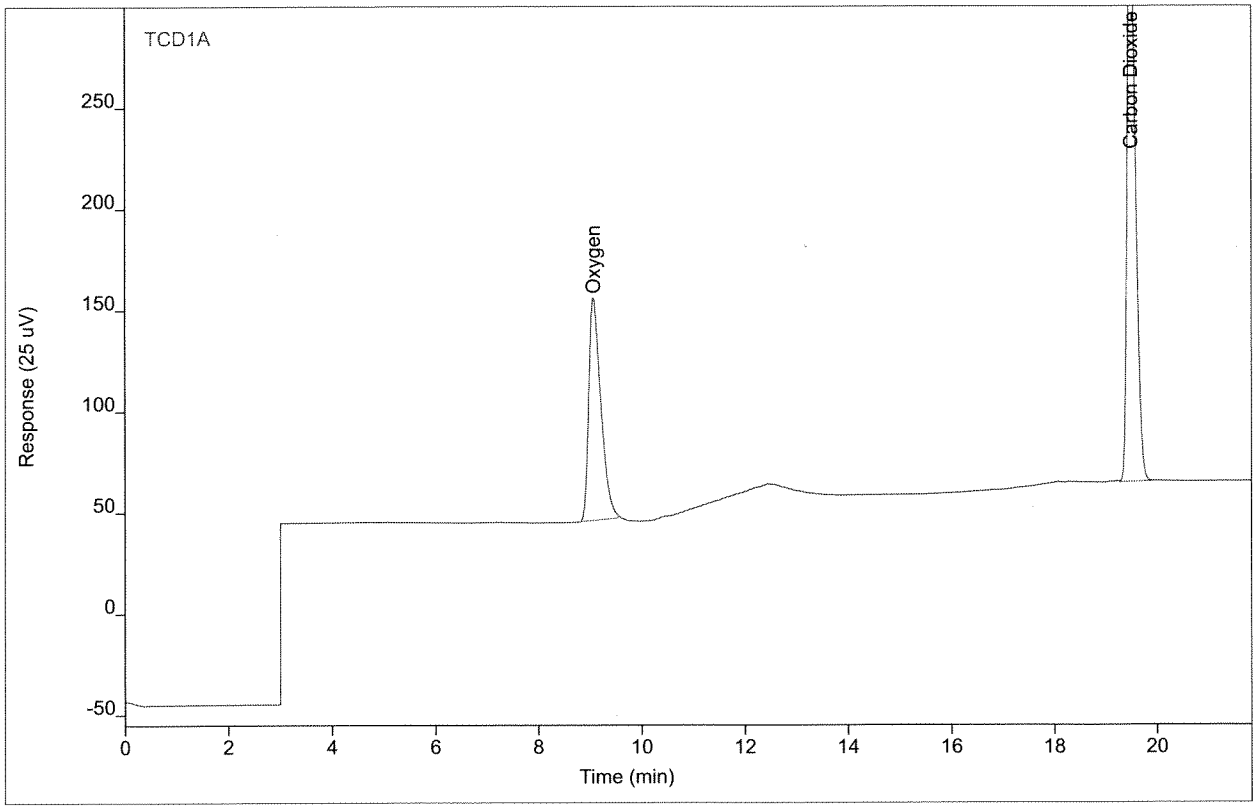
Analyst Peak Integration Comments

07:26:49 10/06/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP458 ver.4	Vial Number	Vial 9
Data File	009F0604.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 3	Injection	4 of 5
Injection Date	10/5/2016 11:32 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	10/18/2016 2:53 PM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/18/2016 2:53 PM
Operator	Nicholas Traversa	Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.07	1781.20	109.986	4.63645	1	4.63645	%
Carbon Dioxide	MM	19.50	3238.64	290.944	4.48642	1	4.48642	%

Analyst Peak Integration Comments

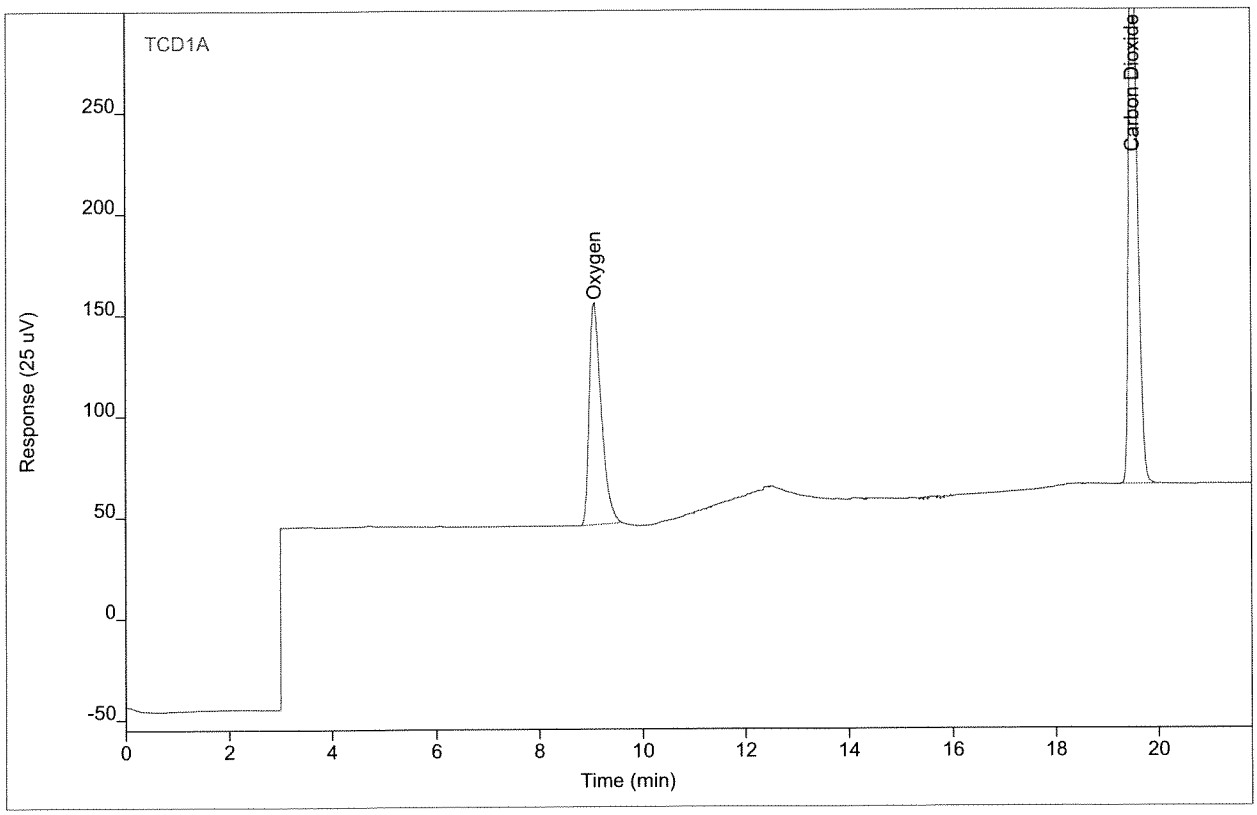
07:26:58 10/06/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP458 ver.4
Data File	009F0605.D
File Location	GC/2016/Betty/Quarter 3
Injection Date	10/6/2016 12:01 AM
File Modified	10/18/2016 2:53 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	5 of 5
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/18/2016 2:53 PM
Printed	10/18/2016 5:12 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.08	1790.78	109.131	4.66152	1	4.66152	%
Carbon Dioxide	MM	19.52	3235.40	289.890	4.48187	1	4.48187	%

Analyst Peak Integration Comments

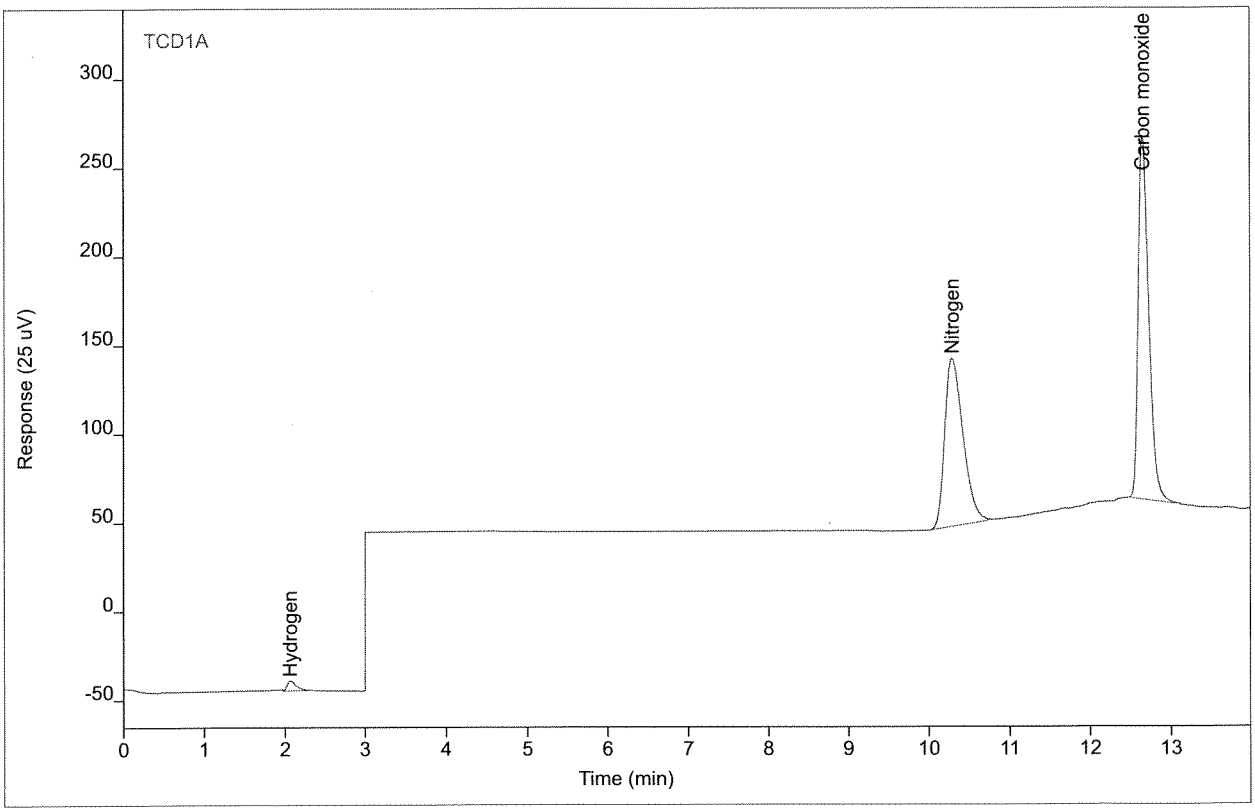
07:27:08 10/06/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F0201.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 10:34 AM
File Modified	11/1/2016 9:30 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



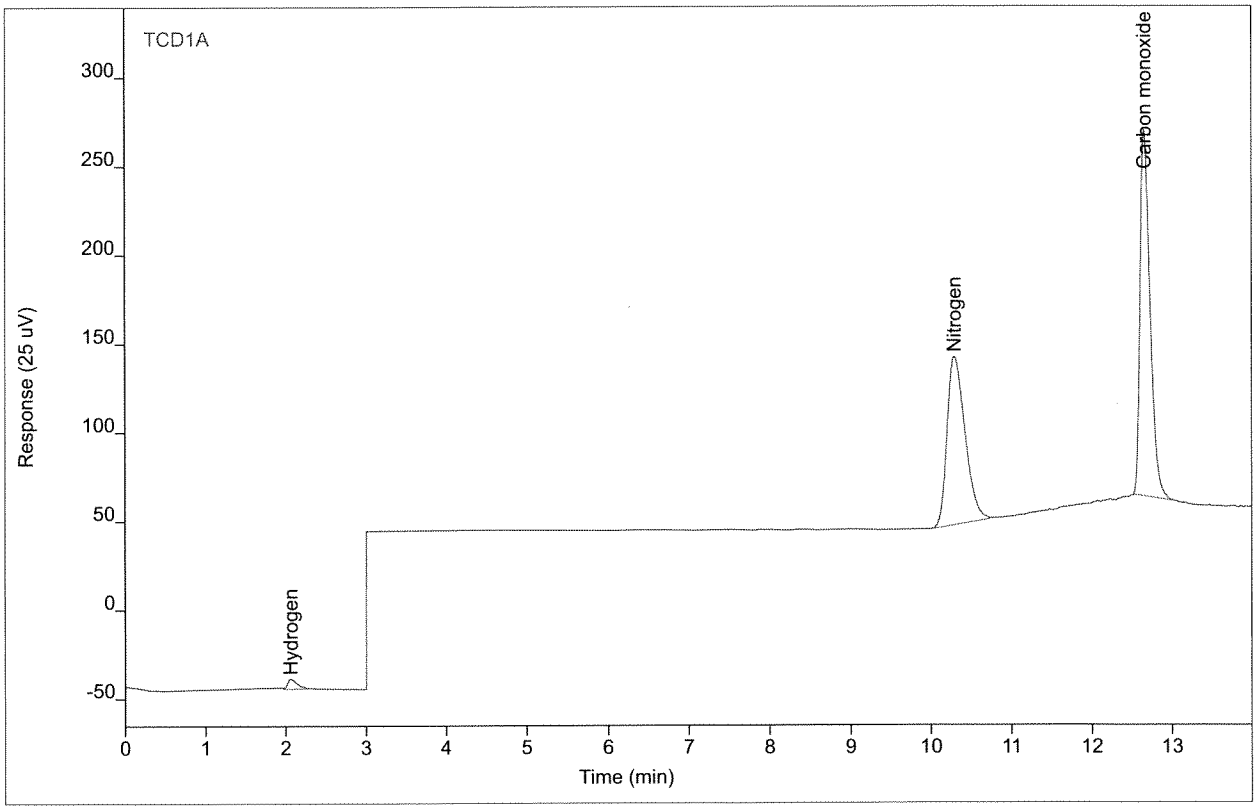
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	45.9743	5.60361	2.56517	1	2.56517	%
Nitrogen	BB	10.29	1493.24	94.9082	3.43154	1	3.43154	%
Carbon monoxide	MM	12.65	1821.50	205.136	3.44058	1	3.44058	%
Methane	MM	16.45	1215.84	147.673	2.68887	1	2.68887	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F0202.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 11:05 AM
File Modified	11/1/2016 9:30 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



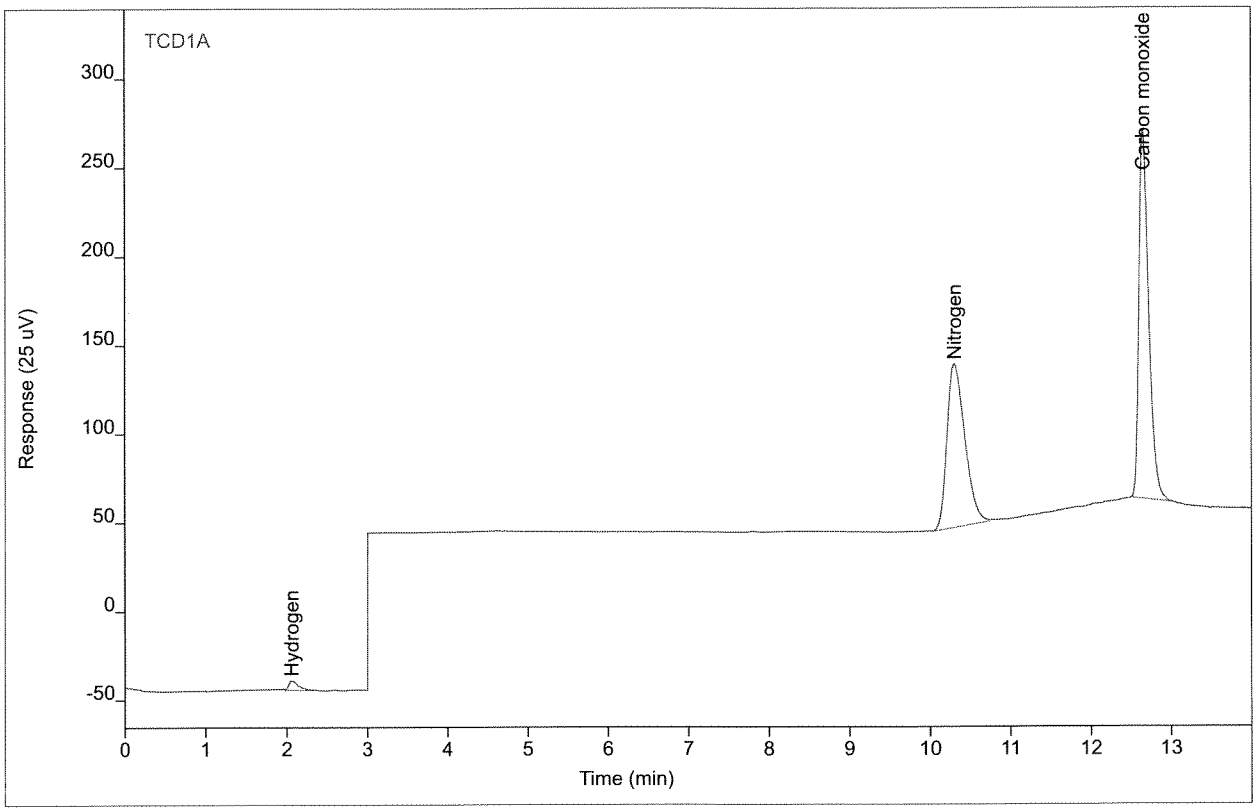
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	46.2899	5.73617	2.58274	1	2.58274	%
Nitrogen	BB	10.29	1493.97	95.0495	3.43324	1	3.43324	%
Carbon monoxide	MM	12.65	1791.36	206.452	3.38319	1	3.38319	%
Methane	MM	16.45	1220.68	148.409	2.69972	1	2.69972	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F0203.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 11:36 AM
File Modified	11/1/2016 9:30 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



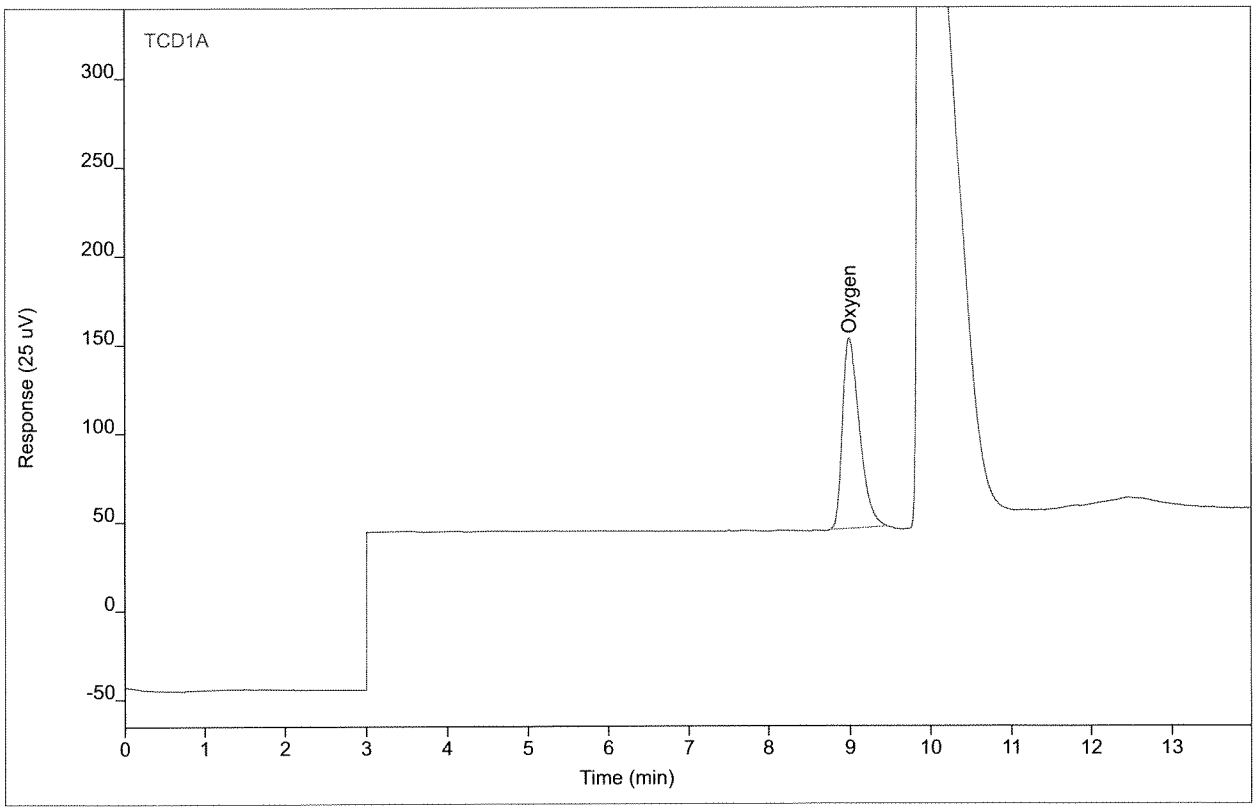
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	45.8028	5.62682	2.55561	1	2.55561	%
Nitrogen	BB	10.30	1449.12	92.4608	3.32833	1	3.32833	%
Carbon monoxide	MM	12.65	1765.10	207.237	3.33321	1	3.33321	%
Methane	MM	16.45	1198.08	145.908	2.64901	1	2.64901	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F0301.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 12:07 PM
File Modified	11/1/2016 9:30 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



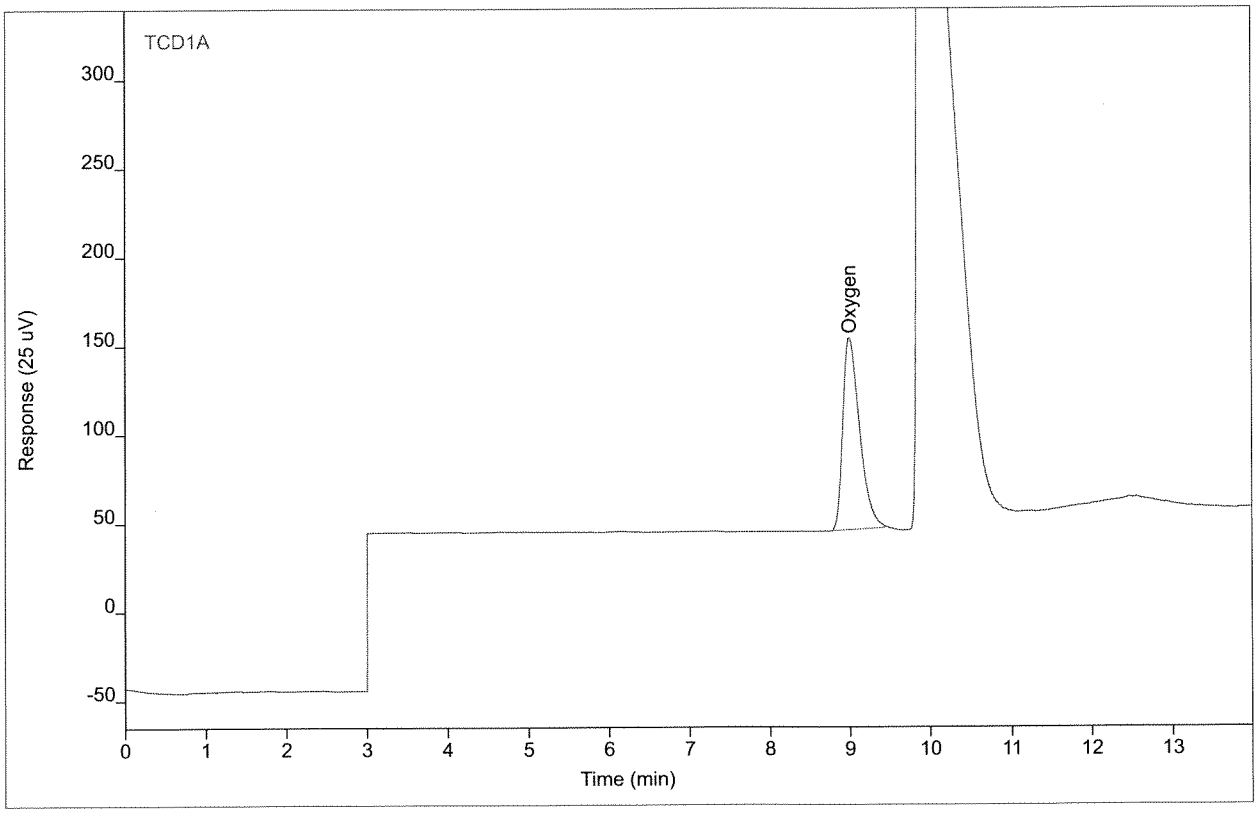
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.00	1561.91	107.440	4.06223	1	4.06223	%
Carbon Dioxide	MM	19.49	2846.88	259.933	3.93667	1	3.93667	%

Chromatogram Report

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F0302.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 12:38 PM
File Modified	11/1/2016 9:30 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



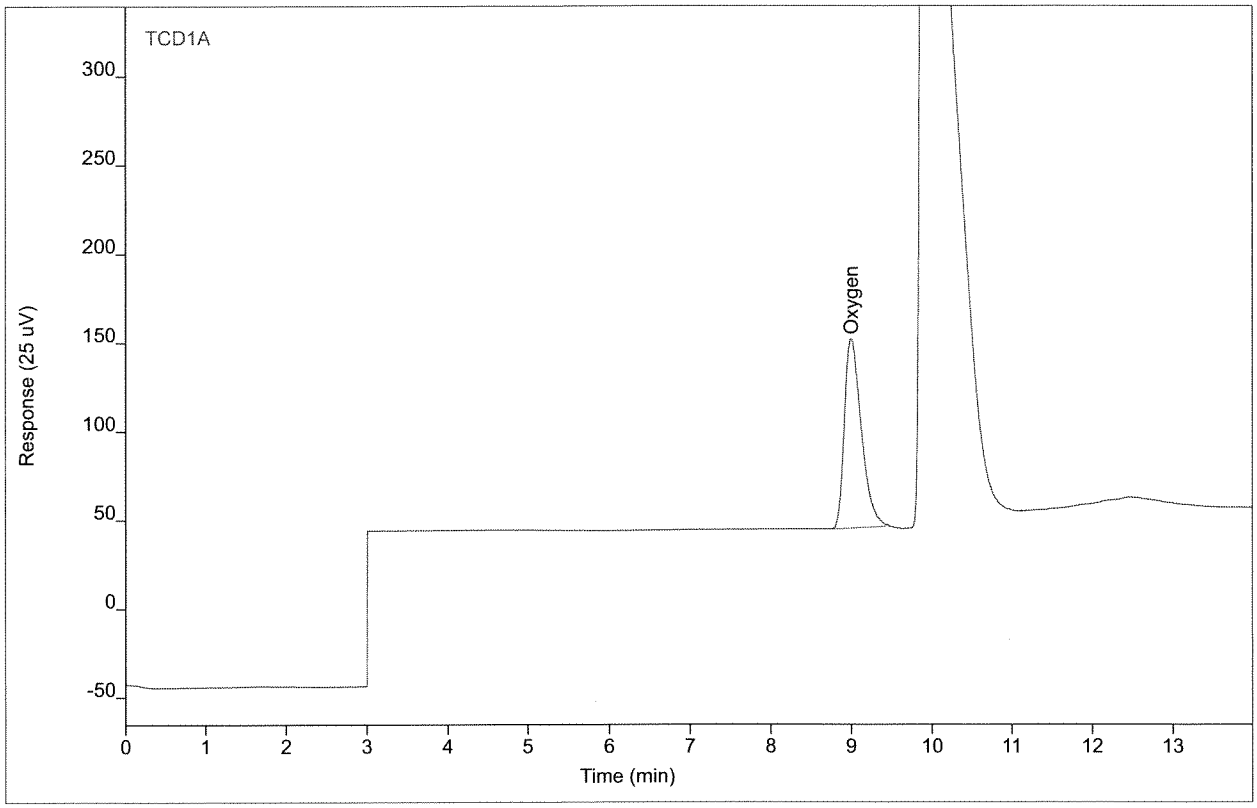
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.00	1573.98	108.256	4.09385	1	4.09385	%
Carbon Dioxide	MM	19.49	2811.22	253.011	3.88662	1	3.88662	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F0303.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 1:09 PM
File Modified	11/1/2016 9:30 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM

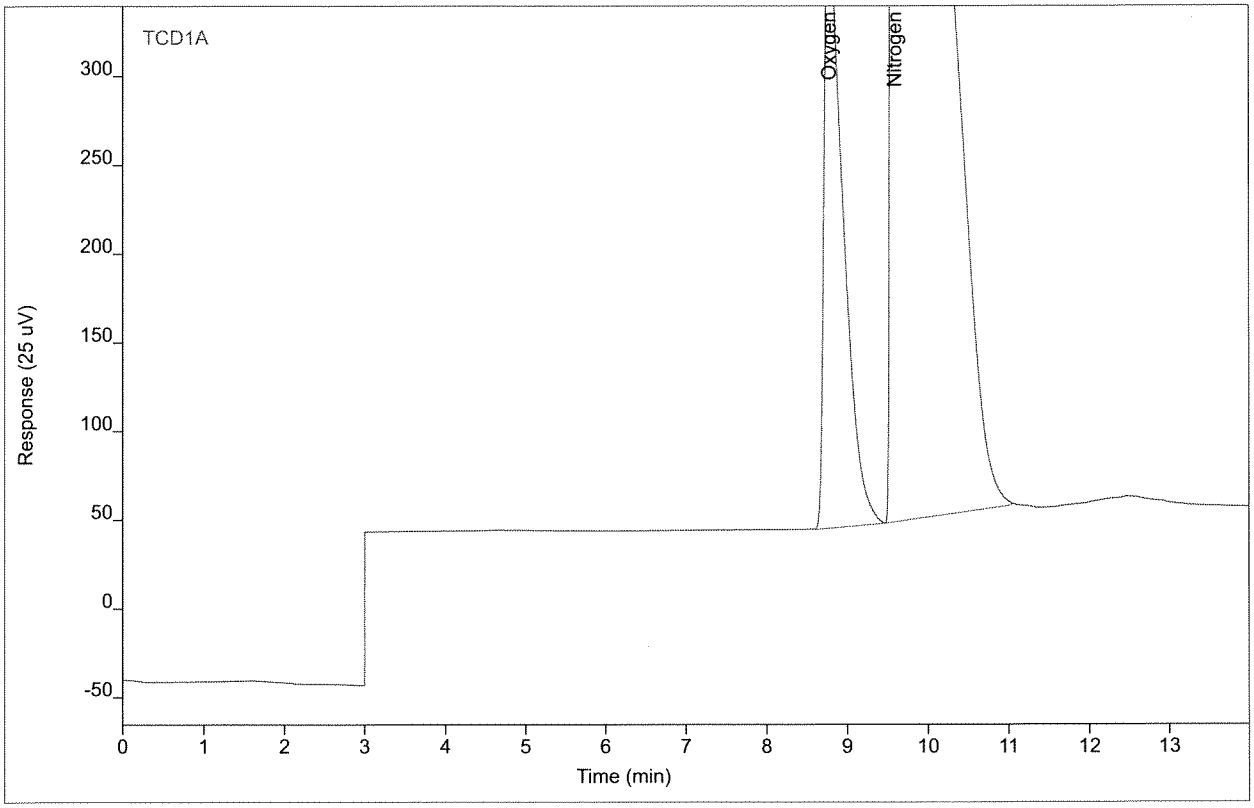


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.00	1567.24	106.879	4.07620	1	4.07620	%
Carbon Dioxide	MM	19.49	2817.53	255.601	3.89548	1	3.89548	%

Chromatogram Report

Enthalpy Analytical

Sample Name	1016-147.Unit 2 C4 Run 1 Split.Bag	Sample Type	Sample
Sequence Name	BETTYP477B ver.5	Vial Number	Vial 4
Inj Data File	004F0401.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	1 of 3
Injection Date	10/28/2016 1:38 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/1/2016 9:37 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/29/2016 11:39 AM
Operator	Justin Guenzler	Printed	11/4/2016 10:11 AM



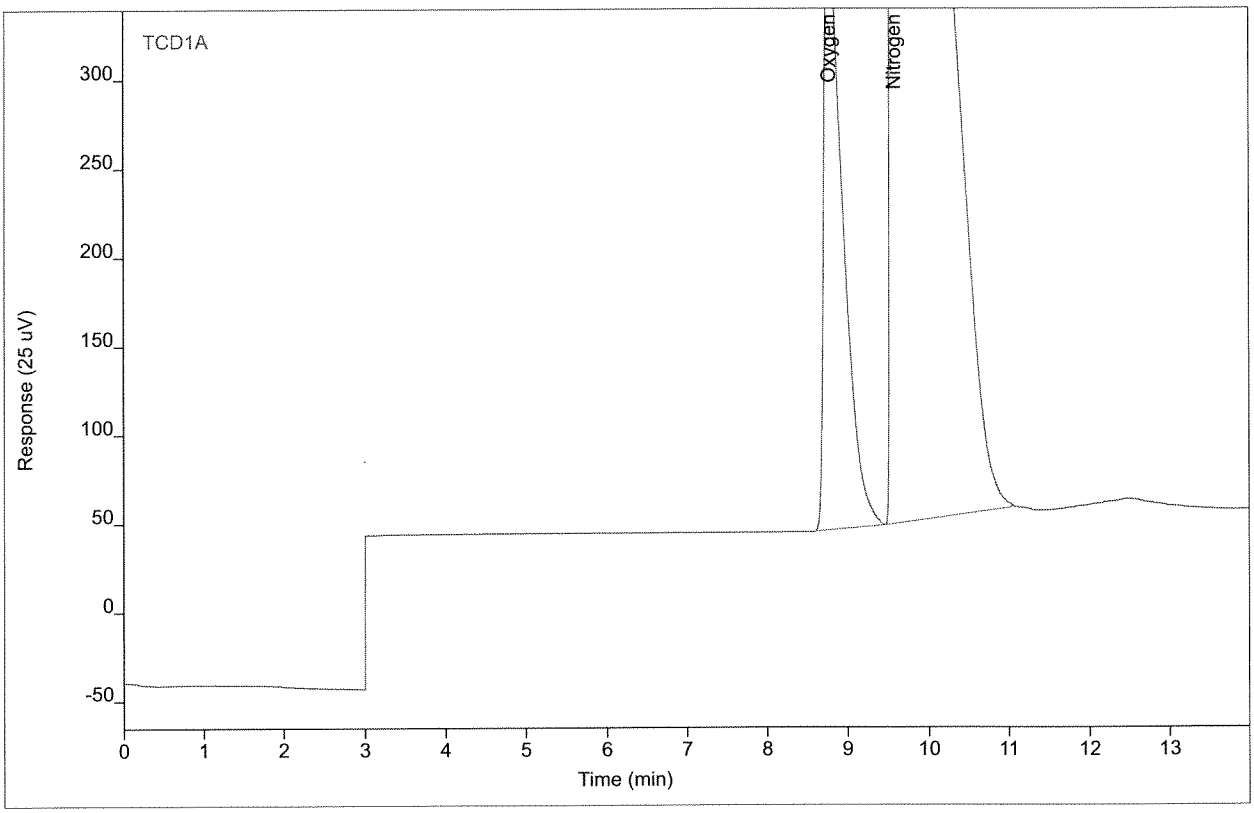
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BV	8.78	5546.88	338.666	14.4967	1	14.4967	%
Nitrogen	VB	9.59	31434.9	843.480	73.4600	1	73.4600	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.51	2321.80	212.919	3.19983	1	3.19983	%

Chromatogram Report

Sample Name	1016-147.Unit 2 C4 Run 1 Split.Bag
Sequence Name	BETTYP477B ver.5
Inj Data File	004F0402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 2:06 PM
File Modified	11/1/2016 9:37 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



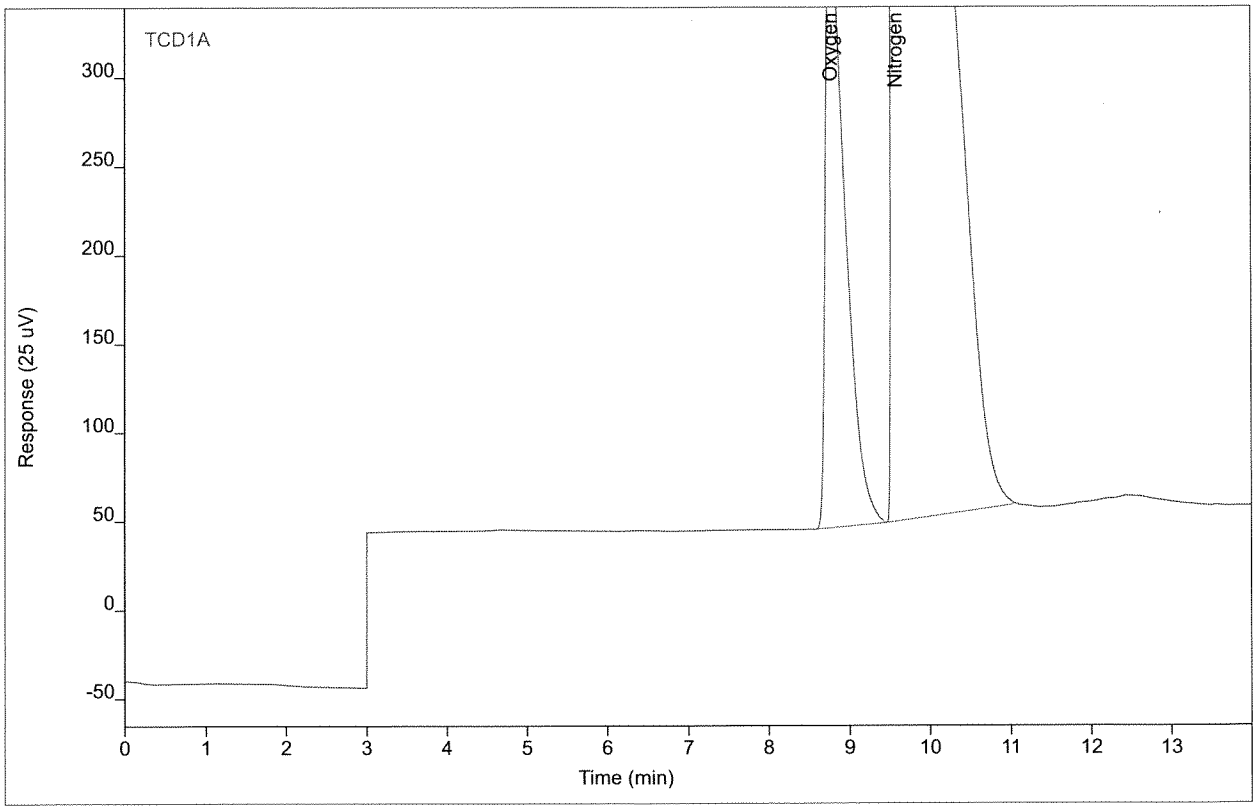
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.78	5632.28	345.397	14.7204	1	14.7204	%
Nitrogen	BB	9.59	31799.5	849.419	74.3126	1	74.3126	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2309.66	211.690	3.18280	1	3.18280	%

Chromatogram Report

Sample Name	1016-147.Unit 2 C4 Run 1 Split.Bag
Sequence Name	BETTYP477B ver.5
Inj Data File	004F0403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 2:35 PM
File Modified	11/1/2016 9:37 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



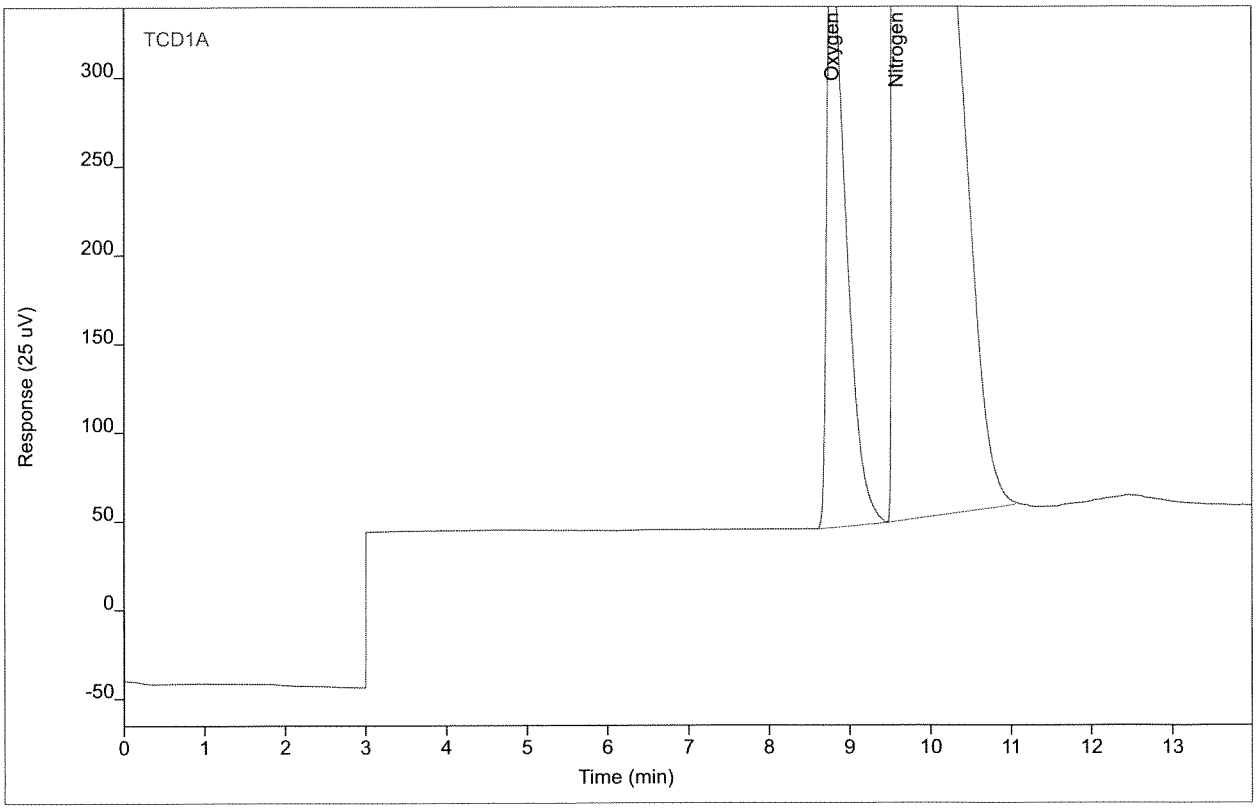
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BV	8.78	5755.44	349.102	15.0429	1	15.0429	%
Nitrogen	VB	9.58	32122.9	858.496	75.0691	1	75.0691	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.50	2314.06	210.909	3.18897	1	3.18897	%

Chromatogram Report

Sample Name	1016-147.Unit 2 C4 Run 3 Split.Bag
Sequence Name	BETTYP477B ver.5
Inj Data File	006F0501.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 3:04 PM
File Modified	11/1/2016 9:37 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



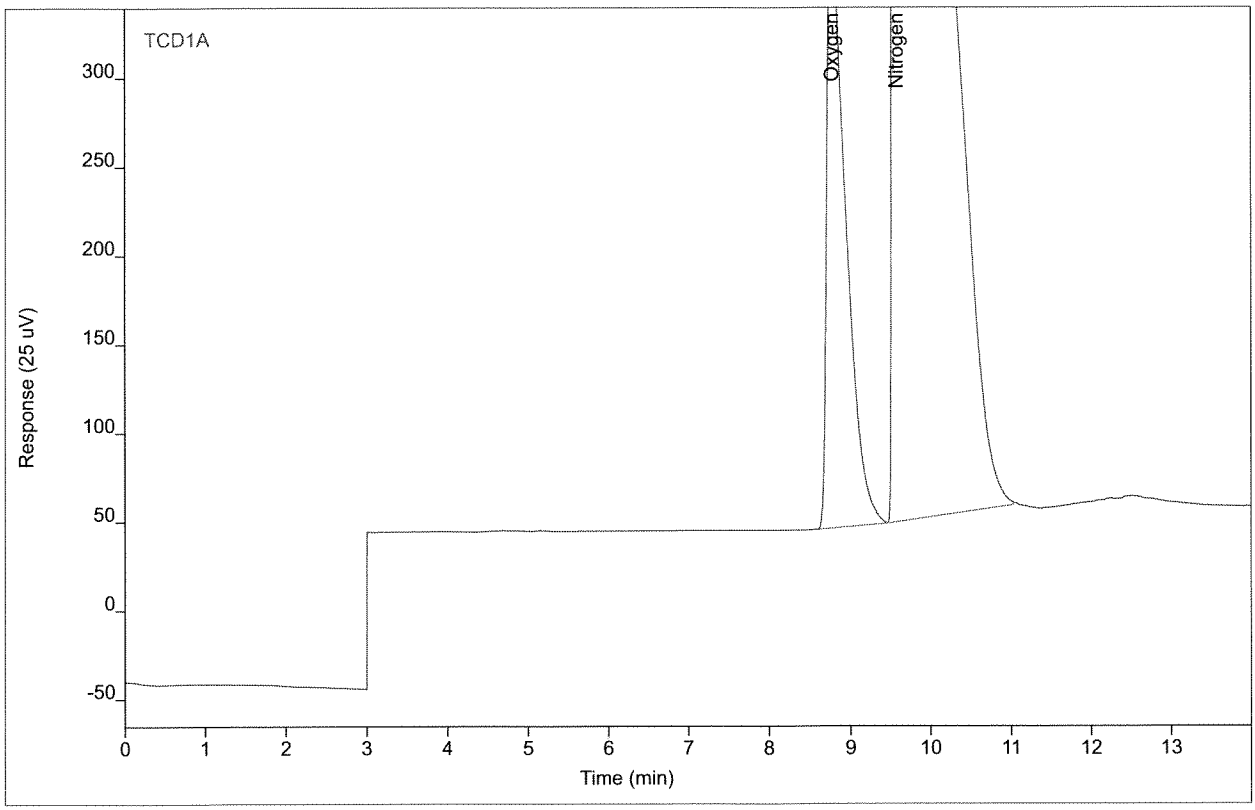
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BV	8.78	5497.68	335.487	14.3679	1	14.3679	%
Nitrogen	VB	9.58	32175.4	860.794	75.1918	1	75.1918	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.49	2609.45	239.364	3.60349	1	3.60349	%

Chromatogram Report

Sample Name	1016-147.Unit 2 C4 Run 3 Split.Bag
Sequence Name	BETTYP477B ver.5
Inj Data File	006F0502.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 3:32 PM
File Modified	11/1/2016 9:37 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



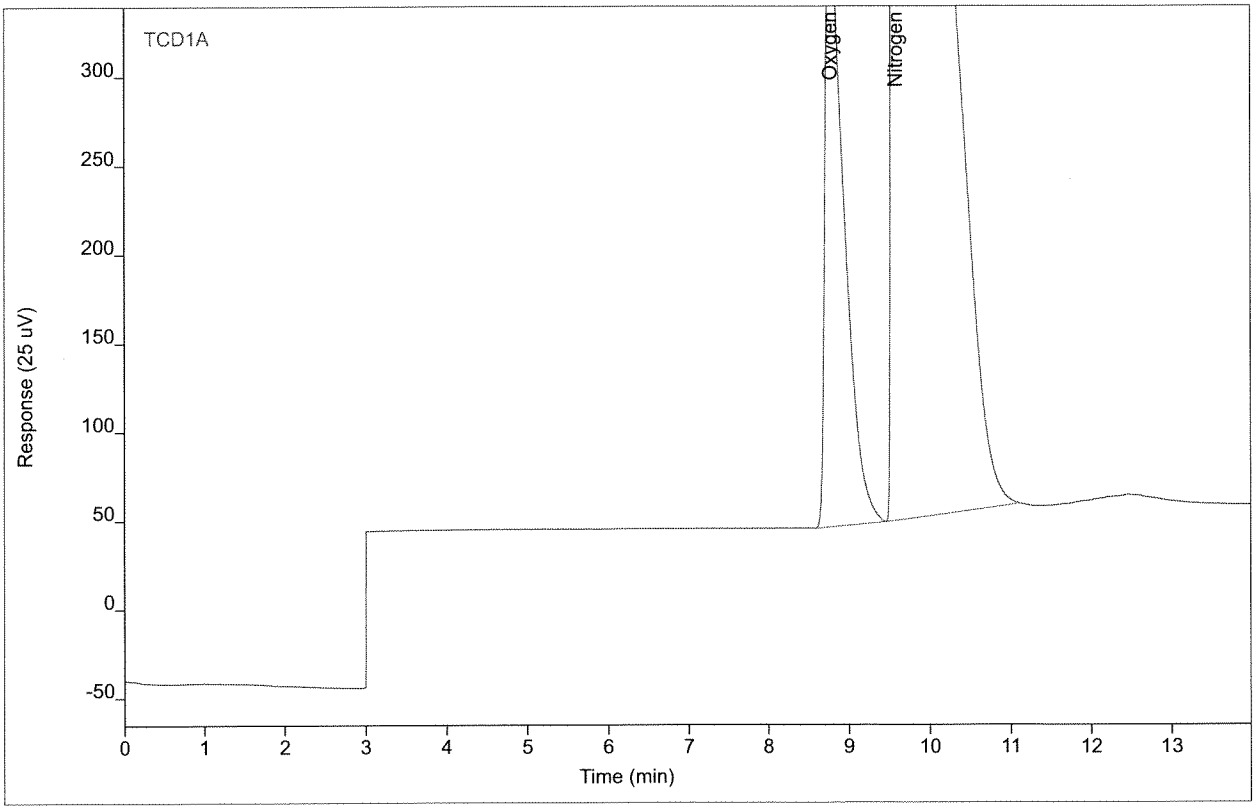
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BB	8.78	5499.30	335.772	14.3722	1	14.3722	%
Nitrogen	BB	9.58	32290.9	863.141	75.4620	1	75.4620	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.49	2655.55	240.057	3.66818	1	3.66818	%

Chromatogram Report

Sample Name	1016-147.Unit 2 C4 Run 3 Split.Bag
Sequence Name	BETTYP477B ver.5
Inj Data File	006F0503.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 4:01 PM
File Modified	11/1/2016 9:37 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 6
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



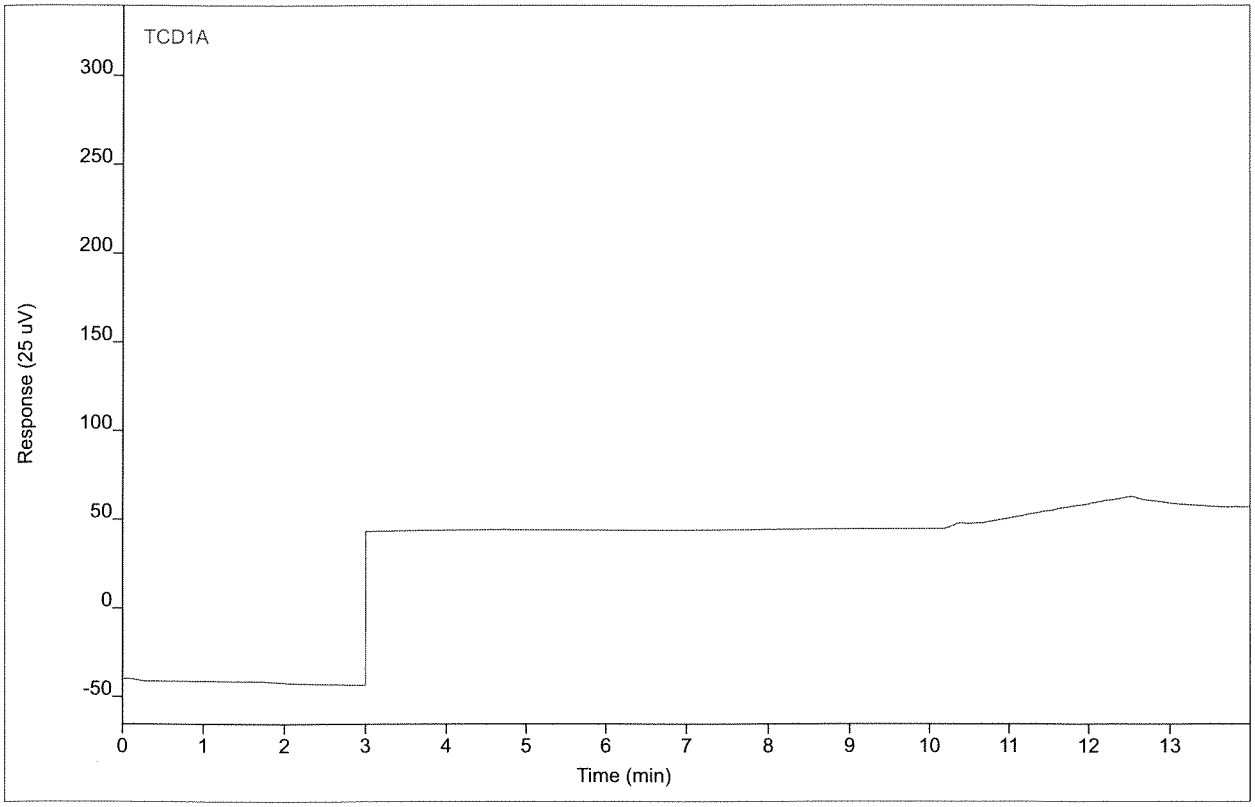
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen	BV	8.78	5570.39	343.385	14.5583	1	14.5583	%
Nitrogen	VB	9.58	32395.3	859.465	75.7062	1	75.7062	%
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide	MM	19.49	2613.69	240.530	3.60944	1	3.60944	%

Chromatogram Report

Sample Name	BettyP374 Method Blank-1
Sequence Name	BETTYP477B ver.5
Inj Data File	001F0901.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 8:49 PM
File Modified	11/1/2016 9:31 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



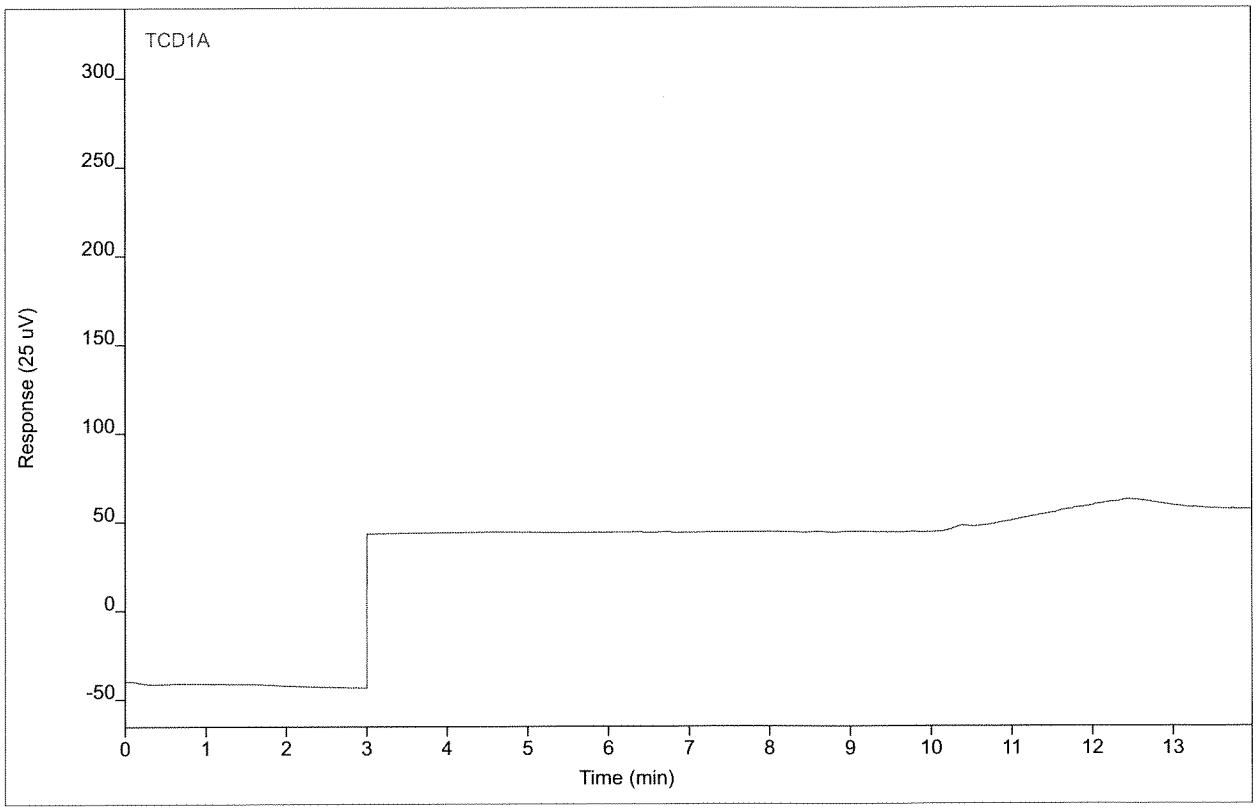
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen		(8.99)				1		
Nitrogen		(10.30)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP374 Method Blank-1
Sequence Name	BETTYP477B ver.5
Inj Data File	001F0902.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 9:18 PM
File Modified	11/1/2016 9:31 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



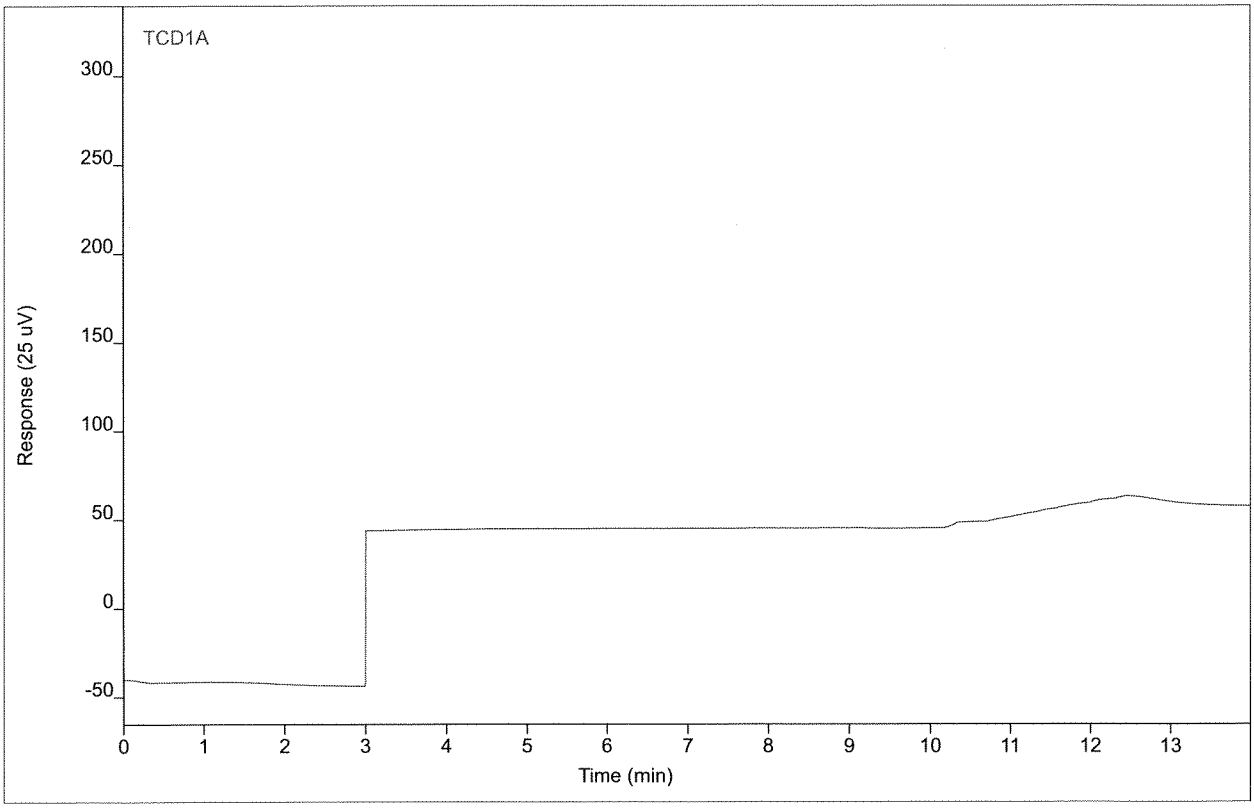
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen		(8.99)				1		
Nitrogen		(10.30)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP374 Method Blank-1
Sequence Name	BETTYP477B ver.5
Inj Data File	001F0903.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 9:46 PM
File Modified	11/1/2016 9:31 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



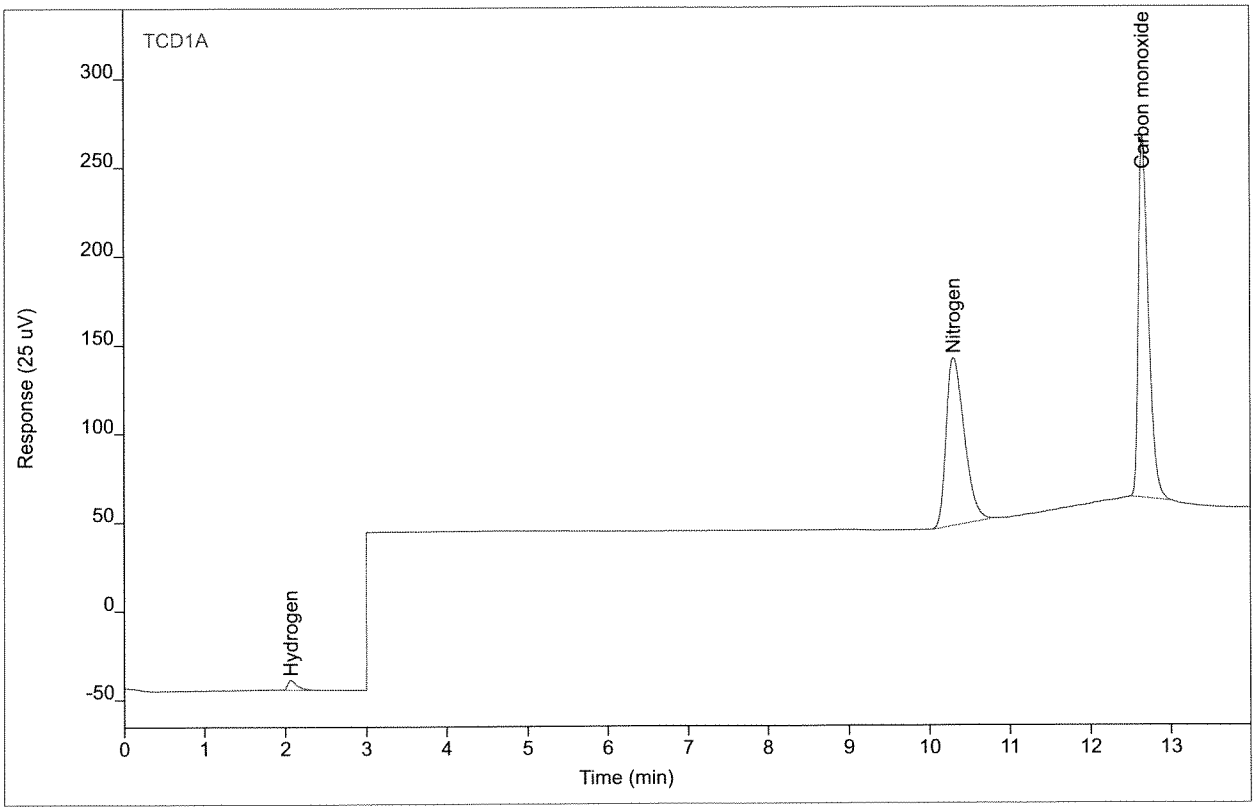
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.05)				1		
Oxygen		(8.99)				1		
Nitrogen		(10.30)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F1001.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 10:17 PM
File Modified	11/1/2016 9:31 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



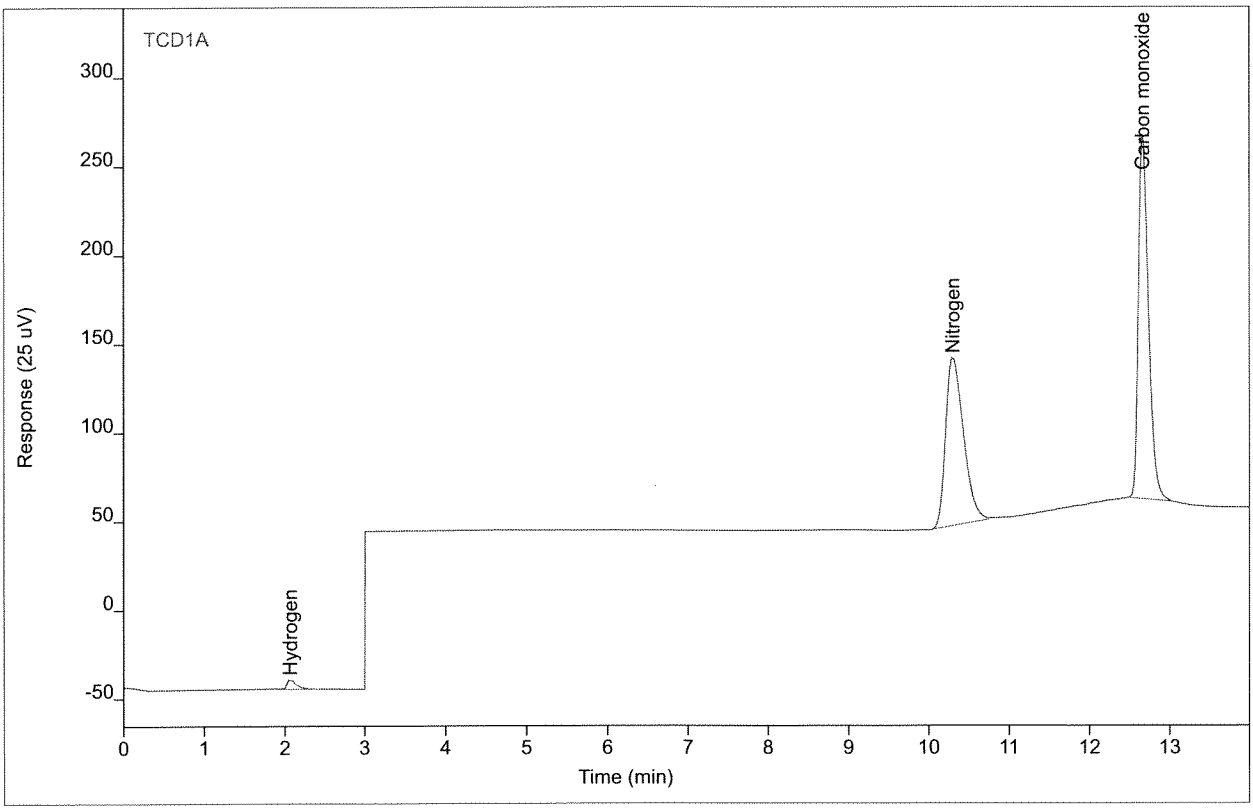
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	45.6695	5.52945	2.54820	1	2.54820	%
Nitrogen	BB	10.31	1485.16	94.6409	3.41264	1	3.41264	%
Carbon monoxide	MM	12.66	1751.91	204.193	3.30810	1	3.30810	%
Methane	MM	16.46	1189.08	145.562	2.62881	1	2.62881	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F1002.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/28/2016 10:49 PM
File Modified	11/1/2016 9:31 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM

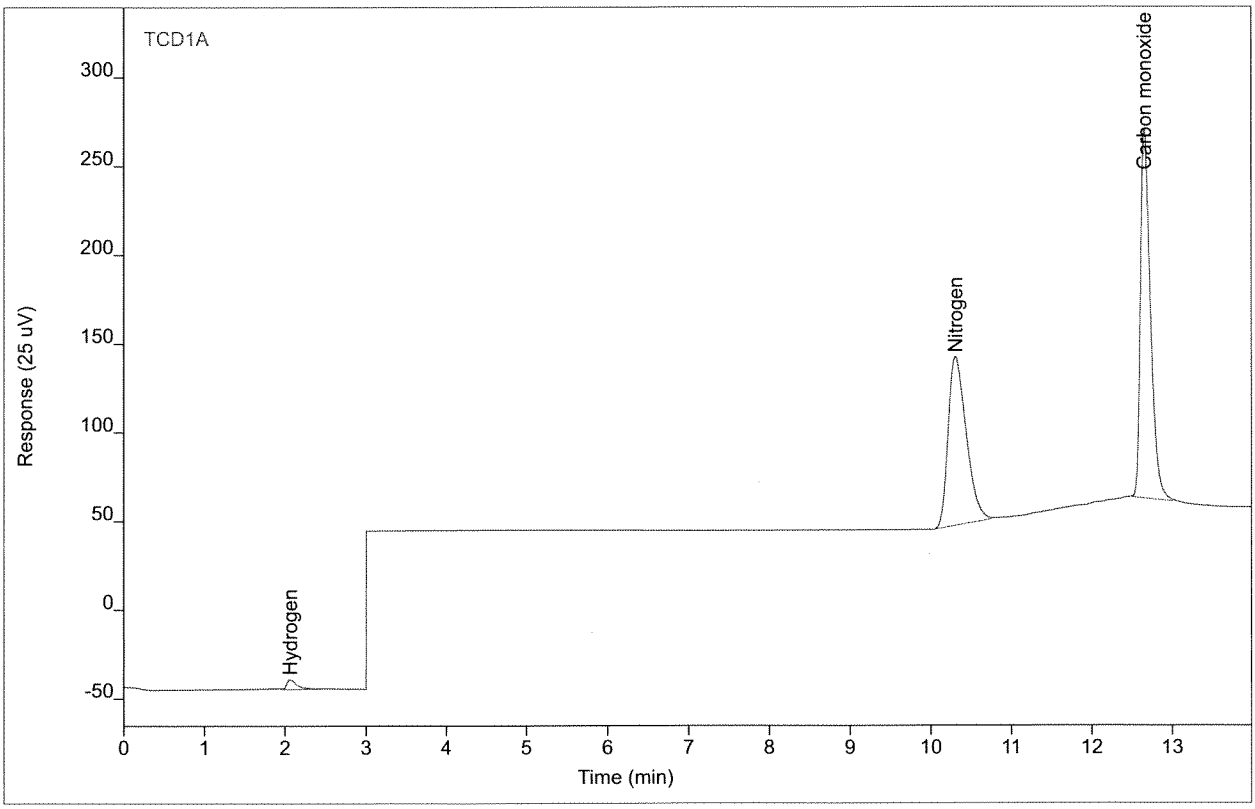


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	47.0358	5.59729	2.62428	1	2.62428	%
Nitrogen	BB	10.31	1484.12	94.8616	3.41020	1	3.41020	%
Carbon monoxide	MM	12.66	1783.52	204.898	3.36827	1	3.36827	%
Methane	MM	16.46	1211.83	147.061	2.67987	1	2.67987	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)	Sample Type	Calibration
Sequence Name	BETTYP477B ver.5	Vial Number	Vial 9
Inj Data File	009F1003.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 3
Injection Date	10/28/2016 11:20 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/1/2016 9:31 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/29/2016 11:39 AM
Operator	Nicholas Traversa	Printed	11/4/2016 10:11 AM

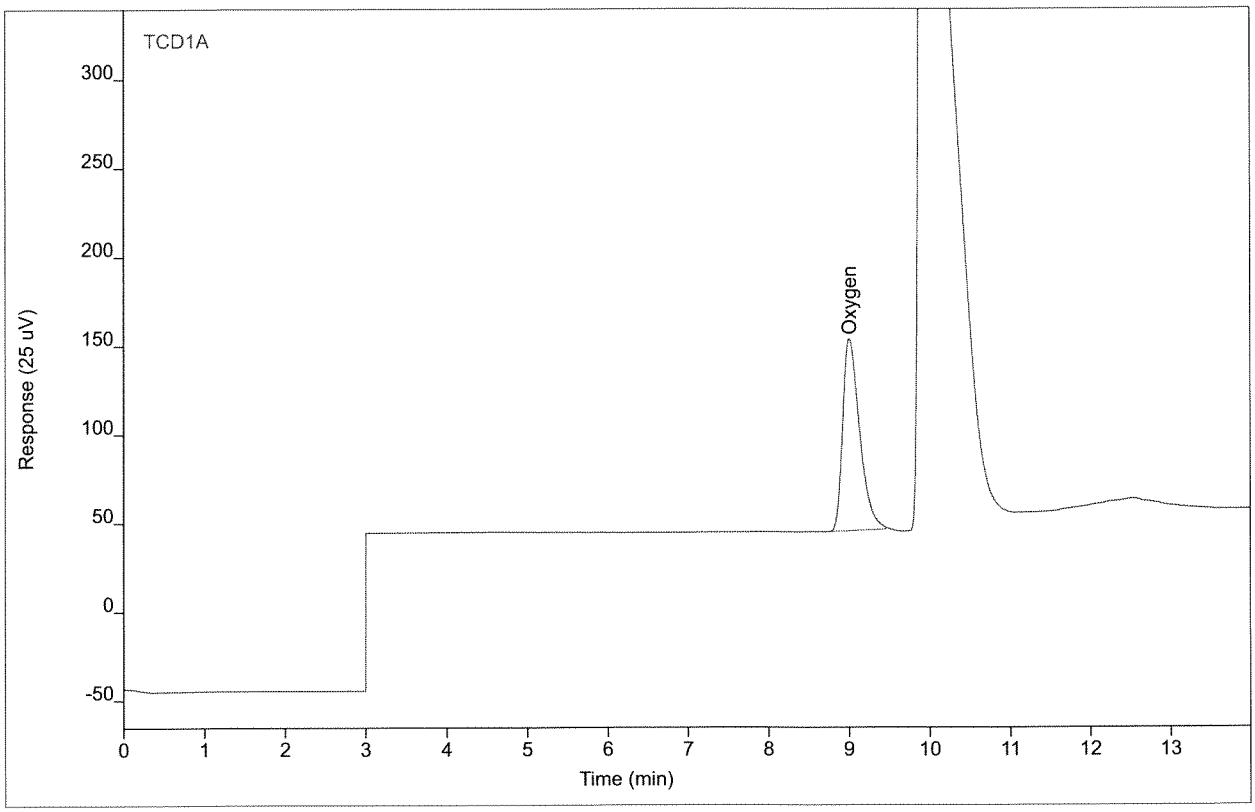


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	48.4368	5.67326	2.70230	1	2.70230	%
Nitrogen	BB	10.31	1480.74	95.2147	3.40229	1	3.40229	%
Carbon monoxide	MM	12.66	1793.83	207.920	3.38789	1	3.38789	%
Methane	MM	16.46	1215.96	145.560	2.68913	1	2.68913	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP477B ver.5	Vial Number	Vial 9
Inj Data File	009F1101.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	1 of 3
Injection Date	10/28/2016 11:51 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/1/2016 9:31 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/29/2016 11:39 AM
Operator	Nicholas Traversa	Printed	11/4/2016 10:11 AM



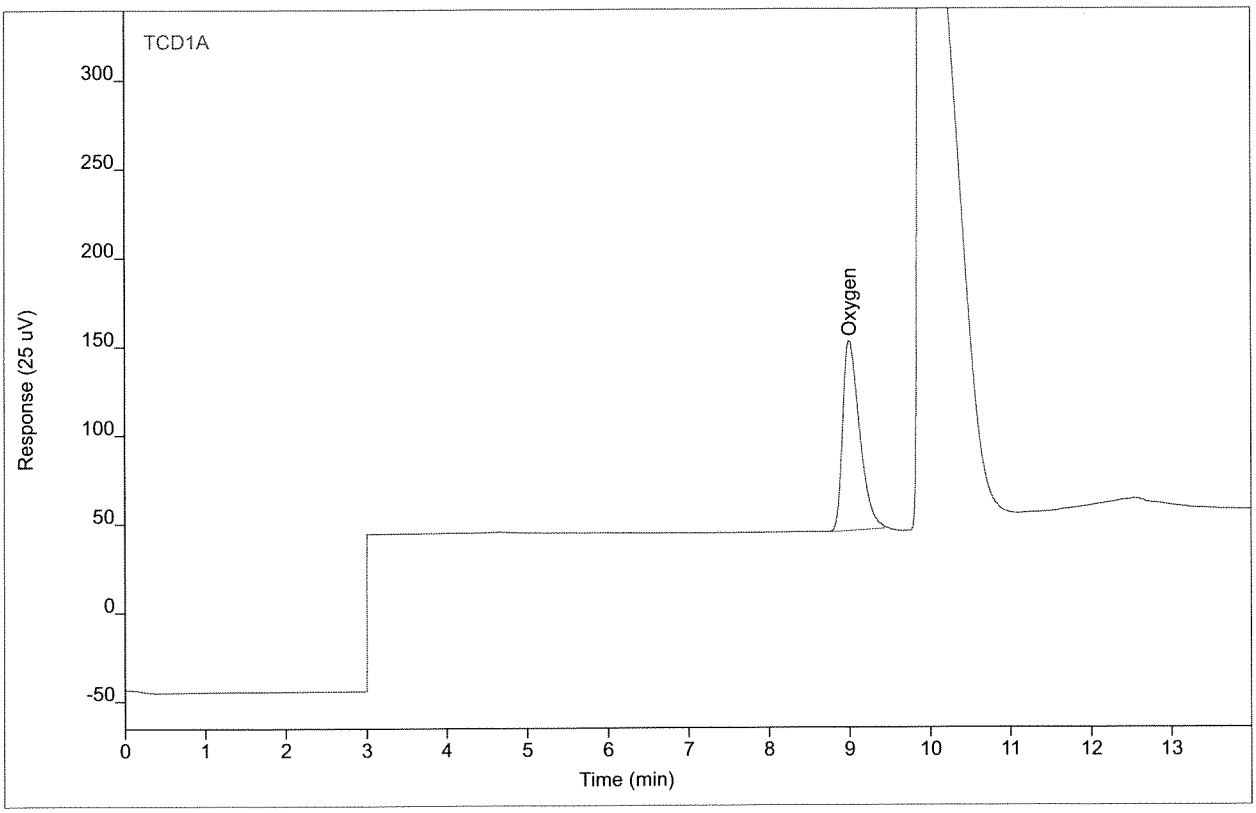
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1575.77	108.221	4.09853	1	4.09853	%
Carbon Dioxide	MM	19.49	2835.24	255.440	3.92034	1	3.92034	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/29/2016 12:22 AM
File Modified	11/1/2016 9:31 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM

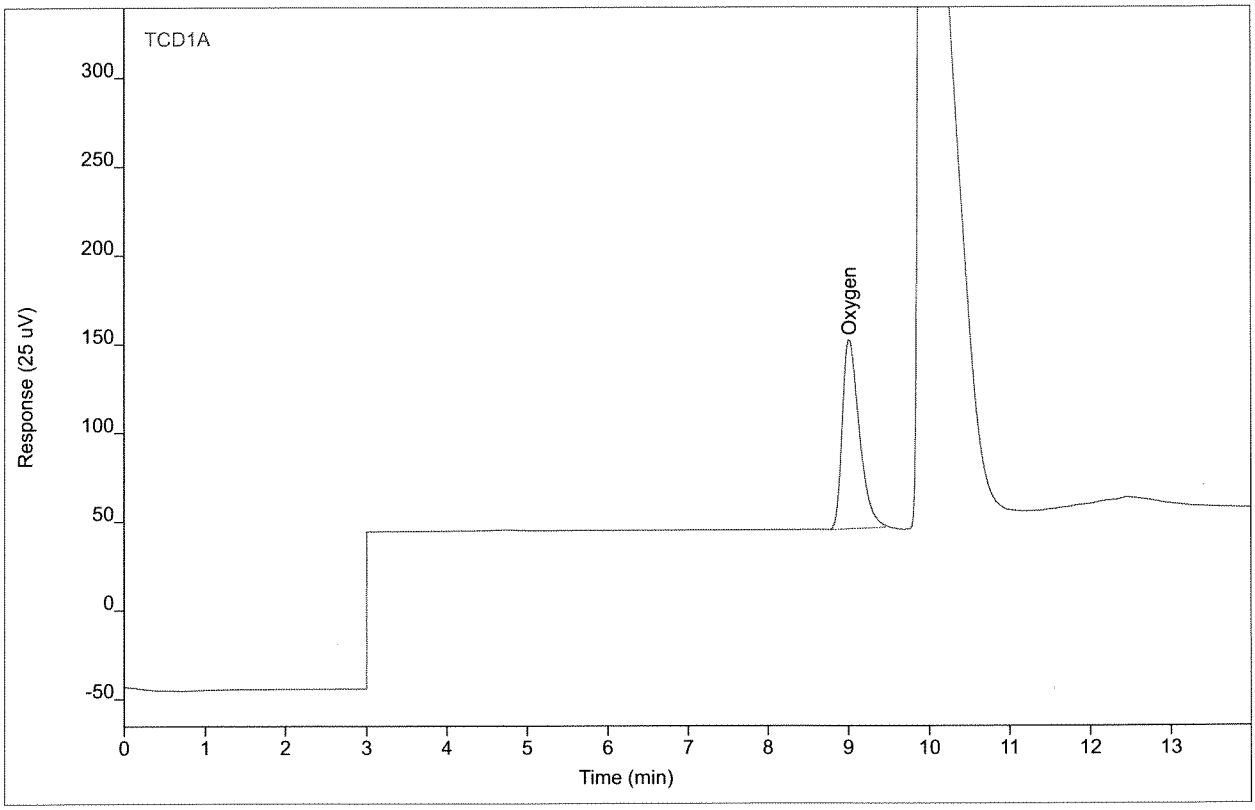


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1558.54	107.239	4.05341	1	4.05341	%
Carbon Dioxide	MM	19.49	2828.88	255.552	3.91140	1	3.91140	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP477B ver.5	Vial Number	Vial 9
Inj Data File	009F1103.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 3
Injection Date	10/29/2016 12:53 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/1/2016 9:31 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/29/2016 11:39 AM
Operator	Nicholas Traversa	Printed	11/4/2016 10:11 AM



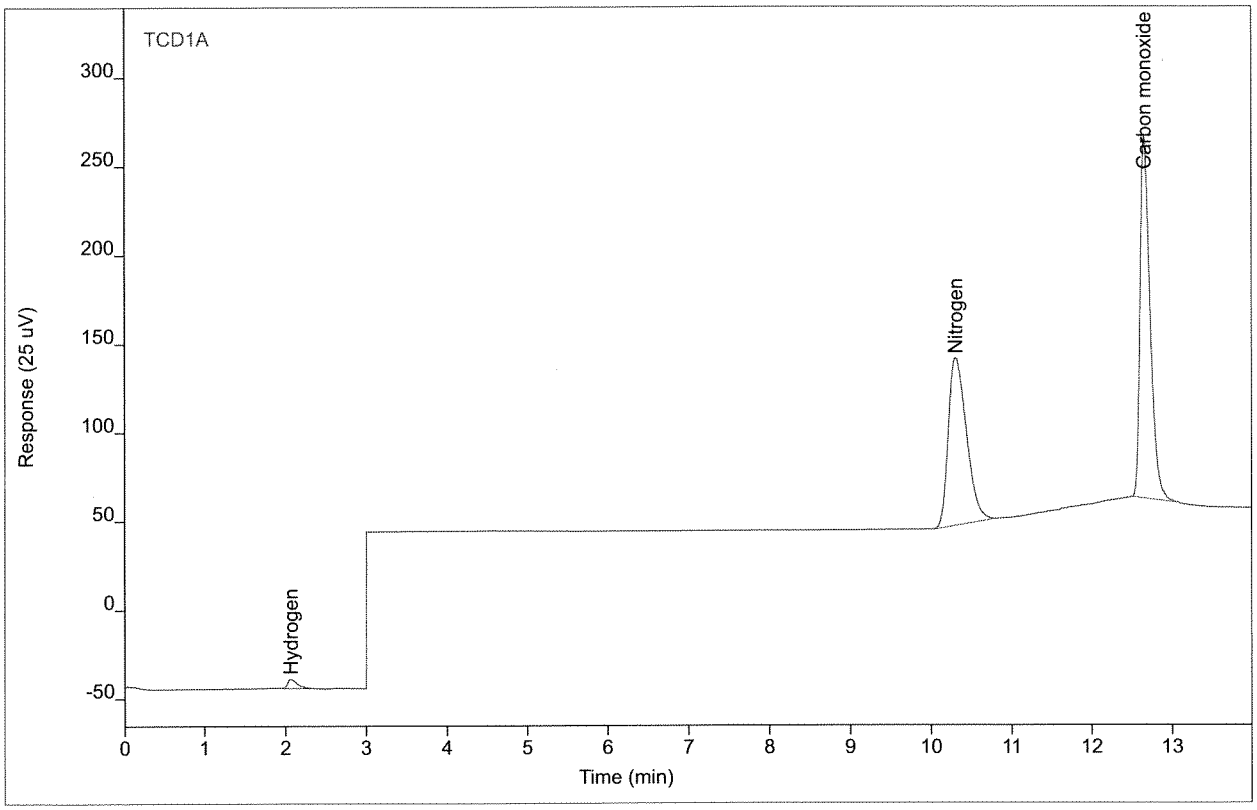
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1563.76	106.763	4.06708	1	4.06708	%
Carbon Dioxide	MM	19.49	2811.25	255.520	3.88667	1	3.88667	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F1901.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/29/2016 2:37 PM
File Modified	11/1/2016 9:32 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



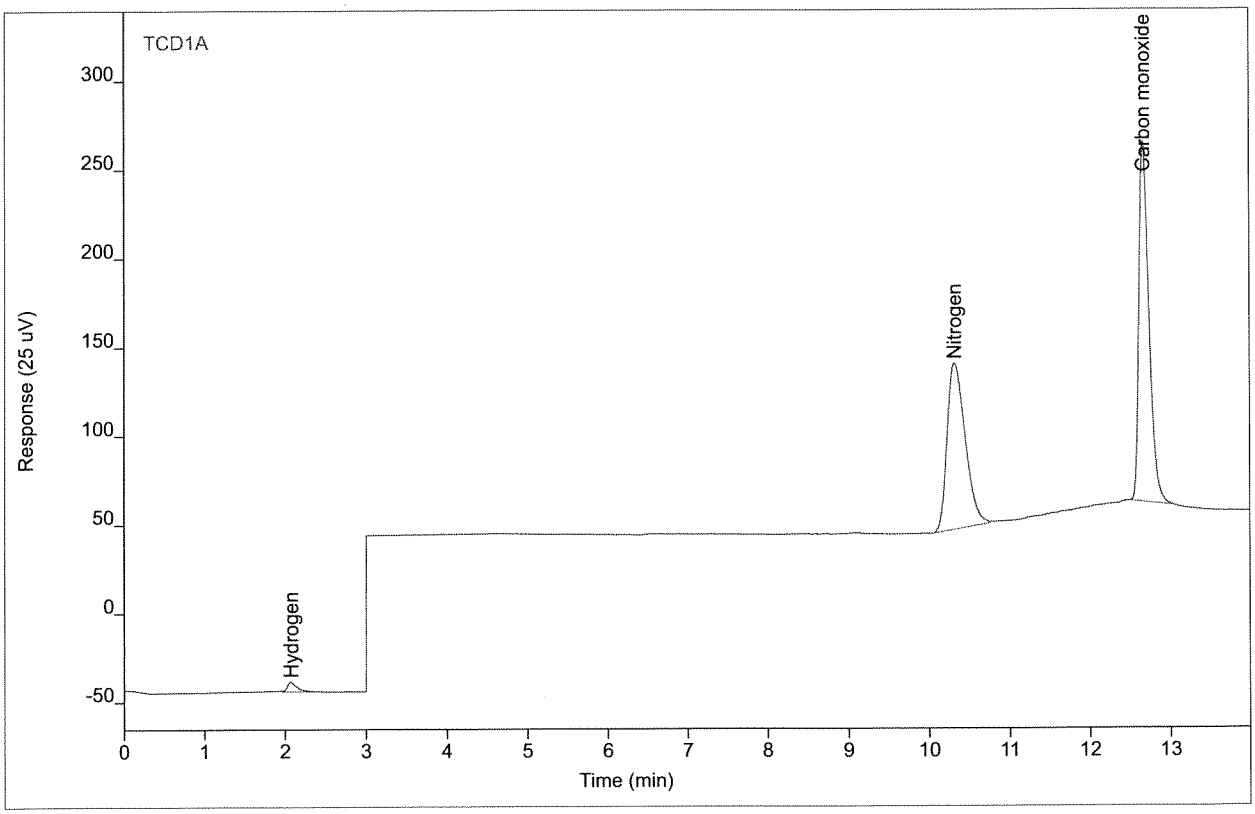
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	45.1005	5.57717	2.51651	1	2.51651	%
Nitrogen	BB	10.31	1479.86	94.5560	3.40024	1	3.40024	%
Carbon monoxide	MM	12.66	1758.65	203.552	3.32092	1	3.32092	%
Methane	MM	16.46	1207.50	146.969	2.67014	1	2.67014	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F1902.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/29/2016 3:09 PM
File Modified	11/1/2016 9:32 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



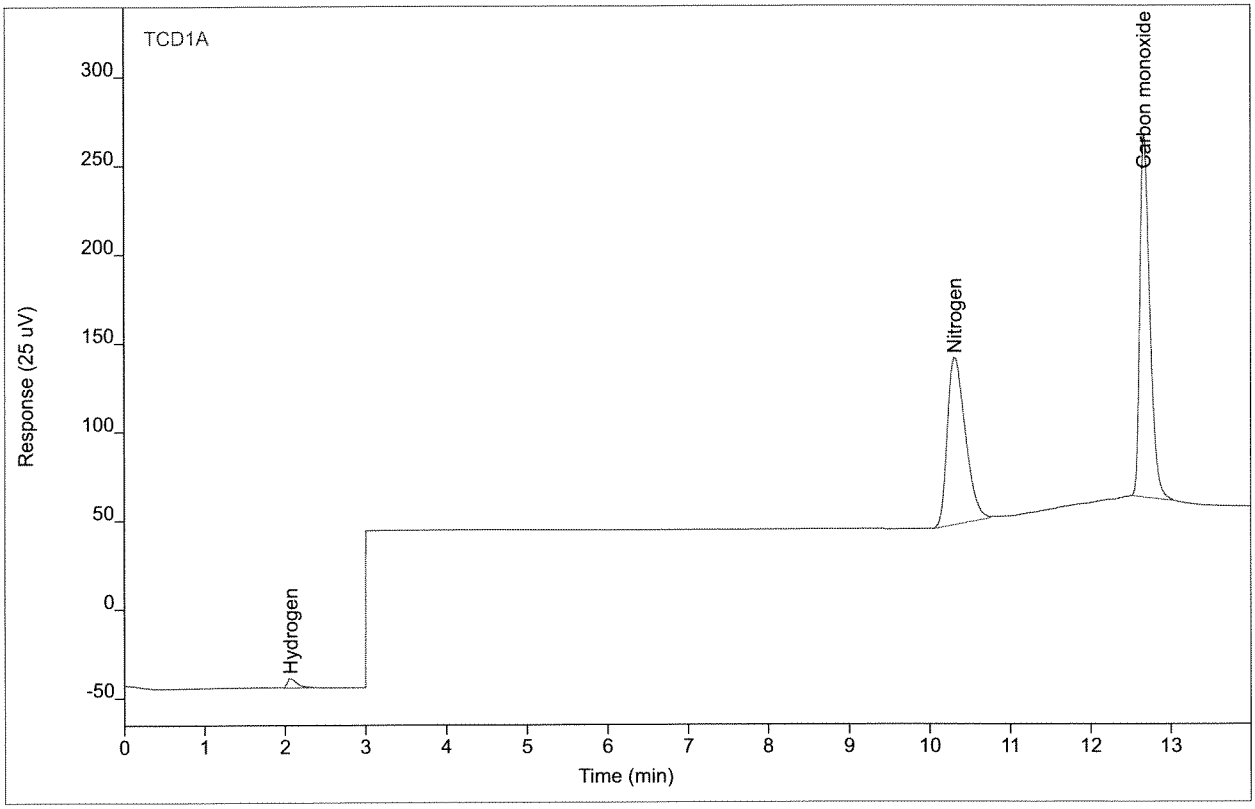
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	44.9223	5.59005	2.50658	1	2.50658	%
Nitrogen	BB	10.31	1472.13	93.7493	3.38216	1	3.38216	%
Carbon monoxide	MM	12.66	1764.68	203.336	3.33241	1	3.33241	%
Methane	MM	16.46	1196.04	144.432	2.64444	1	2.64444	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F1903.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/29/2016 3:40 PM
File Modified	11/1/2016 9:32 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



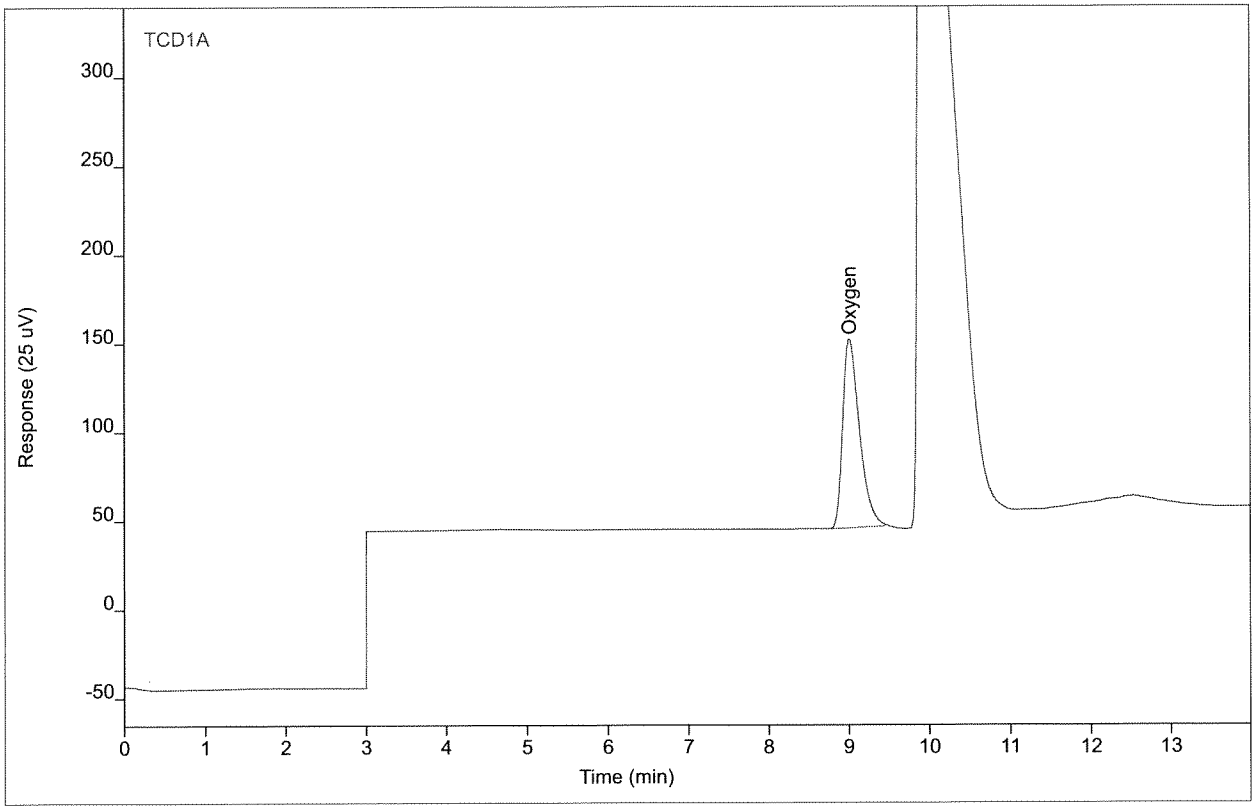
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	45.9765	5.52965	2.56529	1	2.56529	%
Nitrogen	BB	10.31	1468.81	94.2915	3.37439	1	3.37439	%
Carbon monoxide	MM	12.67	1772.70	204.767	3.34767	1	3.34767	%
Methane	MM	16.46	1202.48	145.676	2.65888	1	2.65888	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F2001.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/29/2016 4:11 PM
File Modified	11/1/2016 9:32 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM



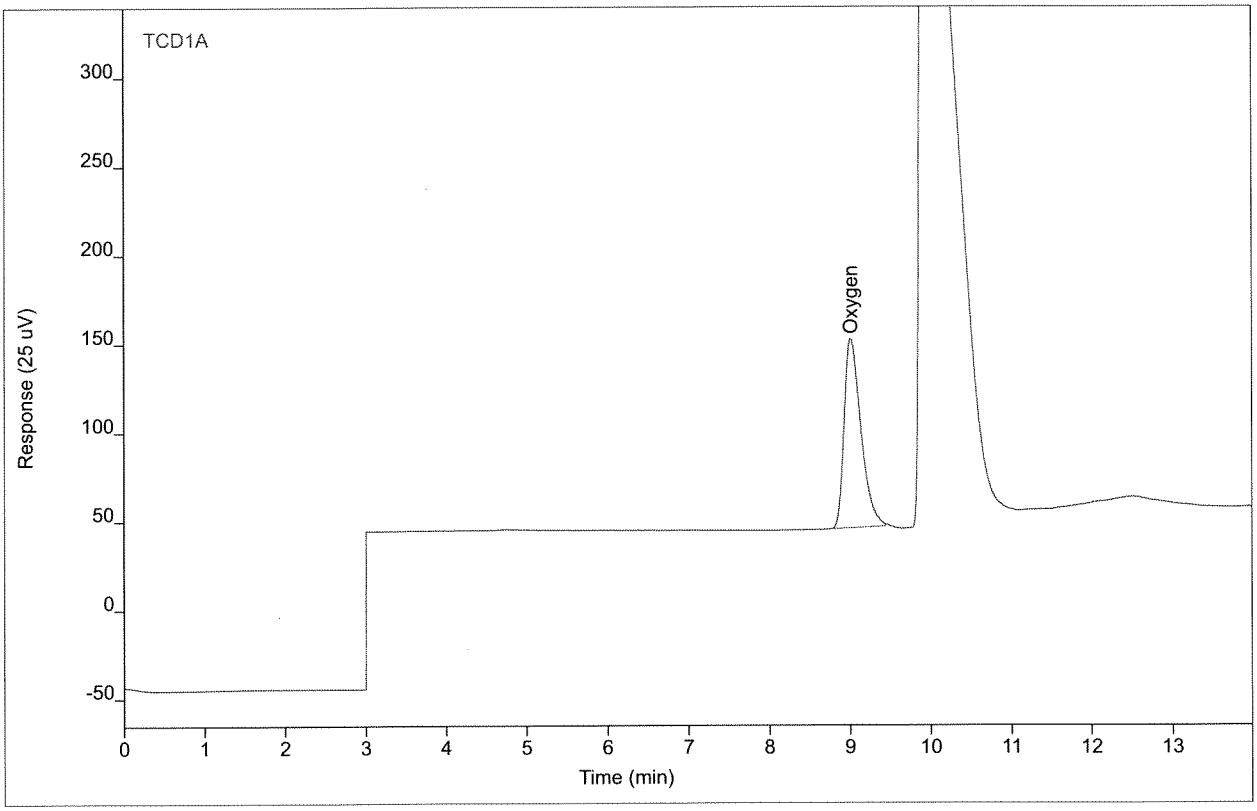
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1547.29	106.519	4.02395	1	4.02395	%
Carbon Dioxide	MM	19.50	2825.52	255.620	3.90669	1	3.90669	%

Chromatogram Report

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP477B ver.5
Inj Data File	009F2002.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/29/2016 4:42 PM
File Modified	11/1/2016 9:32 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	10/29/2016 11:39 AM
Printed	11/4/2016 10:11 AM

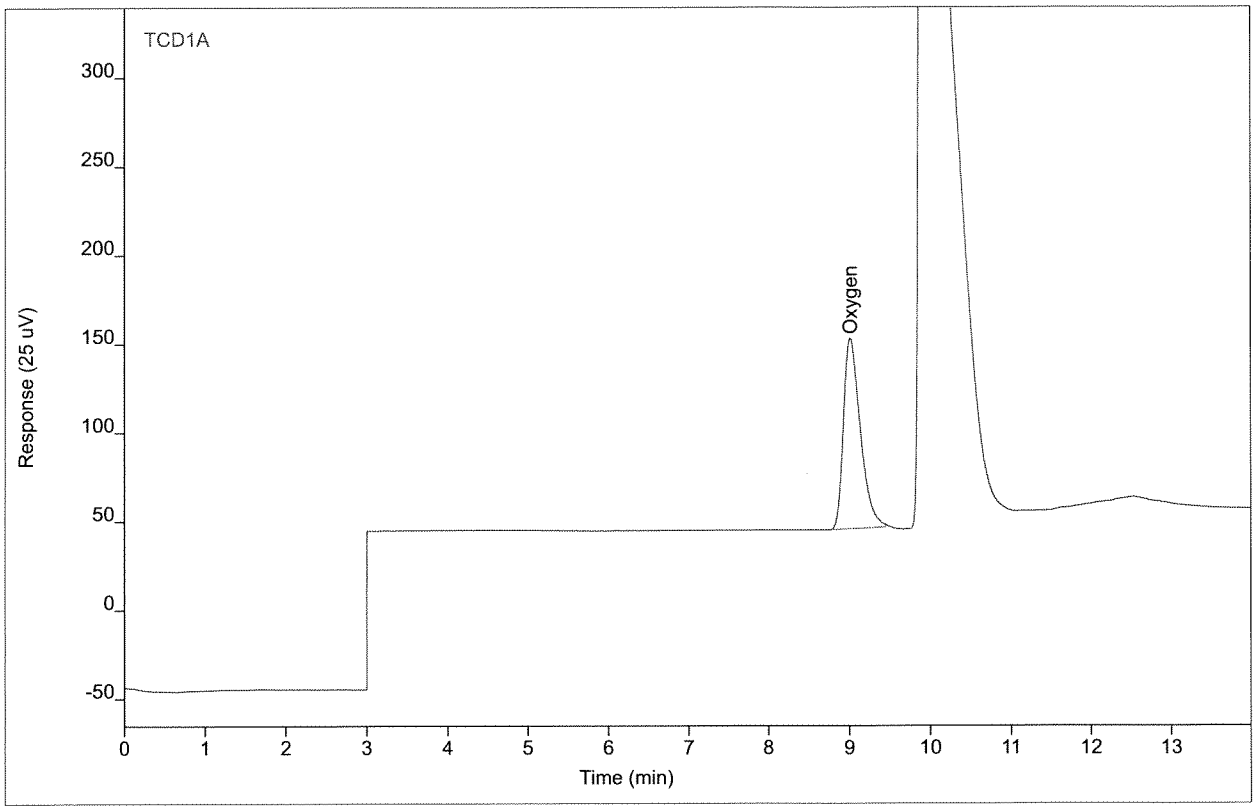


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1552.28	106.932	4.03701	1	4.03701	%
Carbon Dioxide	MM	19.50	2814.14	254.966	3.89073	1	3.89073	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP477B ver.5	Vial Number	Vial 9
Inj Data File	009F2003.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 3
Injection Date	10/29/2016 5:14 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/1/2016 9:32 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	10/29/2016 11:39 AM
Operator	Justin Guenzler	Printed	11/4/2016 10:11 AM



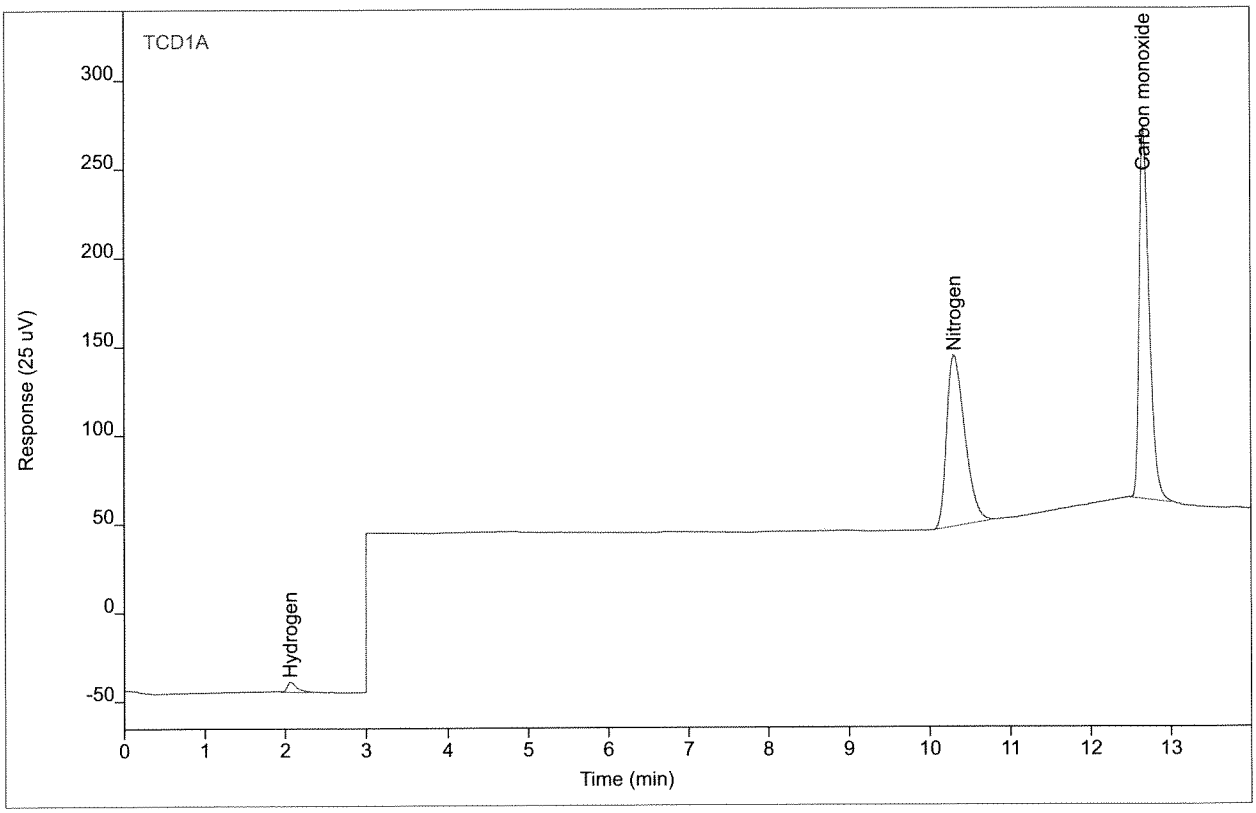
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1568.70	107.426	4.08002	1	4.08002	%
Carbon Dioxide	MM	19.50	2824.61	254.083	3.90542	1	3.90542	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP478 1 ver.3
Inj Data File	009F0901.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/1/2016 7:53 PM
File Modified	11/2/2016 6:49 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/1/2016 9:30 AM
Printed	11/4/2016 10:11 AM



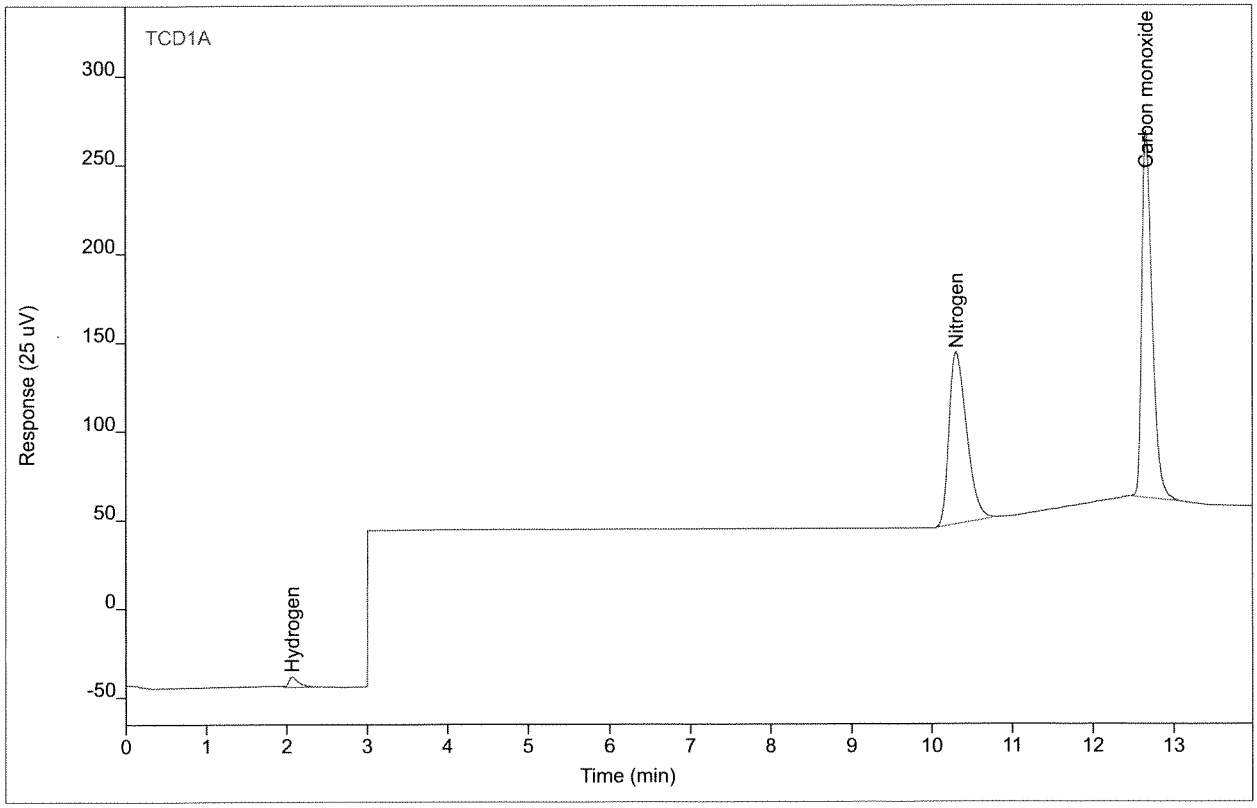
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	49.6569	5.80026	2.77024	1	2.77024	%
Nitrogen	BB	10.31	1510.05	96.5473	3.47085	1	3.47085	%
Carbon monoxide	MM	12.66	1806.51	210.523	3.41205	1	3.41205	%
Methane	MM	16.46	1231.43	146.729	2.72384	1	2.72384	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP478 1 ver.3
Inj Data File	009F0902.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/1/2016 8:24 PM
File Modified	11/2/2016 6:49 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/1/2016 9:30 AM
Printed	11/4/2016 10:11 AM



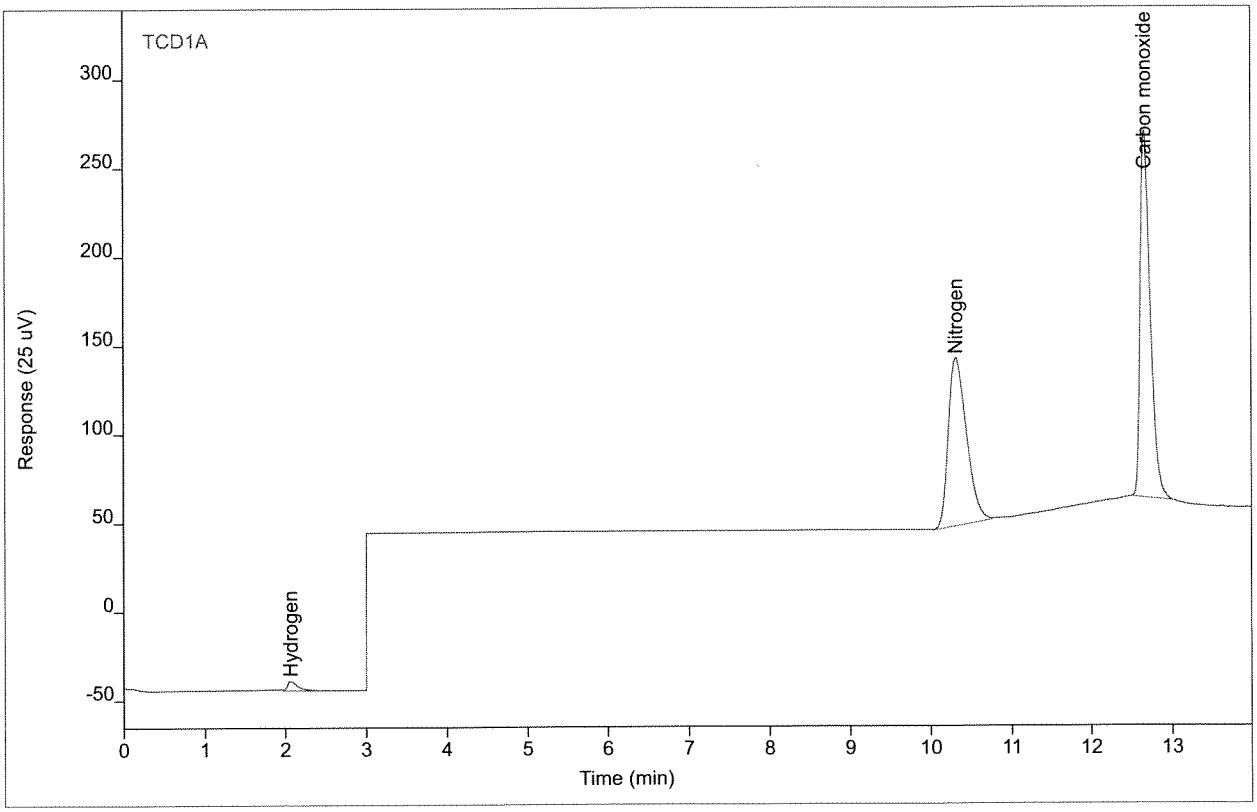
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	50.6145	5.97039	2.82356	1	2.82356	%
Nitrogen	BB	10.31	1494.56	96.6945	3.43463	1	3.43463	%
Carbon monoxide	MM	12.67	1819.79	206.423	3.43733	1	3.43733	%
Methane	MM	16.46	1230.60	147.283	2.72198	1	2.72198	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP478 1 ver.3
Inj Data File	009F0903.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/1/2016 8:55 PM
File Modified	11/2/2016 6:49 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/1/2016 9:30 AM
Printed	11/4/2016 10:11 AM



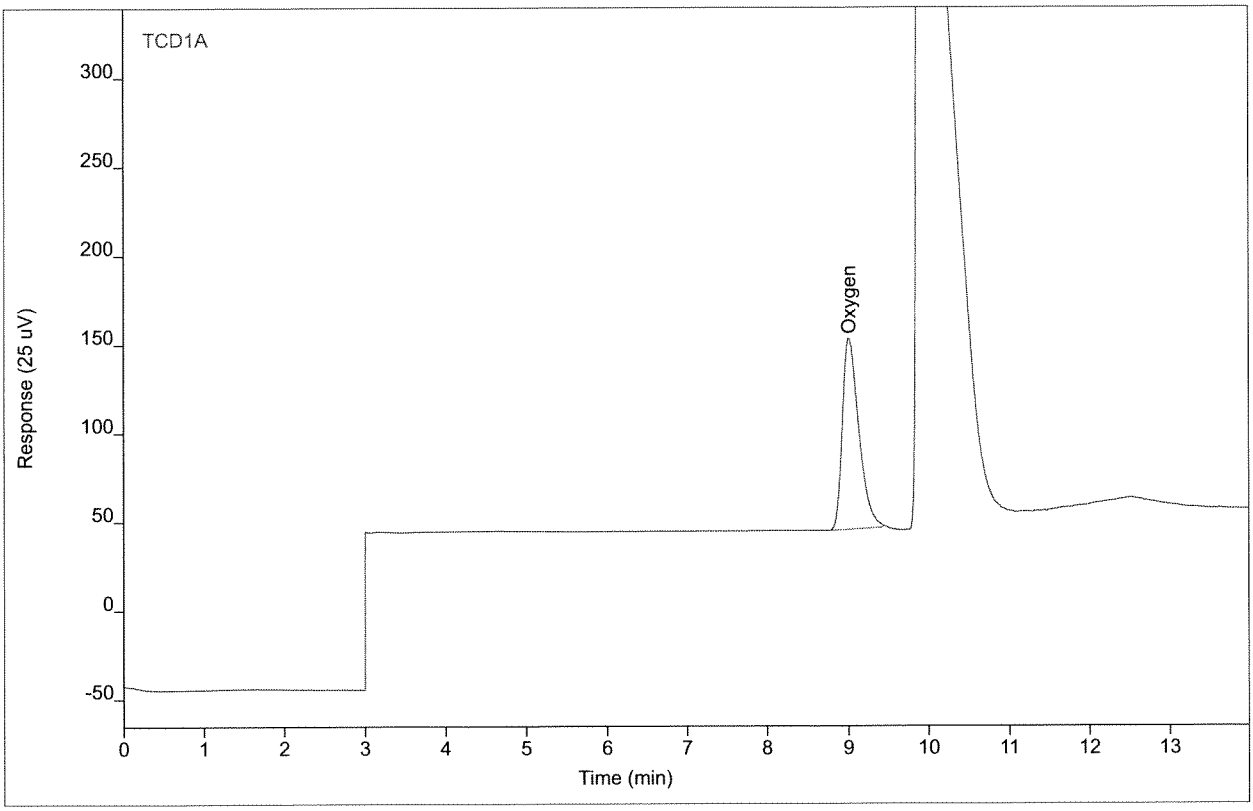
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	47.3068	5.60715	2.63937	1	2.63937	%
Nitrogen	BB	10.31	1485.35	94.6541	3.41309	1	3.41309	%
Carbon monoxide	MM	12.67	1783.19	206.455	3.36764	1	3.36764	%
Methane	MM	16.47	1195.23	145.315	2.64261	1	2.64261	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP478 1 ver.3
Inj Data File	009F1001.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/1/2016 9:26 PM
File Modified	11/2/2016 6:49 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/1/2016 9:30 AM
Printed	11/4/2016 10:11 AM



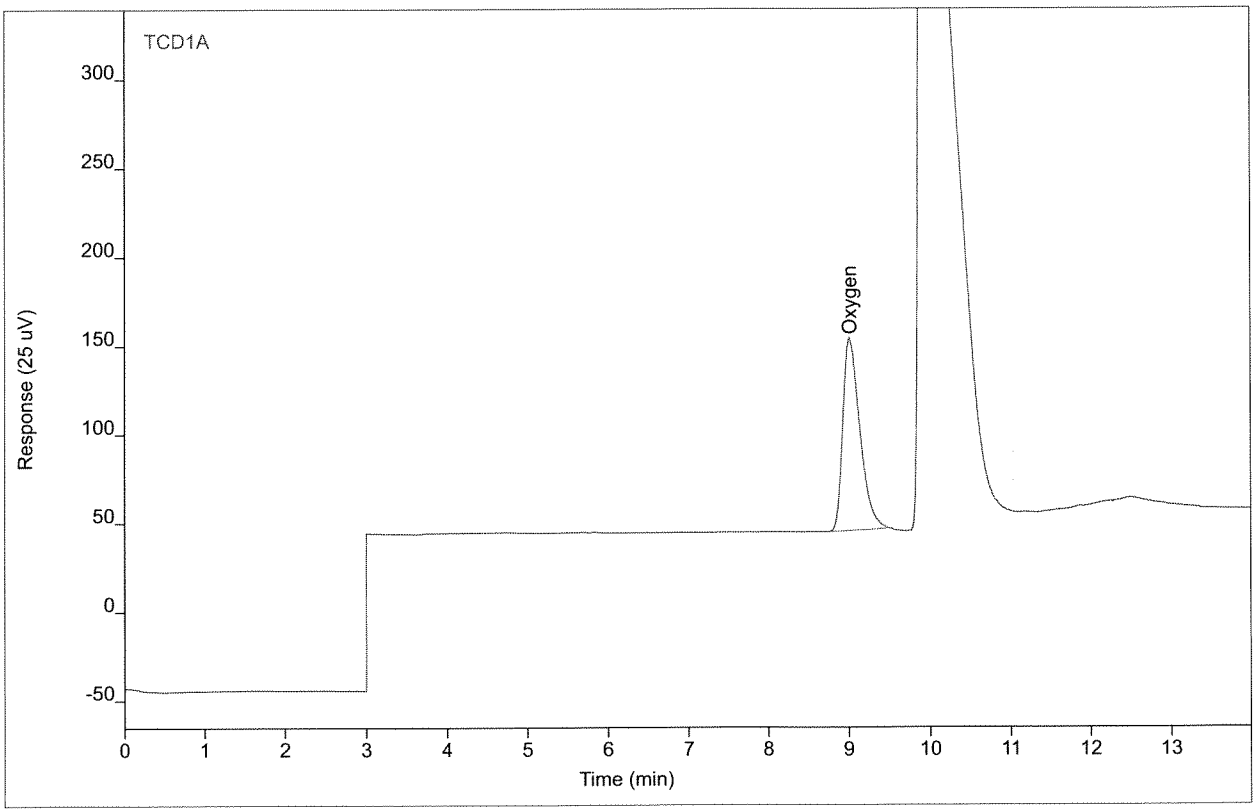
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1555.15	107.838	4.04453	1	4.04453	%
Carbon Dioxide	MM	19.50	2831.61	254.275	3.91525	1	3.91525	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP478 1 ver.3
Inj Data File	009F1002.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/1/2016 9:58 PM
File Modified	11/2/2016 6:49 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/1/2016 9:30 AM
Printed	11/4/2016 10:11 AM

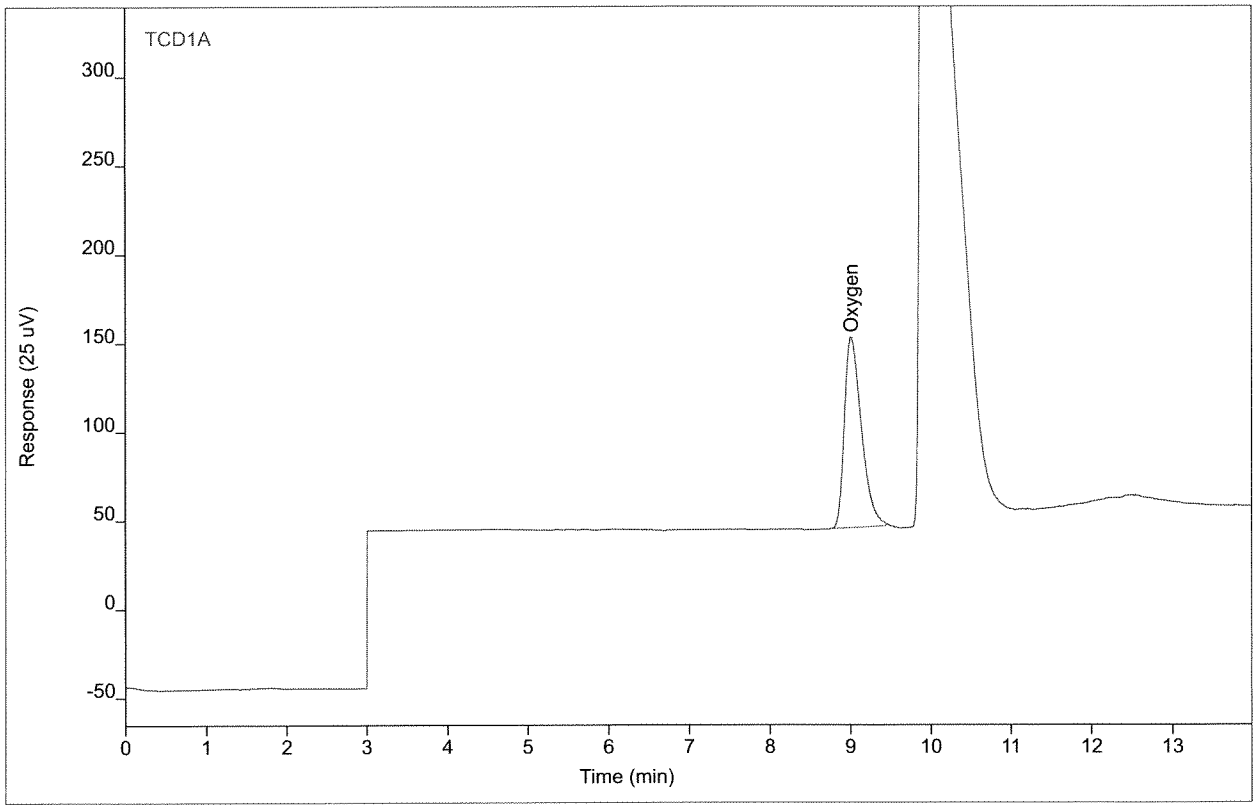


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1580.40	108.349	4.11065	1	4.11065	%
Carbon Dioxide	MM	19.50	2840.61	256.556	3.92786	1	3.92786	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP478 1 ver.3	Vial Number	Vial 9
Inj Data File	009F1003.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 3
Injection Date	11/1/2016 10:29 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/2/2016 6:49 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	11/1/2016 9:30 AM
Operator	Justin Guenzler	Printed	11/4/2016 10:11 AM



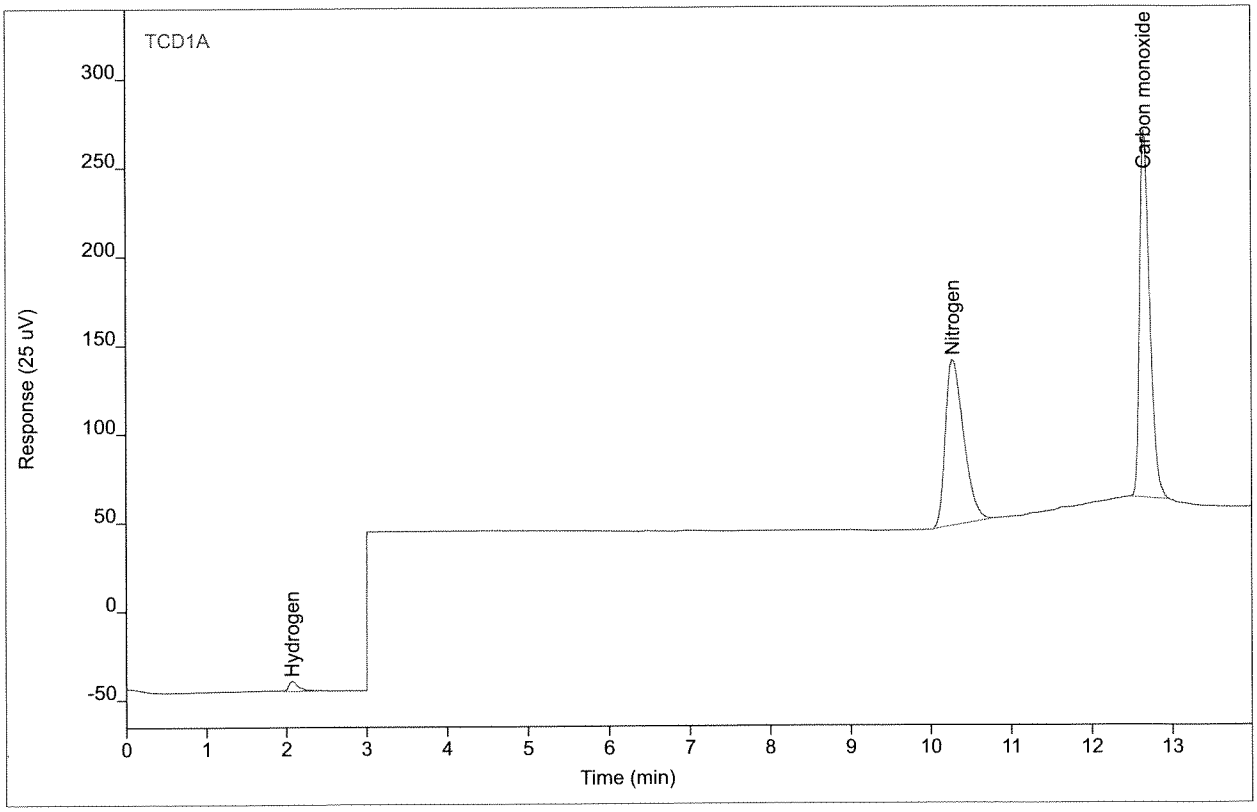
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.01	1571.71	107.736	4.08788	1	4.08788	%
Carbon Dioxide	MM	19.50	2864.40	258.763	3.96125	1	3.96125	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP482B ver.3
Inj Data File	009F0601.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/3/2016 5:09 PM
File Modified	11/4/2016 10:04 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/4/2016 8:50 AM
Printed	11/4/2016 10:11 AM



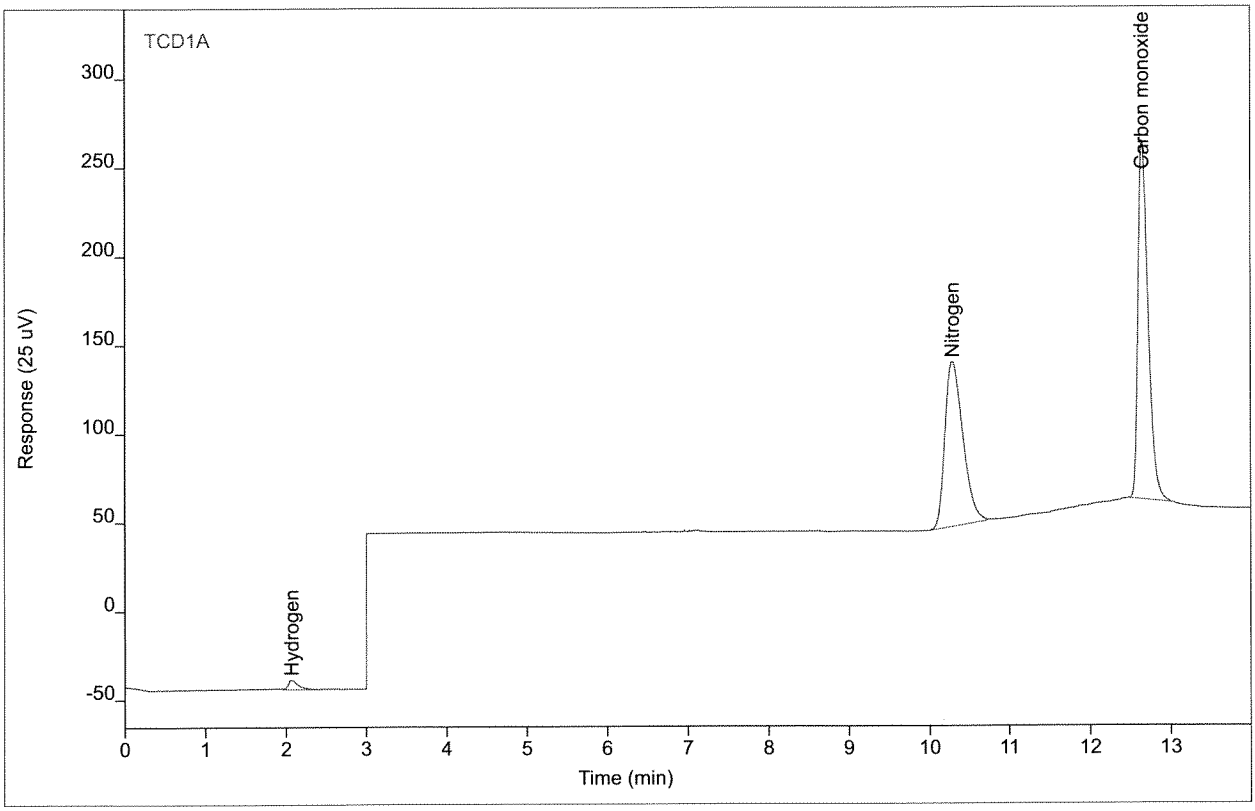
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	48.6741	5.67975	2.71551	1	2.71551	%
Nitrogen	BB	10.28	1467.67	93.5075	3.37173	1	3.37173	%
Carbon monoxide	MM	12.65	1768.40	206.679	3.33948	1	3.33948	%
Methane	MM	16.45	1199.02	145.059	2.65112	1	2.65112	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP482B ver.3
Inj Data File	009F0602.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/3/2016 5:39 PM
File Modified	11/4/2016 10:05 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/4/2016 8:50 AM
Printed	11/4/2016 10:11 AM



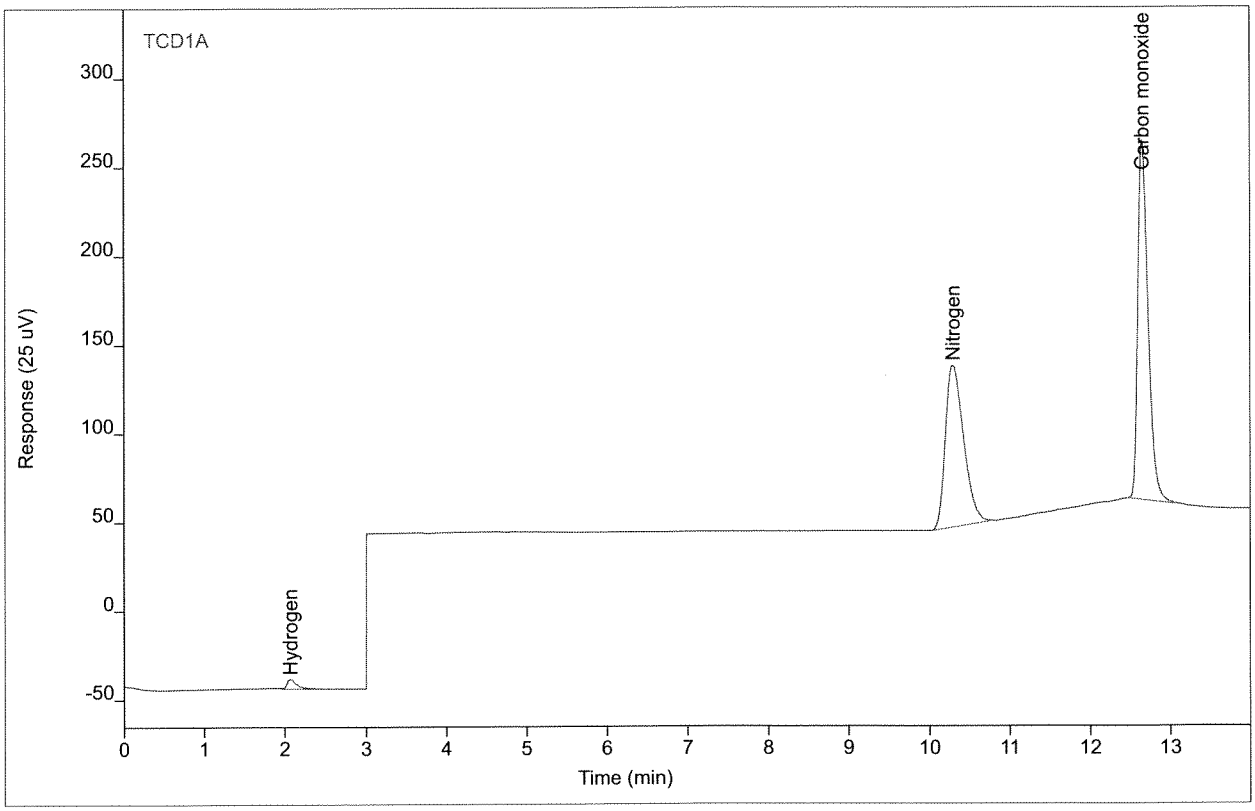
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.07	48.1969	5.49631	2.68894	1	2.68894	%
Nitrogen	BB	10.29	1472.33	92.9742	3.38263	1	3.38263	%
Carbon monoxide	MM	12.65	1762.93	201.730	3.32908	1	3.32908	%
Methane	MM	16.45	1186.22	143.832	2.62240	1	2.62240	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,6=319.09)
Sequence Name	BETTYP482B ver.3
Inj Data File	009F0603.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/3/2016 6:10 PM
File Modified	11/4/2016 10:05 AM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/4/2016 8:50 AM
Printed	11/4/2016 10:11 AM



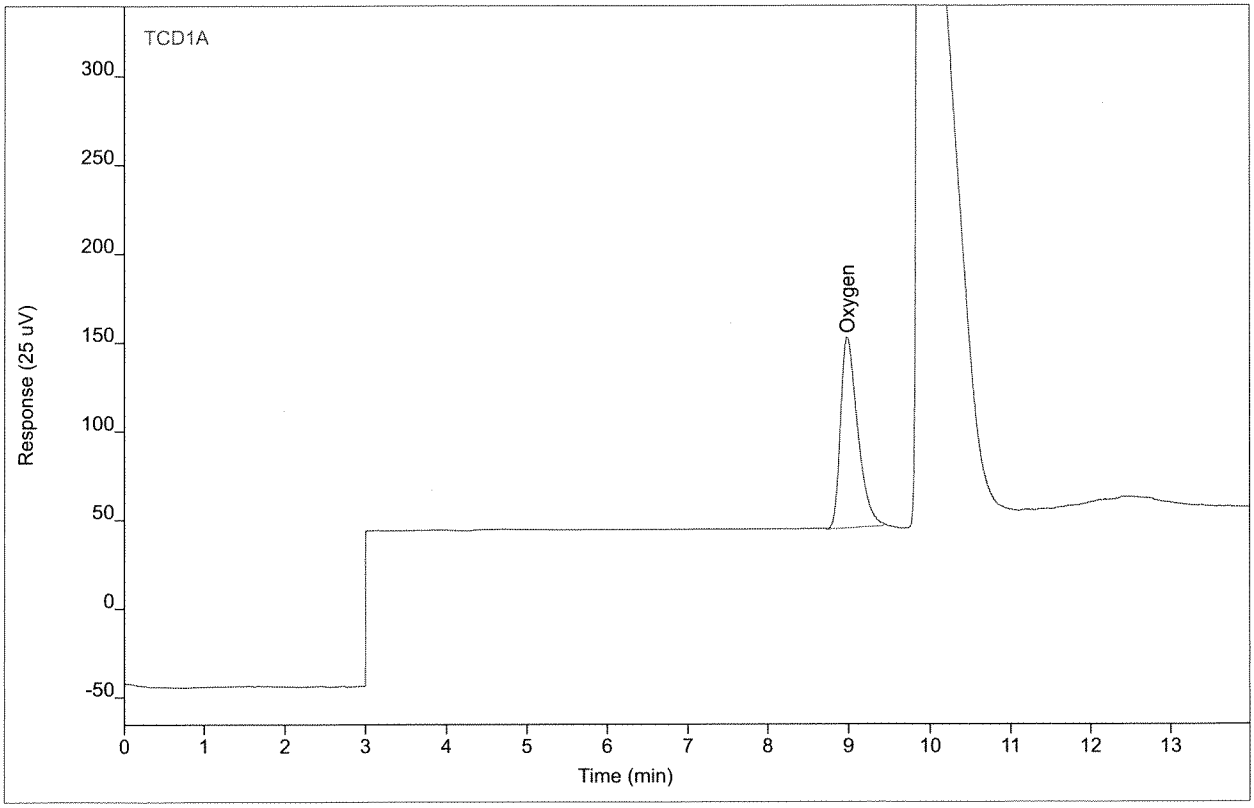
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	49.4890	5.72272	2.76089	1	2.76089	%
Nitrogen	BB	10.29	1451.95	91.5978	3.33496	1	3.33496	%
Carbon monoxide	MM	12.65	1785.25	202.542	3.37157	1	3.37157	%
Methane	MM	16.45	1197.17	145.136	2.64698	1	2.64698	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP482B ver.3
Inj Data File	009F0701.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	11/3/2016 6:40 PM
File Modified	11/4/2016 10:05 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	11/4/2016 8:50 AM
Printed	11/4/2016 10:11 AM

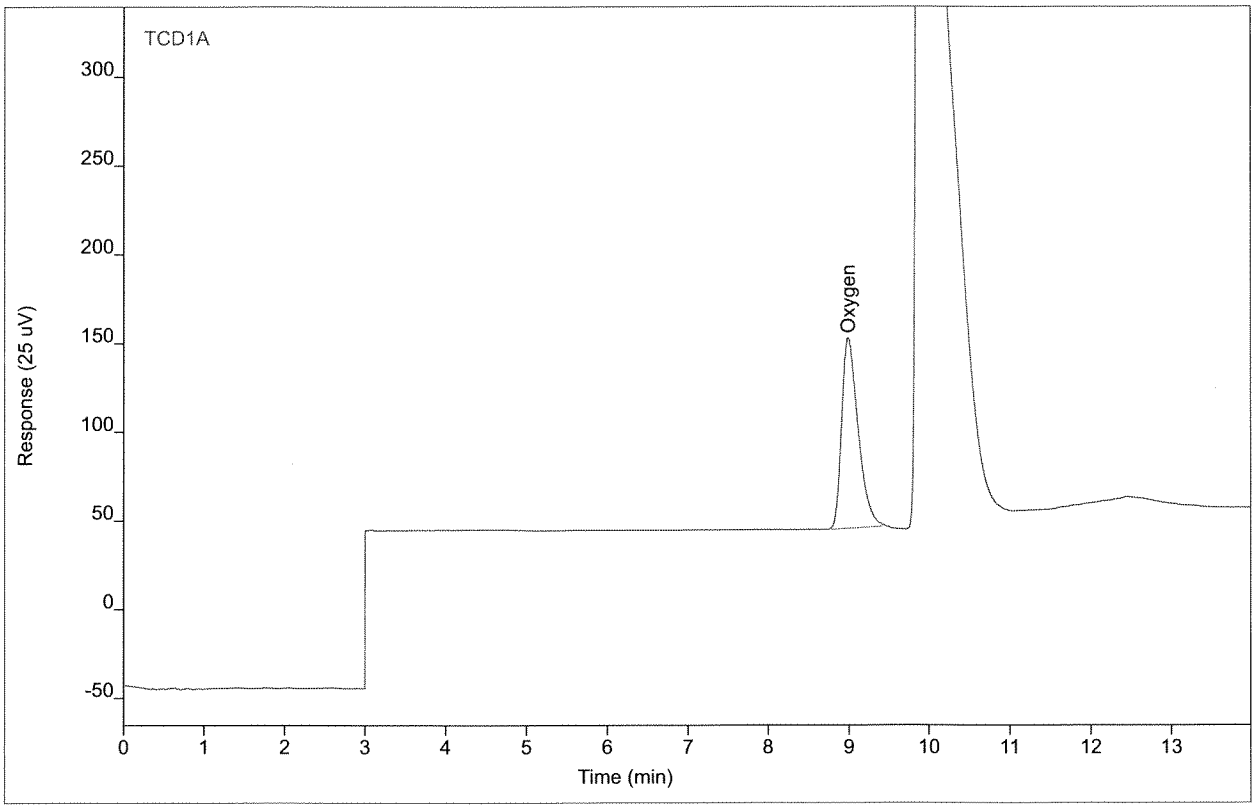


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.99	1543.91	107.440	4.01510	1	4.01510	%
Carbon Dioxide	MM	19.49	2779.60	251.367	3.84225	1	3.84225	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP482B ver.3	Vial Number	Vial 9
Inj Data File	009F0702.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 3
Injection Date	11/3/2016 7:11 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/4/2016 10:05 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	11/4/2016 8:50 AM
Operator	Justin Guenzler	Printed	11/4/2016 10:11 AM

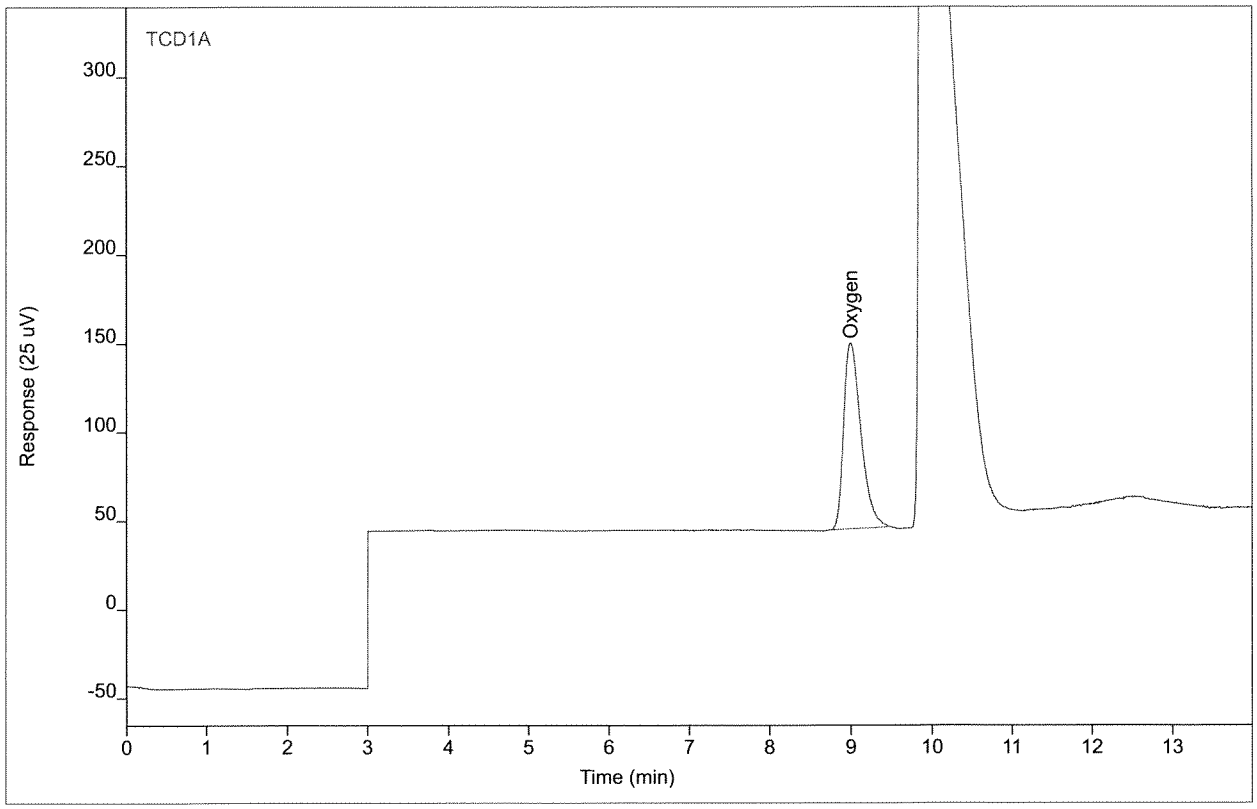


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	8.99	1544.74	107.722	4.01727	1	4.01727	%
Carbon Dioxide	MM	19.49	2815.25	253.948	3.89228	1	3.89228	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP482B ver.3	Vial Number	Vial 9
Inj Data File	009F0703.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 3
Injection Date	11/3/2016 7:41 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	11/4/2016 10:05 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument	Betty	Method Modified	11/4/2016 8:50 AM
Operator	Justin Guenzler	Printed	11/4/2016 10:11 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	9.00	1554.46	104.898	4.04273	1	4.04273	%
Carbon Dioxide	MM	19.50	2859.26	257.556	3.95405	1	3.95405	%

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	Conc # 3 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Carbon Dioxide -- Calibration Standards															
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0303.D	009F0304.D	009F0305.D	BETTYP348_FGA_CRYO.M	19.48	19.48	19.48	0.0	4.64	4.64	4.64	0.1	4.64	4.80	96.7
BettyP374 Method Blank-1	001F0401.D	001F0402.D	001F0403.D	BETTYP348_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0401.D	009F0402.D	009F0403.D	BETTYP348_FGA_CRYO.M	19.48	19.48	19.48	0.0	4.49	4.48	4.45	0.5	4.48	4.80	93.3
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1201.D	009F1202.D	009F1203.D	BETTYP348_FGA_CRYO.M	19.48	19.48	19.48	0.0	4.41	4.45	4.41	0.6	4.42	4.80	92.2
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0802.D	009F0803.D	009F0804.D	BETTYP348_FGA_CRYO.M	19.49	19.48	19.49	0.0	4.48	4.47	4.50	0.3	4.48	4.80	93.4
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0702.D	009F0703.D	009F0704.D	BETTYP348_FGA_CRYO.M	19.49	19.48	19.49	0.0	4.52	4.57	4.51	0.8	4.53	4.80	94.4
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1502.D	009F1503.D	009F1504.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.55	4.54	4.54	0.0	4.54	4.80	94.7
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0202.D	009F0203.D	009F0204.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.56	4.58	4.56	0.4	4.57	4.80	95.2
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0603.D	009F0604.D	009F0605.D	BETTYP348_FGA_CRYO.M	19.50	19.50	19.52	0.1	4.43	4.49	4.48	0.8	4.47	4.80	93.1
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	009F0703.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.48	4.47	4.47	0.2	4.47	4.80	93.1
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1501.D	009F1502.D	009F1503.D	BETTYP348_FGA_CRYO.M	19.50	19.49	19.50	0.0	4.41	4.45	4.49	0.9	4.45	4.80	92.8
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F2501.D	009F2502.D	009F2503.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.50	0.0	4.36	4.39	4.39	0.4	4.38	4.80	91.2
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0201.D	009F0202.D	009F0203.D	BETTYP348_FGA_CRYO.M	19.48	19.48	19.49	0.0	4.53	4.58	4.55	0.6	4.55	4.80	94.9
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	009F0703.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.49	0.0	4.56	4.56	4.55	0.1	4.56	4.80	94.9
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F0301.D	009F0302.D	009F0303.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.49	0.0	3.94	3.89	3.90	0.8	3.91	4.14	94.4
BettyP374 Method Blank-1	001F0901.D	001F0902.D	001F0903.D	BETTYP348_FGA_CRYO.M					0.00	0.00	0.00		0.00		
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F1101.D	009F1102.D	009F1103.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.49	0.0	3.92	3.91	3.89	0.5	3.91	4.14	94.4
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F2001.D	009F2002.D	009F2003.D	BETTYP348_FGA_CRYO.M	19.50	19.50	19.50	0.0	3.91	3.89	3.91	0.3	3.90	4.14	94.3
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F1001.D	009F1002.D	009F1003.D	BETTYP348_FGA_CRYO.M	19.50	19.50	19.50	0.0	3.92	3.93	3.96	0.7	3.93	4.14	95.1
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	009F0703.D	BETTYP348_FGA_CRYO.M	19.49	19.49	19.50	0.0	3.84	3.89	3.95	1.5	3.90	4.14	94.2

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	Conc # 3 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Carbon monoxide -- Calibration Standards															
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0103.D	009F0201.D	009F0202.D	BETTYP348_FGA_CRYO.M	12.65	12.65	12.65	0.0	3.38	3.39	3.39	0.2	3.39	3.37	101
BettyP374 Method Blank-1	001F0401.D	001F0402.D	001F0403.D	BETTYP348_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0301.D	009F0302.D	009F0303.D	BETTYP348_FGA_CRYO.M	12.64	12.65	12.65	0.0	3.32	3.30	3.29	0.5	3.30	3.37	98.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	009F1103.D	BETTYP348_FGA_CRYO.M	12.65	12.65	12.65	0.0	3.25	3.26	3.29	0.8	3.27	3.37	96.9
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0702.D	009F0703.D	009F0704.D	BETTYP348_FGA_CRYO.M	12.66	12.65	12.66	0.0	3.26	3.23	3.28	0.7	3.26	3.37	96.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0602.D	009F0603.D	009F0604.D	BETTYP348_FGA_CRYO.M	12.66	12.66	12.66	0.0	3.34	3.34	3.34	0.1	3.34	3.37	99.2
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1402.D	009F1403.D	009F1404.D	BETTYP348_FGA_CRYO.M	12.66	12.66	12.66	0.0	3.36	3.36	3.34	0.3	3.35	3.37	99.5
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0102.D	009F0103.D	009F0104.D	BETTYP348_FGA_CRYO.M	12.66	12.66	12.66	0.0	3.31	3.34	3.33	0.4	3.33	3.37	98.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0503.D	009F0504.D	009F0505.D	BETTYP348_FGA_CRYO.M	12.67	12.67	12.67	0.0	3.32	3.29	3.34	0.8	3.32	3.37	98.4
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	12.67	12.67	12.67	0.0	3.24	3.22	3.28	1.0	3.25	3.37	96.4
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP348_FGA_CRYO.M	12.67	12.67	12.67	0.0	3.29	3.30	3.31	0.4	3.30	3.37	98.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F2401.D	009F2402.D	009F2403.D	BETTYP348_FGA_CRYO.M	12.67	12.67	12.67	0.0	3.16	3.21	3.17	0.9	3.18	3.37	94.4
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0101.D	009F0102.D	009F0103.D	BETTYP348_FGA_CRYO.M	12.66	12.66	12.66	0.0	3.42	3.37	3.35	1.2	3.38	3.37	100
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	12.67	12.67	12.67	0.0	3.30	3.40	3.38	1.7	3.36	3.37	99.7
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0201.D	009F0202.D	009F0203.D	BETTYP348_FGA_CRYO.M	12.65	12.65	12.65	0.0	3.44	3.38	3.33	1.6	3.39	3.37	100.5
BettyP374 Method Blank-1	001F0901.D	001F0902.D	001F0903.D	BETTYP348_FGA_CRYO.M					0.00	0.00	0.00		0.00		
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1001.D	009F1002.D	009F1003.D	BETTYP348_FGA_CRYO.M	12.66	12.66	12.66	0.0	3.31	3.37	3.39	1.4	3.35	3.37	99.5
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1901.D	009F1902.D	009F1903.D	BETTYP348_FGA_CRYO.M	12.66	12.66	12.67	0.0	3.32	3.33	3.35	0.4	3.33	3.37	98.9
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0901.D	009F0902.D	009F0903.D	BETTYP348_FGA_CRYO.M	12.66	12.67	12.67	0.0	3.41	3.44	3.37	1.1	3.41	3.37	101.1
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	12.65	12.65	12.65	0.0	3.34	3.33	3.37	0.7	3.35	3.37	99.3

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	Conc # 3 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Hydrogen -- Calibration Standards															
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0103.D	009F0201.D	009F0202.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.47	2.58	2.56	2.7	2.53	2.76	91.8
BettyP374 Method Blank-1	001F0401.D	001F0402.D	001F0403.D	BETTYP348_FGA_CRYO.M	NA	NA	NA	NA	0.0360	0.0360	0.0360	0.0	0.0360	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0301.D	009F0302.D	009F0303.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.56	2.47	2.69	4.7	2.57	2.76	93.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	009F1103.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.0	2.58	2.47	2.42	3.8	2.49	2.76	90.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0702.D	009F0703.D	009F0704.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.45	2.61	2.48	3.7	2.51	2.76	91.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0602.D	009F0603.D	009F0604.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.55	2.51	2.55	1.1	2.54	2.76	92.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1402.D	009F1403.D	009F1404.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.53	2.57	2.63	2.0	2.58	2.76	93.4
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0102.D	009F0103.D	009F0104.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.56	2.64	2.68	2.6	2.63	2.76	95.2
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0503.D	009F0504.D	009F0505.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.98	2.82	2.97	3.4	2.92	2.76	106
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.71	2.75	2.93	4.7	2.79	2.76	101
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP348_FGA_CRYO.M	2.07	2.08	2.07	0.2	2.52	2.57	2.41	3.6	2.50	2.76	90.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F2401.D	009F2402.D	009F2403.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.63	2.53	2.56	2.0	2.57	2.76	93.2
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0101.D	009F0102.D	009F0103.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.55	2.58	2.54	0.9	2.56	2.76	92.6
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.1	2.77	2.61	2.66	3.4	2.68	2.76	97.1
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0201.D	009F0202.D	009F0203.D	BETTYP348_FGA_CRYO.M	2.06	2.06	2.06	0.1	2.57	2.58	2.56	0.6	2.57	2.76	93.0
BettyP374 Method Blank-1	001F0901.D	001F0902.D	001F0903.D	BETTYP348_FGA_CRYO.M					0.00	0.00	0.00		0.00		
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1001.D	009F1002.D	009F1003.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.0	2.55	2.62	2.70	2.9	2.62	2.76	95.1
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1901.D	009F1902.D	009F1903.D	BETTYP348_FGA_CRYO.M	2.06	2.07	2.07	0.2	2.52	2.51	2.57	1.4	2.53	2.76	91.6
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0901.D	009F0902.D	009F0903.D	BETTYP348_FGA_CRYO.M	2.06	2.07	2.06	0.1	2.77	2.82	2.64	3.8	2.74	2.76	99.4
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	2.07	2.07	2.07	0.0	2.72	2.69	2.76	1.4	2.72	2.76	98.6

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	Conc # 3 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Methane -- Calibration Standards															
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0103.D	009F0201.D	009F0202.D	BETTYP348_FGA_CRYO.M	16.44	16.44	16.44	0.0	2.70	2.68	2.69	0.4	2.69	2.70	99.7
BettyP374 Method Blank-1	001F0401.D	001F0402.D	001F0403.D	BETTYP348_FGA_CRYO.M	NA	NA	NA	NA	0.0310	0.0310	0.0310	0.0	0.0310	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0301.D	009F0302.D	009F0303.D	BETTYP348_FGA_CRYO.M	16.44	16.45	16.45	0.0	2.64	2.61	2.64	0.7	2.63	2.70	97.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	009F1103.D	BETTYP348_FGA_CRYO.M	16.45	16.45	16.45	0.0	2.58	2.59	2.61	0.7	2.59	2.70	96.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0702.D	009F0703.D	009F0704.D	BETTYP348_FGA_CRYO.M	16.45	16.45	16.45	0.0	2.59	2.56	2.61	1.1	2.59	2.70	95.9
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0602.D	009F0603.D	009F0604.D	BETTYP348_FGA_CRYO.M	16.45	16.45	16.45	0.0	2.66	2.64	2.65	0.4	2.65	2.70	98.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1402.D	009F1403.D	009F1404.D	BETTYP348_FGA_CRYO.M	16.45	16.45	16.45	0.0	2.64	2.64	2.62	0.5	2.63	2.70	97.5
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0102.D	009F0103.D	009F0104.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.64	2.65	2.64	0.3	2.64	2.70	97.9
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0503.D	009F0504.D	009F0505.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.68	2.63	2.65	1.1	2.65	2.70	98.2
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.59	2.61	2.60	0.4	2.60	2.70	96.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.65	2.61	2.60	1.2	2.62	2.70	96.9
BettyP300 #FG7 ENV(1=530,3=319.09)	009F2401.D	009F2402.D	009F2403.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.52	2.51	2.55	0.9	2.53	2.70	93.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0101.D	009F0102.D	009F0103.D	BETTYP348_FGA_CRYO.M	16.45	16.46	16.46	0.0	2.67	2.67	2.67	0.0	2.67	2.70	99.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.59	2.70	2.67	2.4	2.65	2.70	98.2
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0201.D	009F0202.D	009F0203.D	BETTYP348_FGA_CRYO.M	16.45	16.45	16.45	0.0	2.69	2.70	2.65	1.1	2.68	2.70	99.2
BettyP374 Method Blank-1	001F0901.D	001F0902.D	001F0903.D	BETTYP348_FGA_CRYO.M					0.00	0.00	0.00		0.00		
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1001.D	009F1002.D	009F1003.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.63	2.68	2.69	1.4	2.67	2.70	98.7
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1901.D	009F1902.D	009F1903.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.46	0.0	2.67	2.64	2.66	0.5	2.66	2.70	98.4
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0901.D	009F0902.D	009F0903.D	BETTYP348_FGA_CRYO.M	16.46	16.46	16.47	0.0	2.72	2.72	2.64	2.0	2.70	2.70	99.9
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	16.45	16.45	16.45	0.0	2.65	2.62	2.65	0.7	2.64	2.70	97.8

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	Conc # 3 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Nitrogen -- Calibration Standards															
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0103.D	009F0201.D	009F0202.D	BETTYP348_FGA_CRYO.M	10.27	10.27	10.27	0.0	3.33	3.33	3.34	0.2	3.33	3.37	98.9
BettyP374 Method Blank-1	001F0401.D	001F0402.D	001F0403.D	BETTYP348_FGA_CRYO.M	NA	NA	NA	NA	0.0380	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0301.D	009F0302.D	009F0303.D	BETTYP348_FGA_CRYO.M	10.28	10.28	10.28	0.0	3.29	3.28	3.30	0.3	3.29	3.37	97.6
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	009F1103.D	BETTYP348_FGA_CRYO.M	10.29	10.29	10.29	0.0	3.24	3.25	3.26	0.3	3.25	3.37	96.5
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0702.D	009F0703.D	009F0704.D	BETTYP348_FGA_CRYO.M	10.30	10.30	10.30	0.0	3.26	3.24	3.28	0.6	3.26	3.37	96.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0602.D	009F0603.D	009F0604.D	BETTYP348_FGA_CRYO.M	10.30	10.30	10.31	0.0	3.32	3.30	3.32	0.4	3.31	3.37	98.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1402.D	009F1403.D	009F1404.D	BETTYP348_FGA_CRYO.M	10.30	10.30	10.30	0.0	3.33	3.31	3.29	0.5	3.31	3.37	98.2
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0102.D	009F0103.D	009F0104.D	BETTYP348_FGA_CRYO.M	10.31	10.32	10.31	0.0	3.33	3.32	3.32	0.1	3.33	3.37	98.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0503.D	009F0504.D	009F0505.D	BETTYP348_FGA_CRYO.M	10.32	10.32	10.32	0.0	3.28	3.28	3.31	0.5	3.29	3.37	97.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	10.32	10.32	10.32	0.0	3.24	3.26	3.23	0.4	3.24	3.37	96.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	009F1403.D	BETTYP348_FGA_CRYO.M	10.32	10.33	10.33	0.0	3.29	3.32	3.31	0.5	3.30	3.37	98.1
BettyP300 #FG7 ENV(1=530,3=319.09)	009F2401.D	009F2402.D	009F2403.D	BETTYP348_FGA_CRYO.M	10.32	10.32	10.32	0.0	3.22	3.25	3.25	0.5	3.24	3.37	96.2
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0101.D	009F0102.D	009F0103.D	BETTYP348_FGA_CRYO.M	10.31	10.32	10.32	0.0	3.37	3.37	3.34	0.7	3.36	3.37	99.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	10.33	10.33	10.33	0.0	3.29	3.37	3.37	1.6	3.34	3.37	99.2
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0201.D	009F0202.D	009F0203.D	BETTYP348_FGA_CRYO.M	10.29	10.29	10.30	0.0	3.43	3.43	3.33	2.0	3.40	3.37	100.8
BettyP374 Method Blank-1	001F0901.D	001F0902.D	001F0903.D	BETTYP348_FGA_CRYO.M					0.00	0.00	0.00		0.00		
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1001.D	009F1002.D	009F1003.D	BETTYP348_FGA_CRYO.M	10.31	10.31	10.31	0.0	3.41	3.41	3.40	0.2	3.41	3.37	101.1
BettyP300 #FG7 ENV(1=530,6=319.09)	009F1901.D	009F1902.D	009F1903.D	BETTYP348_FGA_CRYO.M	10.31	10.31	10.31	0.0	3.40	3.38	3.37	0.4	3.39	3.37	100.5
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0901.D	009F0902.D	009F0903.D	BETTYP348_FGA_CRYO.M	10.31	10.31	10.31	0.0	3.47	3.43	3.41	0.9	3.44	3.37	102.1
BettyP300 #FG7 ENV(1=530,6=319.09)	009F0601.D	009F0602.D	009F0603.D	BETTYP348_FGA_CRYO.M	10.28	10.29	10.29	0.0	3.37	3.38	3.33	0.8	3.36	3.37	99.8

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 3C Tedlar Bag Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	Conc # 3 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Oxygen -- Calibration Standards															
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0303.D	009F0304.D	009F0305.D	BETTYP348_FGA_CRYO.M	9.03	9.03	9.03	0.0	4.95	4.95	4.94	0.1	4.95	4.80	103
BettyP374 Method Blank-1	001F0401.D	001F0402.D	001F0403.D	BETTYP348_FGA_CRYO.M	NA	NA	NA	NA	0.0544	0.0544	0.0544	0.0	0.0544	NA	NA
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0401.D	009F0402.D	009F0403.D	BETTYP348_FGA_CRYO.M	9.03	9.03	9.04	0.0	4.61	4.64	4.66	0.5	4.64	4.80	96.5
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1201.D	009F1202.D	009F1203.D	BETTYP348_FGA_CRYO.M	9.04	9.04	9.04	0.0	4.55	4.58	4.60	0.6	4.58	4.80	95.2
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0802.D	009F0803.D	009F0804.D	BETTYP348_FGA_CRYO.M	9.05	9.05	9.05	0.0	4.65	4.61	4.63	0.4	4.63	4.80	96.4
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0702.D	009F0703.D	009F0704.D	BETTYP348_FGA_CRYO.M	9.06	9.05	9.06	0.0	4.67	4.66	4.63	0.5	4.65	4.80	96.8
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1502.D	009F1503.D	009F1504.D	BETTYP348_FGA_CRYO.M	9.05	9.06	9.06	0.0	4.67	4.67	4.67	0.1	4.67	4.80	97.2
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0202.D	009F0203.D	009F0204.D	BETTYP348_FGA_CRYO.M	9.06	9.07	9.07	0.0	4.70	4.73	4.71	0.4	4.72	4.80	98.1
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0603.D	009F0604.D	009F0605.D	BETTYP348_FGA_CRYO.M	9.07	9.07	9.08	0.1	4.60	4.64	4.66	0.8	4.63	4.80	96.4
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	009F0703.D	BETTYP348_FGA_CRYO.M	9.07	9.07	9.07	0.0	4.64	4.63	4.58	0.8	4.61	4.80	96.0
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1501.D	009F1502.D	009F1503.D	BETTYP348_FGA_CRYO.M	9.08	9.07	9.07	0.0	4.58	4.54	4.53	0.6	4.55	4.80	94.7
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F2501.D	009F2502.D	009F2503.D	BETTYP348_FGA_CRYO.M	9.07	9.07	9.07	0.0	4.50	4.47	4.55	0.9	4.51	4.80	93.8
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0201.D	009F0202.D	009F0203.D	BETTYP348_FGA_CRYO.M	9.06	9.06	9.07	0.0	4.70	4.73	4.73	0.4	4.72	4.80	98.2
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	009F0703.D	BETTYP348_FGA_CRYO.M	9.07	9.07	9.07	0.0	4.72	4.71	4.73	0.3	4.72	4.80	98.2
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F0301.D	009F0302.D	009F0303.D	BETTYP348_FGA_CRYO.M	9.00	9.00	9.00	0.0	4.06	4.09	4.08	0.4	4.08	4.15	98.3
BettyP374 Method Blank-1	001F0901.D	001F0902.D	001F0903.D	BETTYP348_FGA_CRYO.M					0.00	0.00	0.00		0.00		
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F1101.D	009F1102.D	009F1103.D	BETTYP348_FGA_CRYO.M	9.01	9.01	9.01	0.0	4.10	4.05	4.07	0.6	4.07	4.15	98.2
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F2001.D	009F2002.D	009F2003.D	BETTYP348_FGA_CRYO.M	9.01	9.01	9.01	0.0	4.02	4.04	4.08	0.8	4.05	4.15	97.5
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F1001.D	009F1002.D	009F1003.D	BETTYP348_FGA_CRYO.M	9.01	9.01	9.01	0.0	4.04	4.11	4.09	0.9	4.08	4.15	98.4
BettyP472 #FG3 ENV(1=374.56,2=391.07)	009F0701.D	009F0702.D	009F0703.D	BETTYP348_FGA_CRYO.M	8.99	8.99	9.00	0.1	4.02	4.02	4.04	0.4	4.03	4.15	97.0

Calibration Table

Calib. Data Modified : 3/24/2016 9:43:21 AM

Rel. Reference Window : 2.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 2.000 %
Abs. Non-ref. Window : 0.200 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: TCD1 A,
Signal 2: FID2 B,

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref Grp	Name
2.047	1	5	3.10000e-1	5.38499	5.75674e-2		Hydrogen
		6	7.90000e-1	14.64684	5.39365e-2		
		7	2.76000	51.33442	5.37651e-2		
		8	8.20000	134.78149	6.08392e-2		
		29	28.54000	524.85293	5.43771e-2		
8.969	1	1	5.44000e-1	215.66828	2.52239e-3		Oxygen
		2	1.33000	532.64663	2.49697e-3		
		3	4.81000	1881.28426	2.55676e-3		
		4	10.01000	3778.10091	2.64948e-3		
		23	99.99900	3.74652e4	2.66912e-3		
10.169	1	5	3.80000e-1	185.00033	2.05405e-3		Nitrogen
		6	9.60000e-1	453.97759	2.11464e-3		
		7	3.37000	1545.65592	2.18030e-3		
		8	10.00000	4163.20394	2.40200e-3		
		22	99.90000	4.08941e4	2.44290e-3		
12.591	1	5	3.80000e-1	211.16778	1.79952e-3		Carbon monoxide
		6	9.60000e-1	532.27047	1.80359e-3		
		7	3.37000	1855.44157	1.81628e-3		
		8	10.00000	4982.55648	2.00700e-3		
16.387	1	5	3.10000e-1	153.20321	2.02346e-3		Methane
		6	7.70000e-1	374.54545	2.05583e-3		
		7	2.70000	1267.01778	2.13099e-3		
		8	8.00000	3367.32218	2.37578e-3		
19.573	1	1	5.44000e-1	423.74036	1.28381e-3		Carbon Dioxide
		2	1.33000	1022.49255	1.30074e-3		
		3	4.81000	3525.11686	1.36449e-3		
		4	10.01000	6909.76790	1.44867e-3		

More compound-specific settings:

Compound: Hydrogen
  Time Window : From 1.929 min To 2.165 min

Compound: Oxygen
  Time Window : From 8.686 min To 9.125 min

Compound: Nitrogen
  Time Window : From 9.829 min To 10.369 min

Compound: Carbon monoxide
  Time Window : From 11.991 min To 12.741 min

Compound: Methane
  Time Window : From 15.969 min To 16.737 min

Compound: Carbon Dioxide
  Time Window : From 18.958 min To 19.804 min

1 Warnings or Errors :

Warning : Cal. table open and changed while report was generated.

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Peak Sum Table

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No Entries in table

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Calibration Curves

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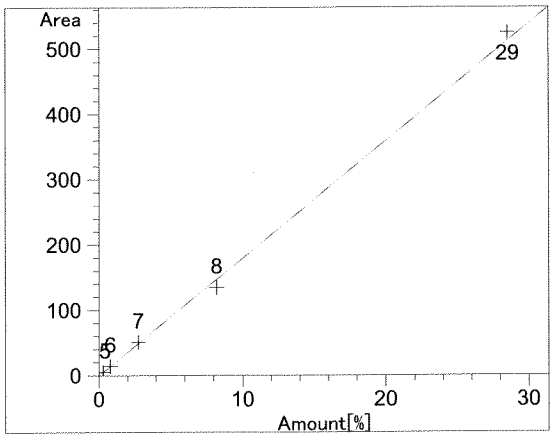
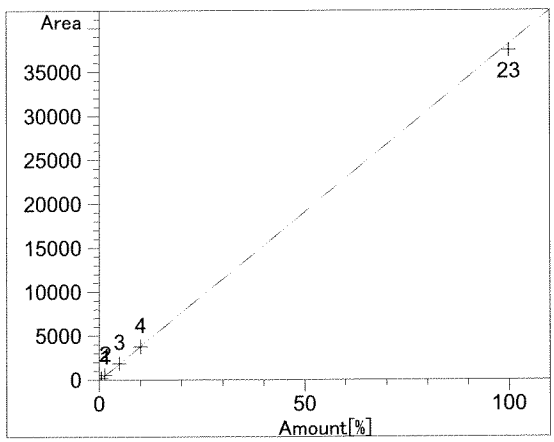
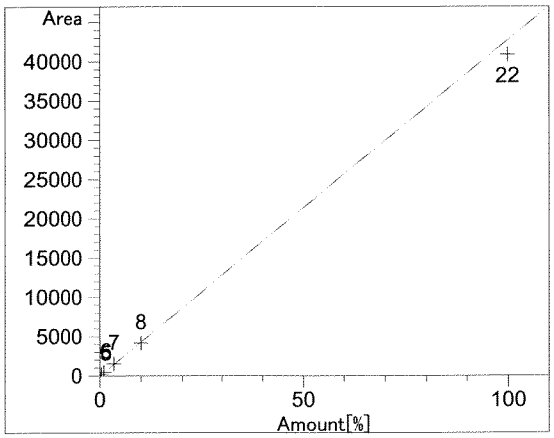


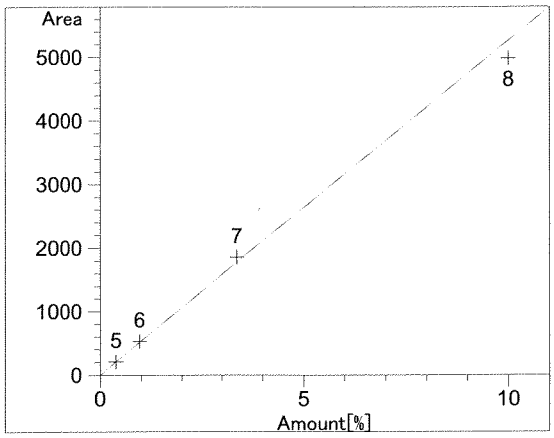
Hydrogen at exp. RT: 2.047
TCD1 A,
Correlation: 0.99816
Residual Std. Dev.: 10.19235
Formula: y = mx + b
m: 17.95758
b: -8.98765e-2
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.153982
Level 7 : 0.012616
Level 8 : 0.001429
Level 29 : 0.000118



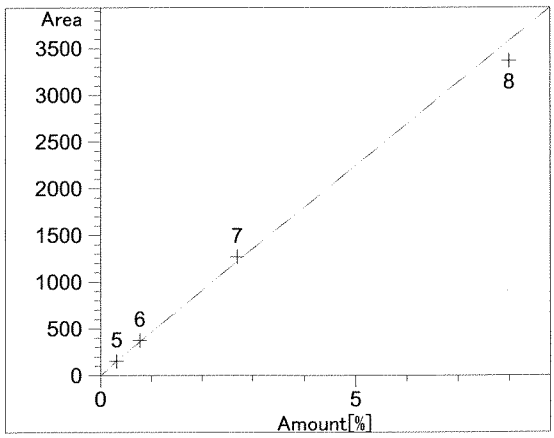
Oxygen at exp. RT: 8.969
TCD1 A,
Correlation: 0.99968
Residual Std. Dev.: 426.21037
Formula: y = mx + b
m: 381.90247
b: 10.53345
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953
Level 23 : 0.00003



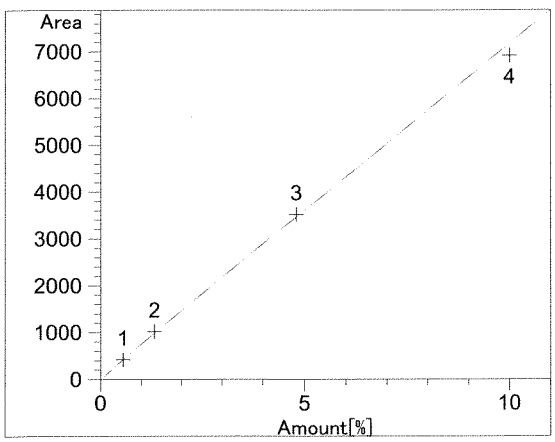
Nitrogen at exp. RT: 10.169
TCD1 A,
Correlation: 0.99861
Residual Std. Dev.: 1069.57781
Formula: y = mx + b
m: 427.56420
b: 26.03866
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 22 : 0.000014



Carbon monoxide at exp. RT: 12.591
TCD1 A,
Correlation: 0.99861
Residual Std. Dev.: 207.59836
Formula: y = mx + b
m: 525.28704
b: 14.21056
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444



Methane at exp. RT: 16.387
TCD1 A,
Correlation: 0.99818
Residual Std. Dev.: 156.06275
Formula: y = mx + b
m: 445.63688
b: 17.58213
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.162085
Level 7 : 0.013182
Level 8 : 0.001502



Carbon Dioxide at exp. RT: 19.573
TCD1 A,
Correlation: 0.99919
Residual Std. Dev.: 193.00669
Formula: y = mx + b
m: 712.61305
b: 41.55839
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953

ımple Name: BettyP187 #FG22 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : Chester Burnett                    Seq. Line :   1
Acq. Instrument : Betty                               Location : Vial 9
Injection Date  : 6/24/2015 10:01:37 AM                    Inj :   1
                                                    Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\BETTY\QUARTER 2\BETTYP209\BETTYP017_CAL.M
Last changed    : 6/30/2014 5:46:14 PM by Thorne Gregory
Analysis Method : C:\GC\2015\BETTY\METHODS\BETTYP209_FGA_CRYO.M
Last changed    : 3/24/2016 9:25:02 AM by Nicholas Traversa
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Nicholas Traversa
ECM Path        : GC\2015\Betty\Quarter 2\BETTYP209.SC.SSIzip
ECM Version     : 15 (modified after loading)
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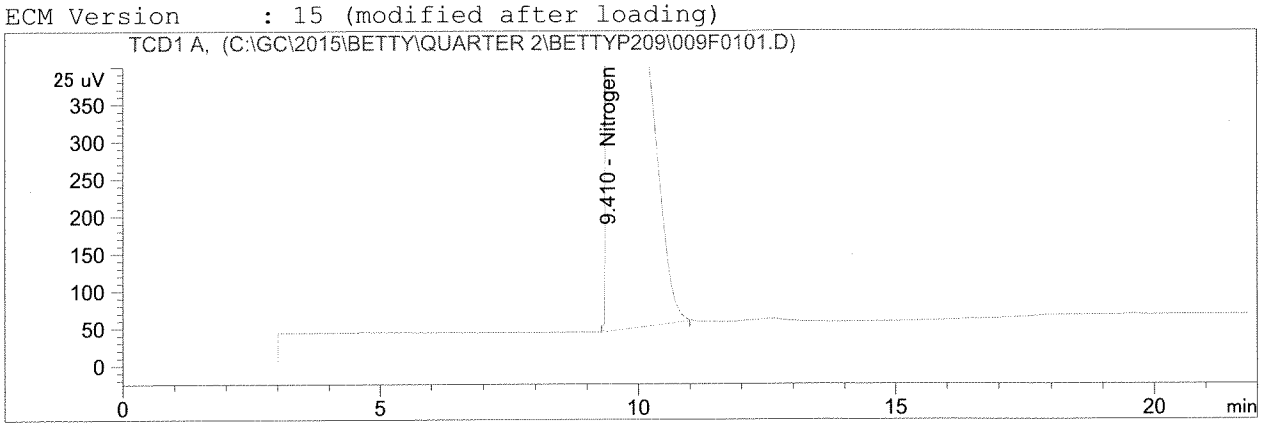


```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      3/24/2016 9:24:48 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]         [25 uV*s]                 [%]
-------|------|----------|----------|----------|--|------------------
  2.047            -           -          -         Hydrogen
  8.969            -           -          -         Oxygen
  9.410 BB     4.06542e4   2.33733e-3   95.02229     Nitrogen
 12.591            -           -          -         Carbon monoxide
 16.387            -           -          -         Methane
 19.573            -           -          -         Carbon Dioxide

Totals :                                 95.02229


2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

================================================================================
                          *** End of Report ***
```

ımple Name: BettyP187 #FG22 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : Chester Burnett                Seq. Line :   1
Acq. Instrument : Betty                           Location : Vial 9
Injection Date  : 6/24/2015 10:31:36 AM               Inj :   2
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\BETTY\QUARTER 2\BETTYP209\BETTYP017_CAL.M
Last changed    : 6/30/2014 5:46:14 PM by Thorne Gregory
Analysis Method : C:\GC\2015\BETTY\METHODS\BETTYP209_FGA_CRYO.M
Last changed    : 3/24/2016 9:25:02 AM by Nicholas Traversa
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Nicholas Traversa
ECM Path        : GC\2015\Betty\Quarter 2\BETTYP209.SC.SSIzip
ECM Version     : 15 (modified after loading)
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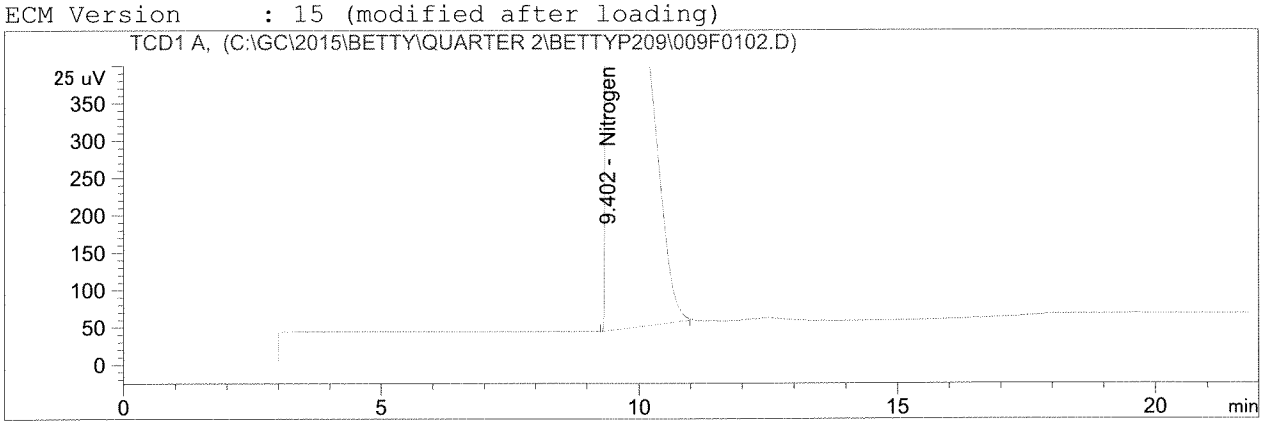


```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      3/24/2016 9:24:48 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]         [25 uV*s]                 [%]
-------|------|----------|----------|----------|--|------------------
  2.047            -          -          -          Hydrogen
  8.969            -          -          -          Oxygen
  9.402 BB     4.10650e4  2.33735e-3   95.98314     Nitrogen
 12.591            -          -          -          Carbon monoxide
 16.387            -          -          -          Methane
 19.573            -          -          -          Carbon Dioxide

Totals :                                 95.98314


2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

================================================================================
                          *** End of Report ***
```

ımple Name: BettyP187 #FG22 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : Chester Burnett                Seq. Line :   1
Acq. Instrument : Betty                           Location : Vial 9
Injection Date  : 6/24/2015 11:01:25 AM               Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\BETTY\QUARTER 2\BETTYP209\BETTYP017_CAL.M
Last changed    : 6/30/2014 5:46:14 PM by Thorne Gregory
Analysis Method : C:\GC\2015\BETTY\METHODS\BETTYP209_FGA_CRYO.M
Last changed    : 3/24/2016 9:25:02 AM by Nicholas Traversa
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Nicholas Traversa
ECM Path        : GC\2015\Betty\Quarter 2\BETTYP209.SC.SSIzip
ECM Version     : 15 (modified after loading)
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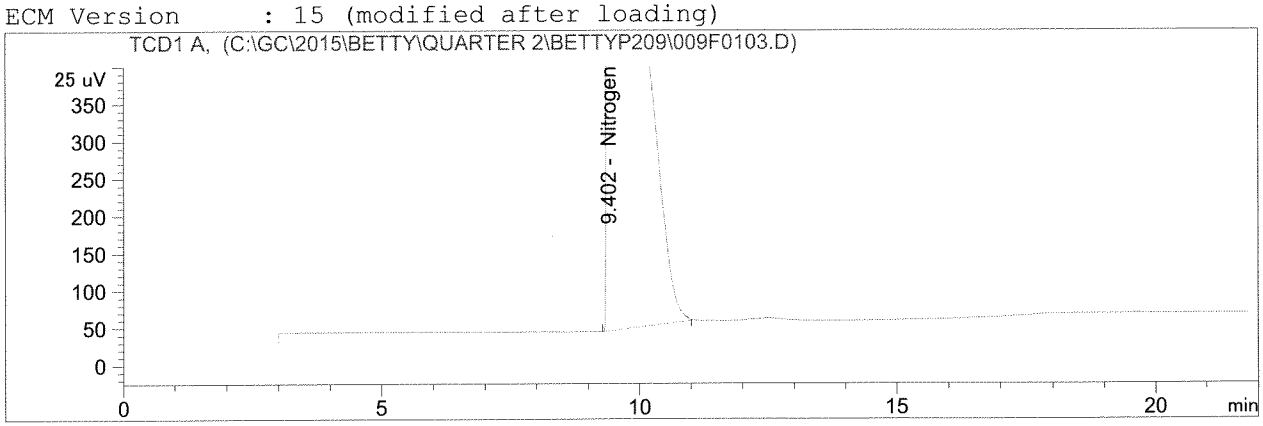



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      3/24/2016 9:24:48 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,
```

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
2.047		-	-	-		Hydrogen
8.969		-	-	-		Oxygen
9.402	BB	4.09631e4	2.33734e-3	95.74482		Nitrogen
12.591		-	-	-		Carbon monoxide
16.387		-	-	-		Methane
19.573		-	-	-		Carbon Dioxide
Totals :				95.74482		

```
2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

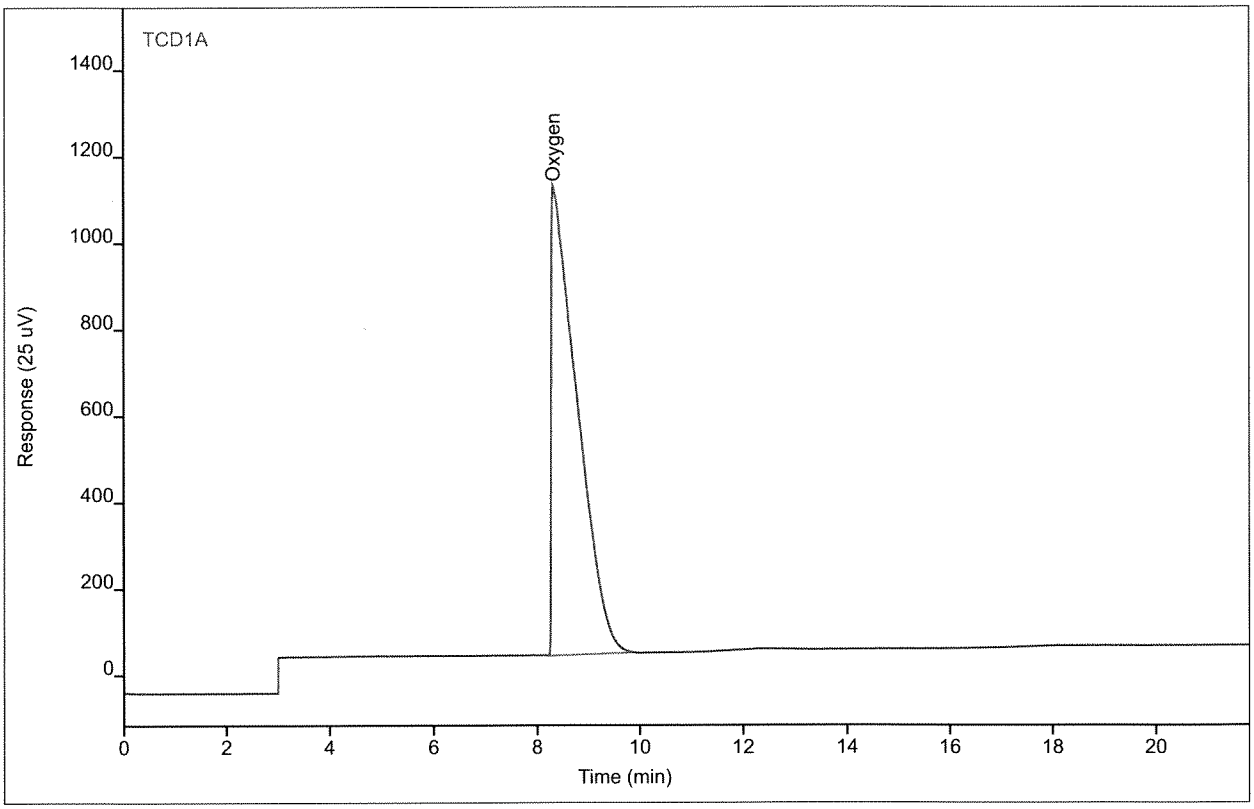
================================================================================
                          *** End of Report ***
```

Chromatogram Report

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0301.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:28 AM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



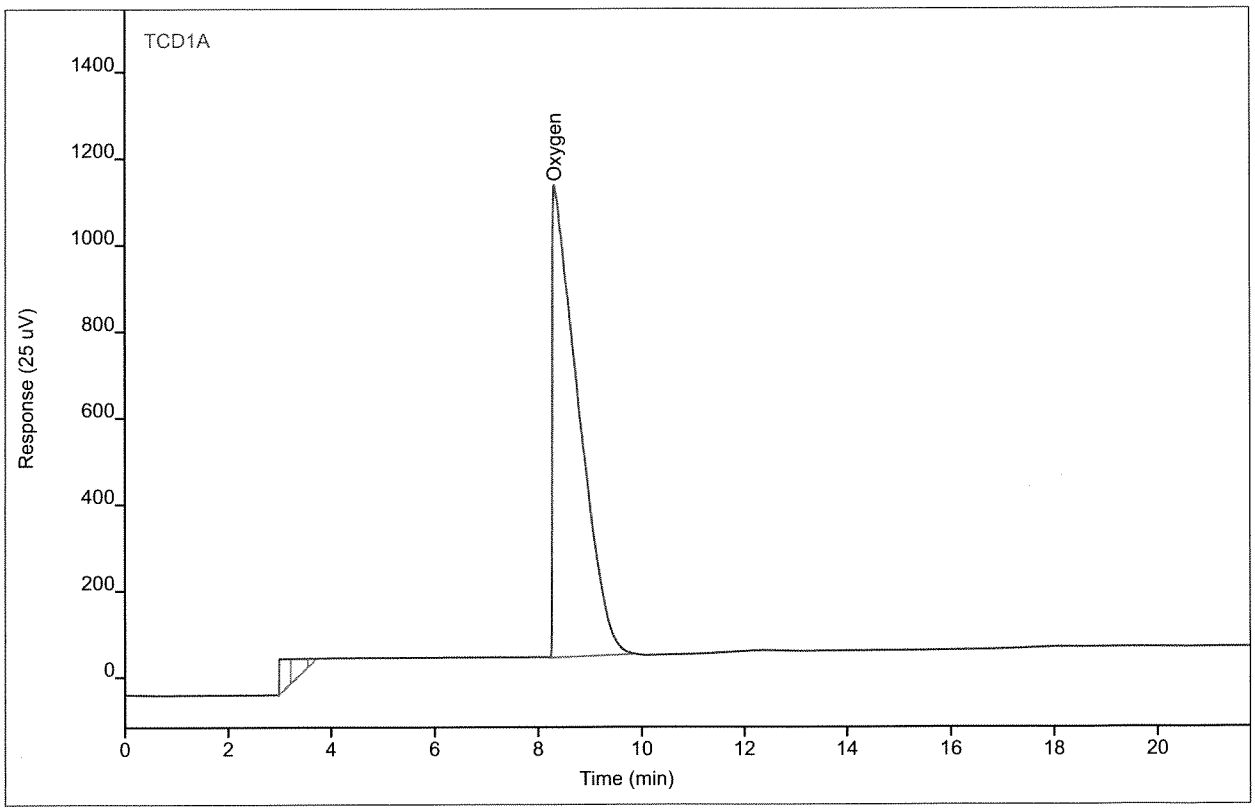
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.33	37554.3	1087.29	98.3071	1	98.3071	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0302.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:56 AM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



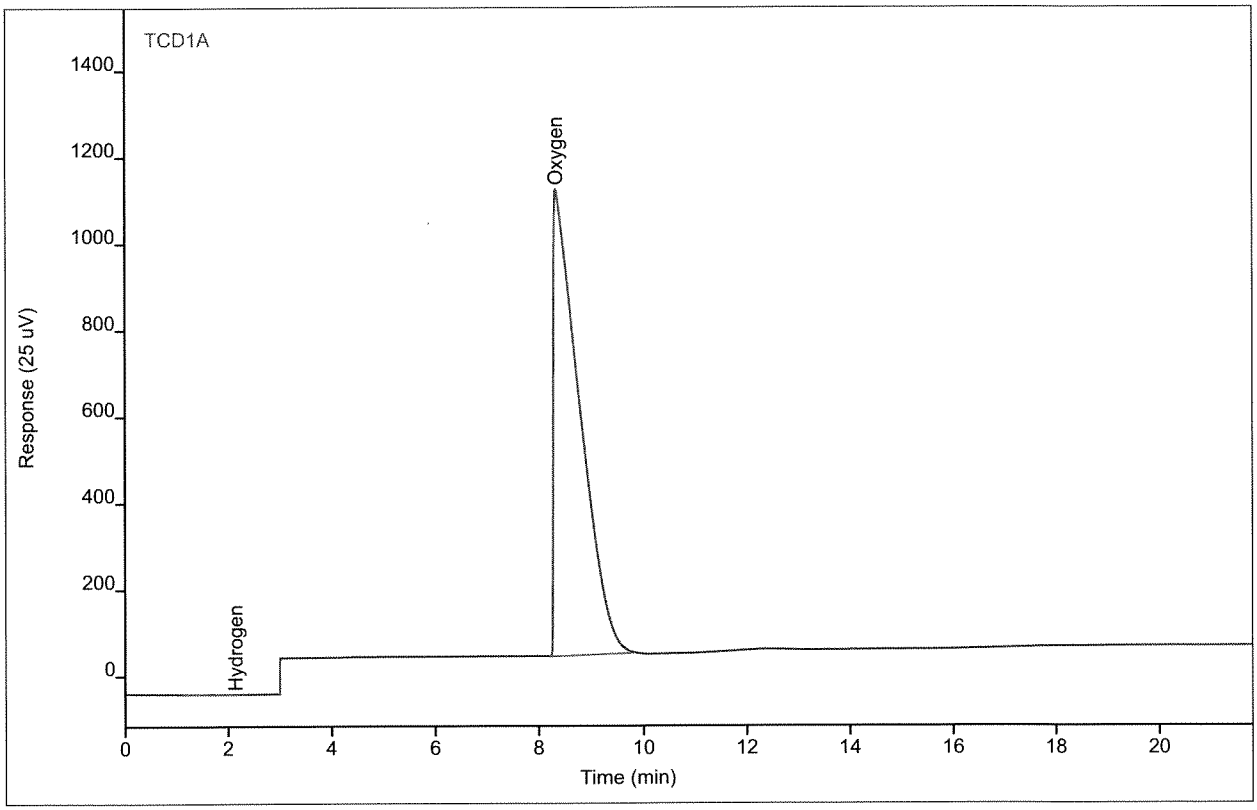
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	3.51	771.074	25.0036		1		
?	VB	3.59	103.631	16.1120		1		
?	BV	3.20	928.600	60.9281		1		
Hydrogen		(2.07)				1		
Oxygen	BB	8.33	37575.0	1091.96	98.3614	1	98.3614	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0303.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 12:23 PM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

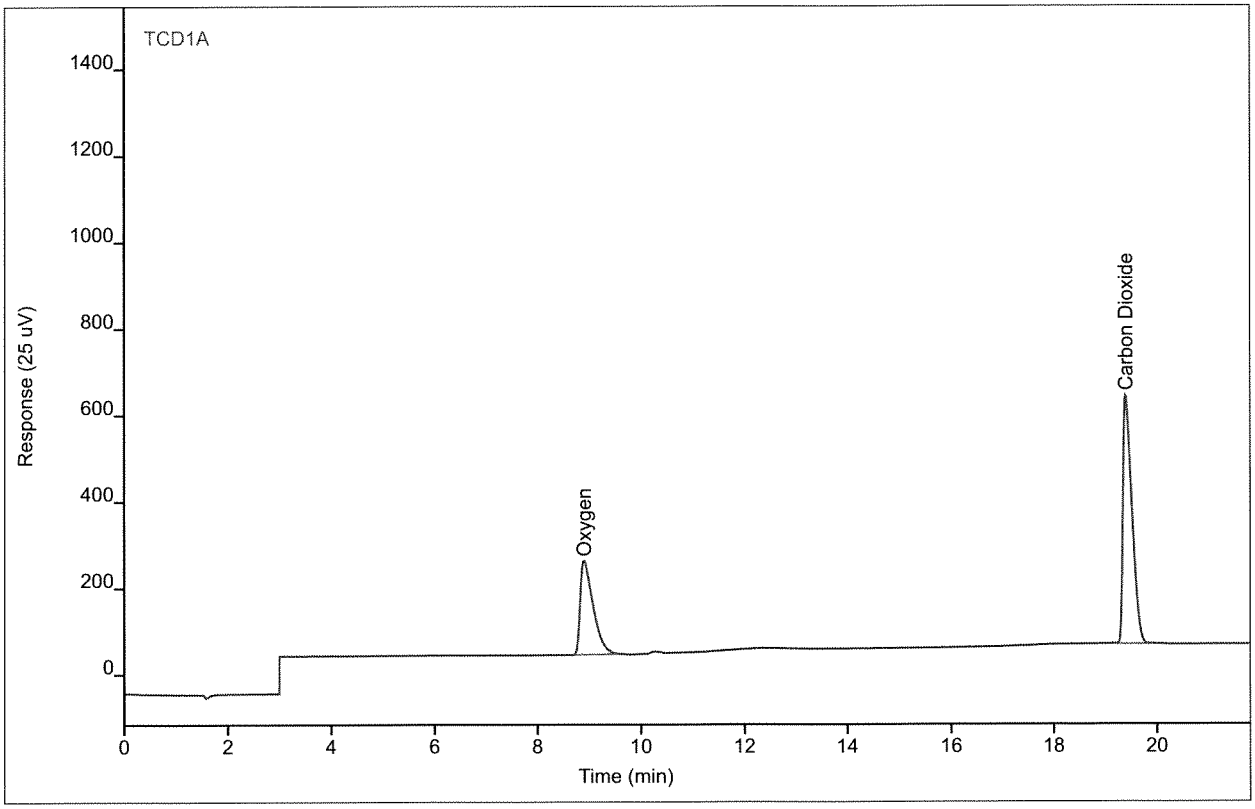


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	1.44	35.8647	1.00630		1		
Hydrogen	VB	2.14	2.56380	0.30871	0.18578	1	0.18578	%
Oxygen	BB	8.33	37266.3	1080.49	97.5530	1	97.5530	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0401.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/24/2015 12:53 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



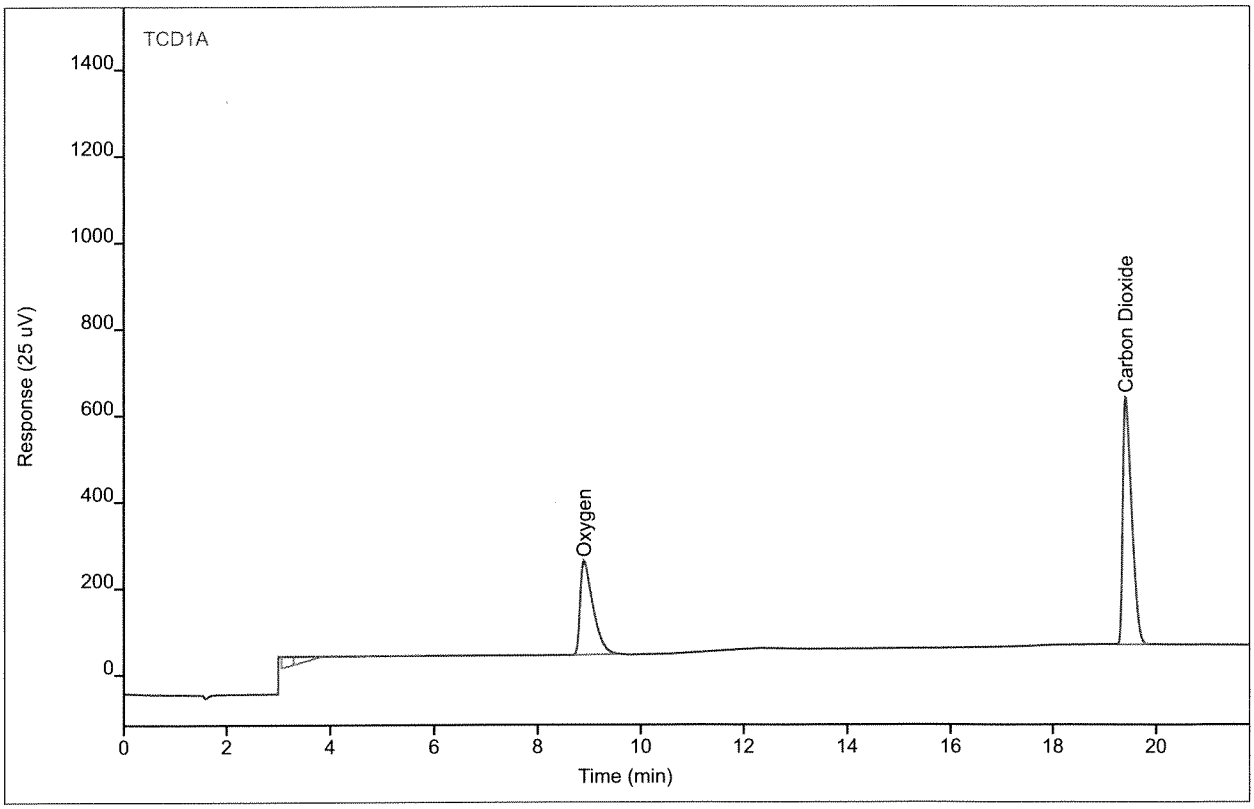
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.12)				1		
Oxygen	BB	8.90	3794.10	218.358	9.90714	1	9.90714	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6917.48	576.146	9.65631	1	9.65631	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 1:23 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

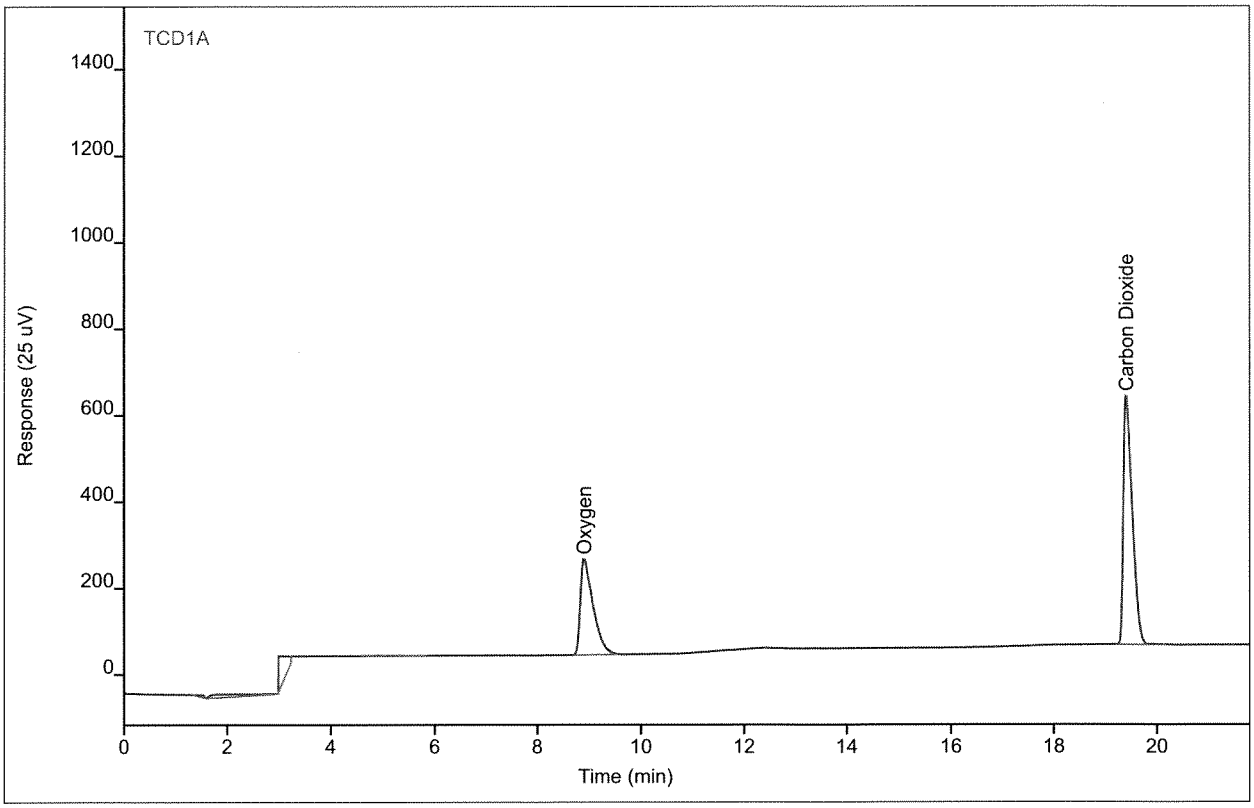


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.74	4.04918	0.40809		1		
?	BV	4.10	1.30274	0.27732		1		
?	BV	3.23	332.033	22.6362		1		
?	VV	5.53	1.69649	0.24561		1		
?	BV	5.24	2.99967	0.39018		1		
?	VB	5.63	1.11602	0.26381		1		
?	VB	3.45	322.496	15.1499		1		
?	BB	3.74	28.3920	4.98907		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.91	3749.89	216.664	9.79139	1	9.79139	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6854.54	573.042	9.56788	1	9.56788	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0403.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/24/2015 1:52 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

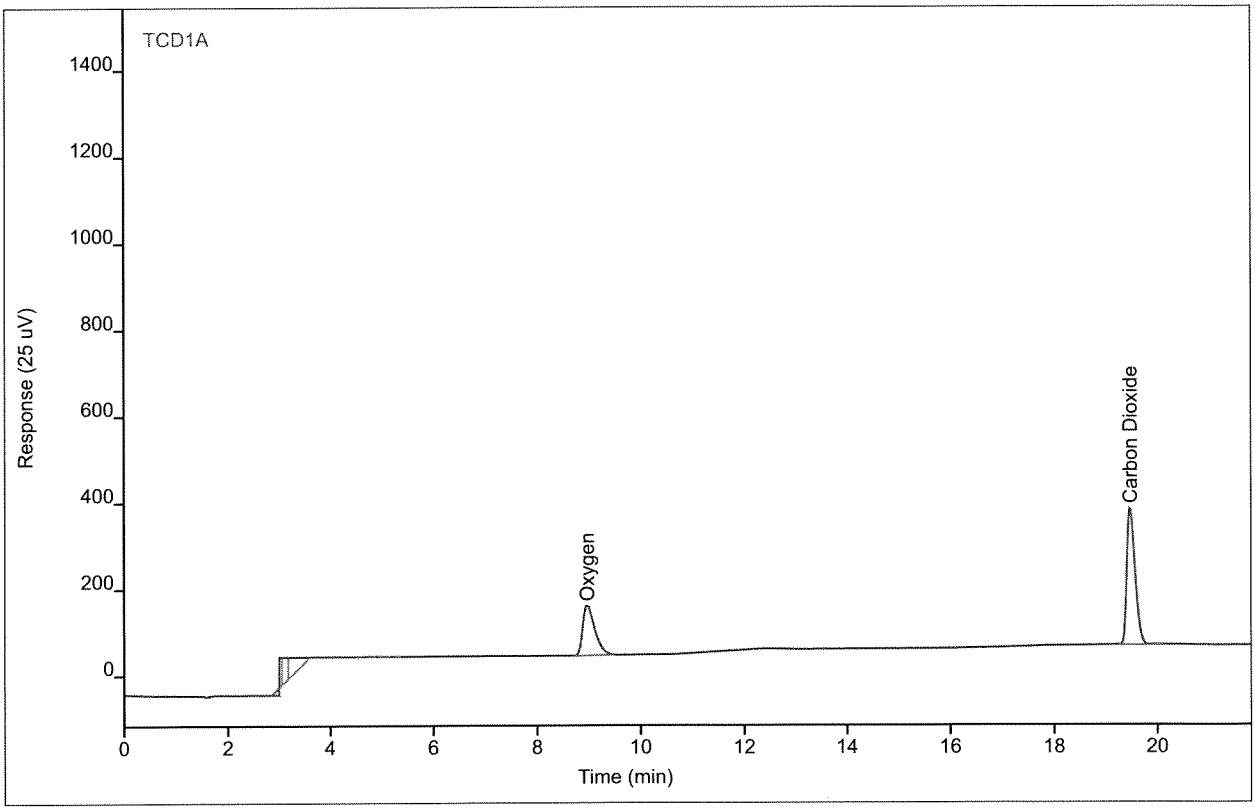


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	5.59	1.76345	0.28809		1		
?	BB	5.30	1.09445	0.26829		1		
?	VB	5.73	1.08640	0.35516		1		
?	BV	1.48	66.5766	6.47789		1		
?	BV	4.77	4.11549	0.40070		1		
?	VV	2.47	403.496	4.35509		1		
?	VB	3.07	725.880	64.1523		1		
?	VB	4.90	2.13294	0.36700		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.91	3790.32	223.265	9.89725	1	9.89725	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6957.29	577.325	9.71225	1	9.71225	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0501.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/24/2015 2:22 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

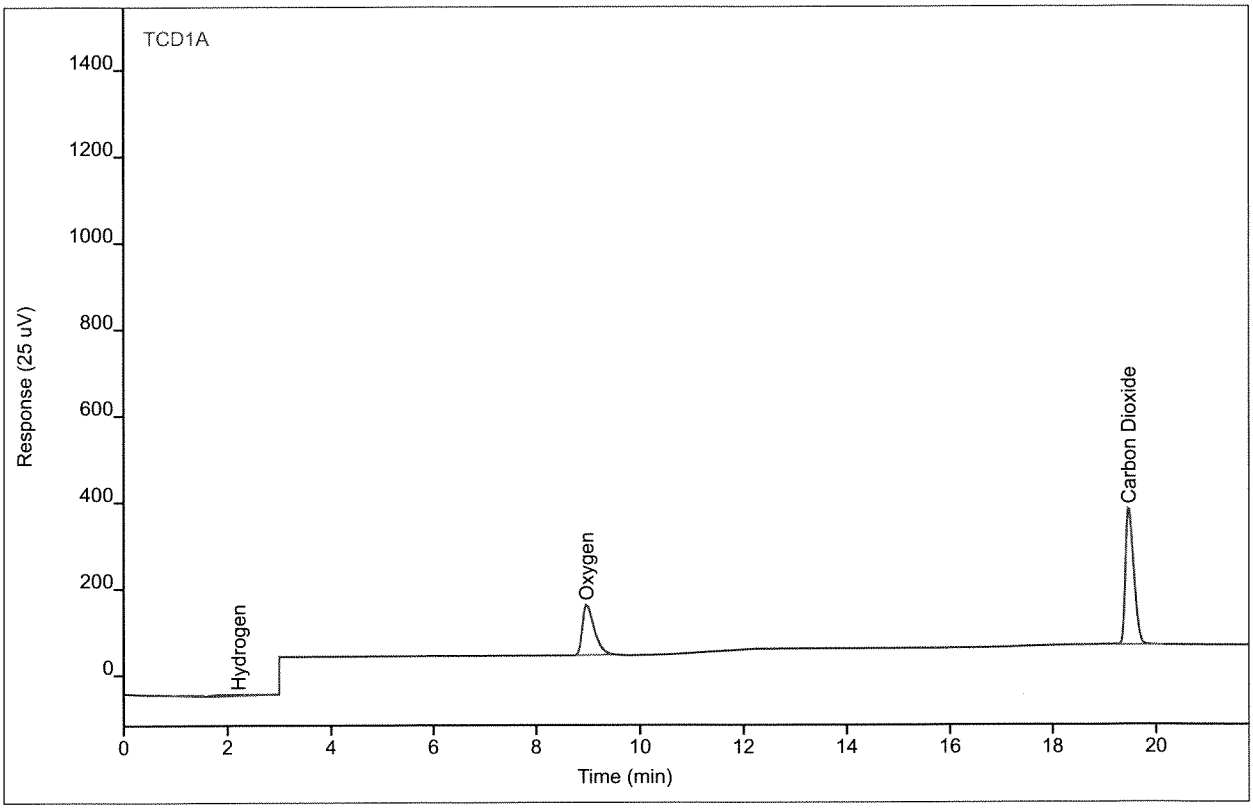


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	3.02	119.761	70.5758		1		
?	VV	4.72	4.83026	0.62773		1		
?	BB	5.05	4.73888	0.46953		1		
?	VB	3.29	671.787	37.7567		1		
?	VV	3.12	439.998	57.6324		1		
?	VB	4.84	1.76323	0.45602		1		
?	BV	4.60	1.15390	0.35488		1		
?	BB	5.31	1.09147	0.22290		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.97	1886.74	116.525	4.91280	1	4.91280	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3534.71	317.187	4.90362	1	4.90362	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0502.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 3
Injection Date	6/24/2015 2:52 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



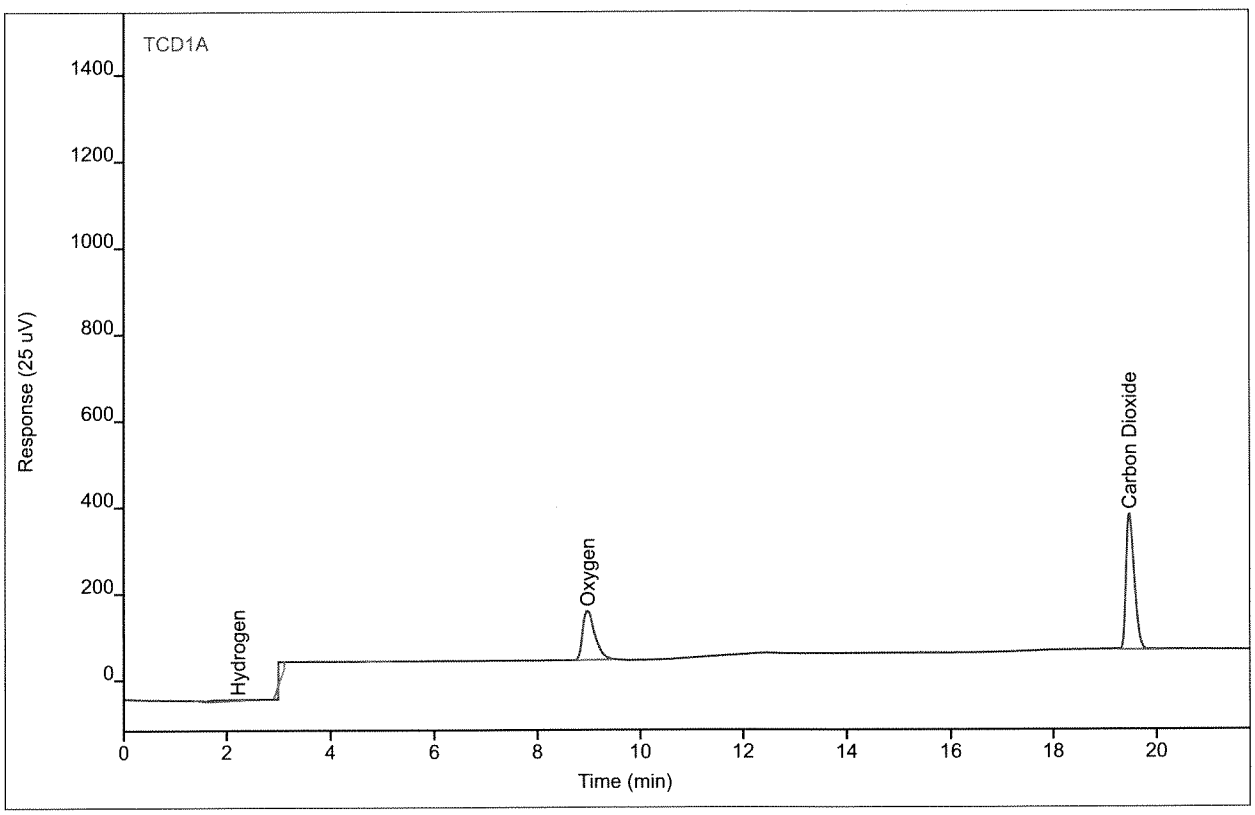
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	1.50	87.2012	4.63347		1		
?	BV	1.11	33.1340	2.56250		1		
Hydrogen	VV	2.22	180.488	2.86920	11.9571	1	11.9571	%
Oxygen	BB	8.97	1879.79	116.870	4.89460	1	4.89460	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3520.38	316.168	4.88348	1	4.88348	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)
Sequence Name	BETTYP209 ver.15
Data File	009F0503.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 3:22 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

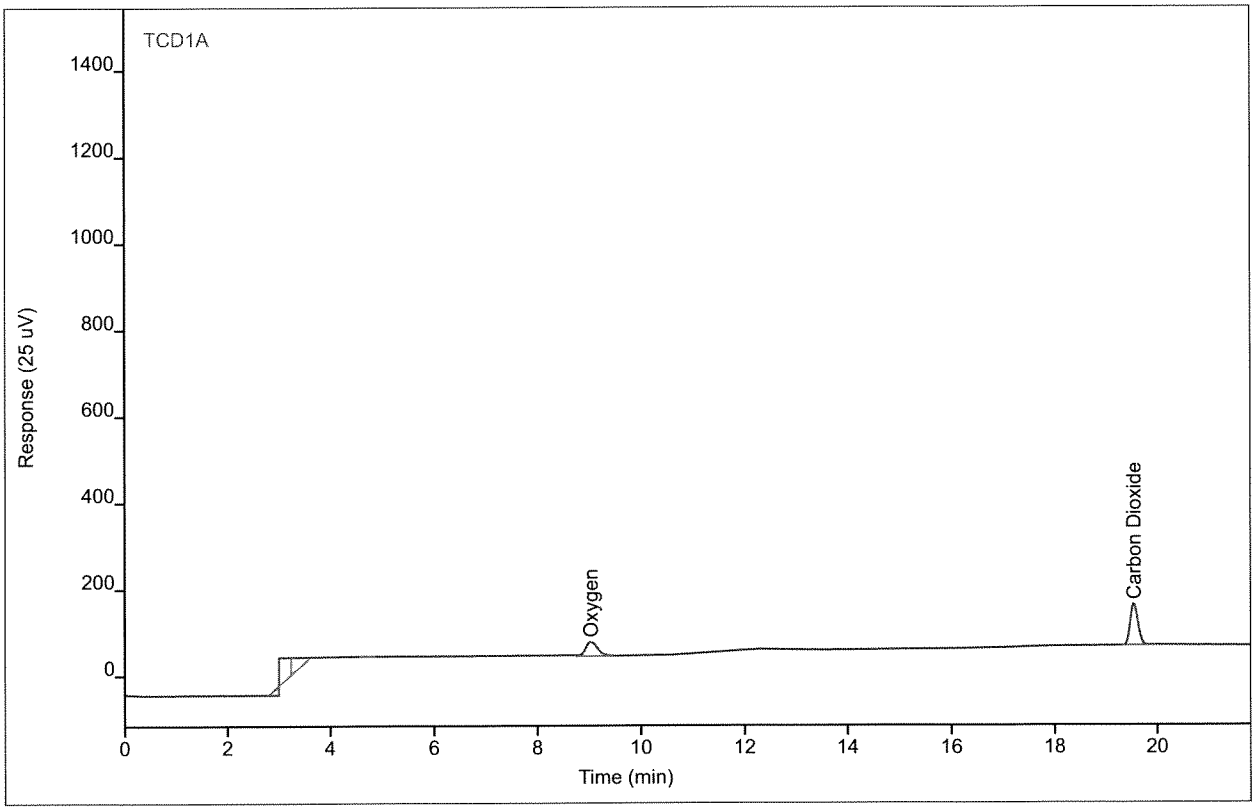


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	4.90	3.31082	0.43548		1		
?	BV	1.46	29.2454	2.75103		1		
?	VB	5.02	2.90801	0.32670		1		
?	BB	3.02	154.023	50.7444		1		
?	VV	4.69	4.26213	0.46804		1		
Hydrogen	VV	2.23	135.263	2.45799	8.96517	1	8.96517	%
Oxygen	BB	8.99	1877.32	114.333	4.88811	1	4.88811	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3520.26	315.360	4.88331	1	4.88331	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0601.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/24/2015 3:52 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



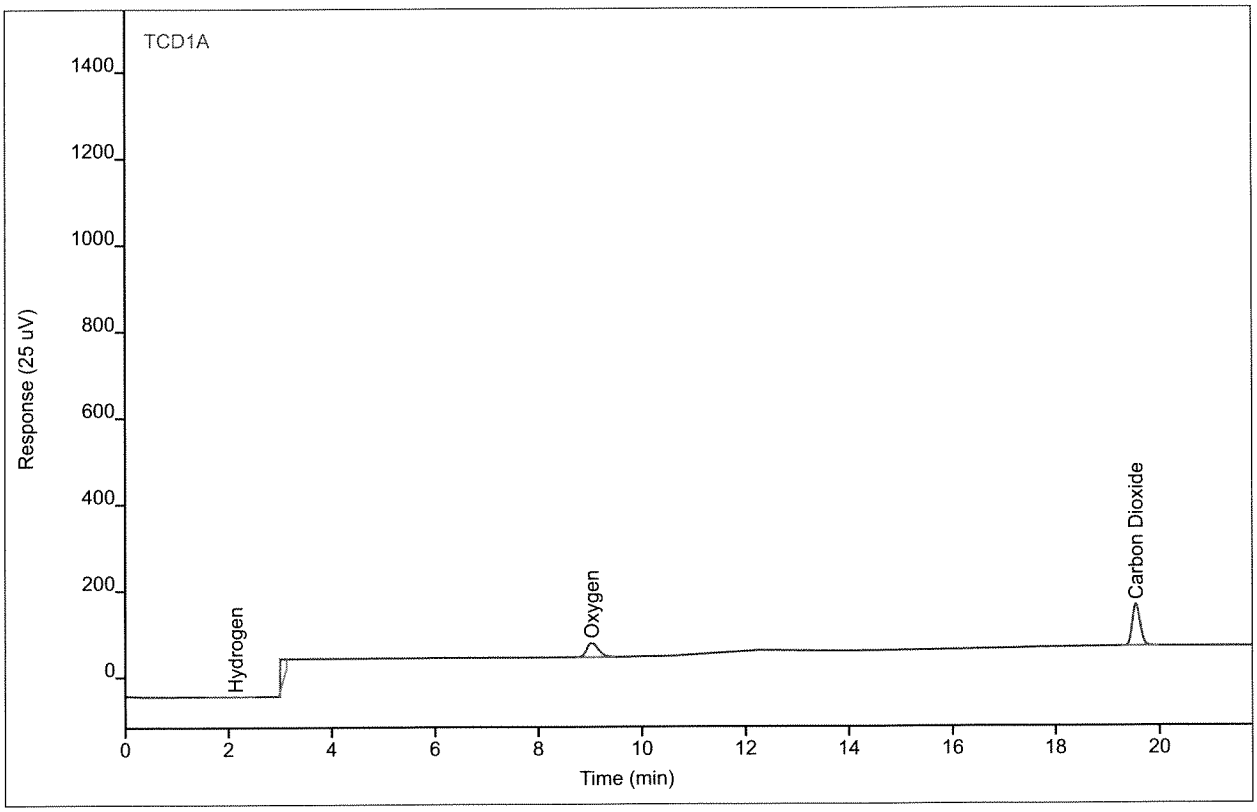
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	3.36	480.188	29.2607		1		
?	BB	4.72	2.62776	0.42083		1		
?	BV	3.02	643.563	65.7392		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.03	529.673	33.9172	1.35935	1	1.35935	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1015.25	96.0081	1.36384	1	1.36384	%

Chromatogram Report

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0602.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 4:21 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



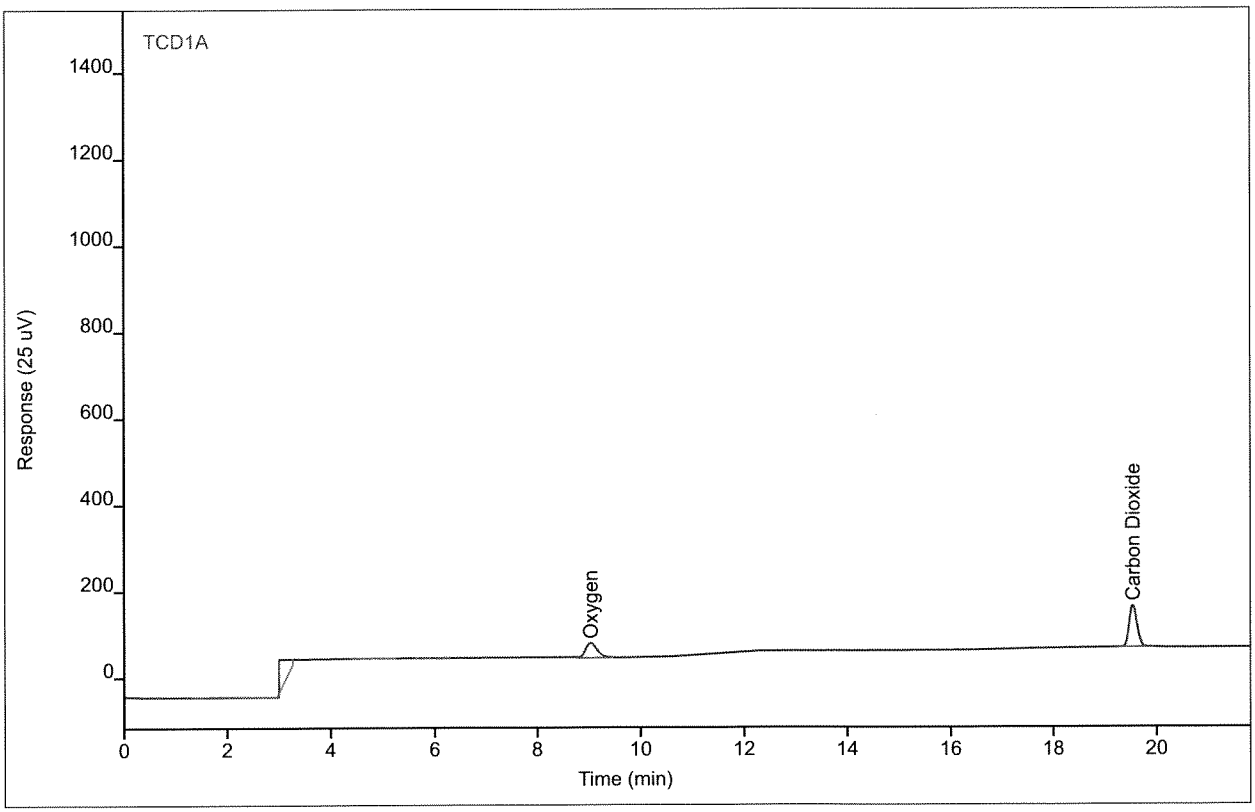
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	2.43	1.90608	0.28758		1		
?	VV	2.26	2.81387	0.41121		1		
?	BB	3.02	365.282	71.3322		1		
Hydrogen	BV	2.14	12.6786	0.60943	0.85551	1	0.85551	%
Oxygen	BB	9.03	532.716	34.0263	1.36732	1	1.36732	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1027.99	96.6383	1.38175	1	1.38175	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0603.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 4:51 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



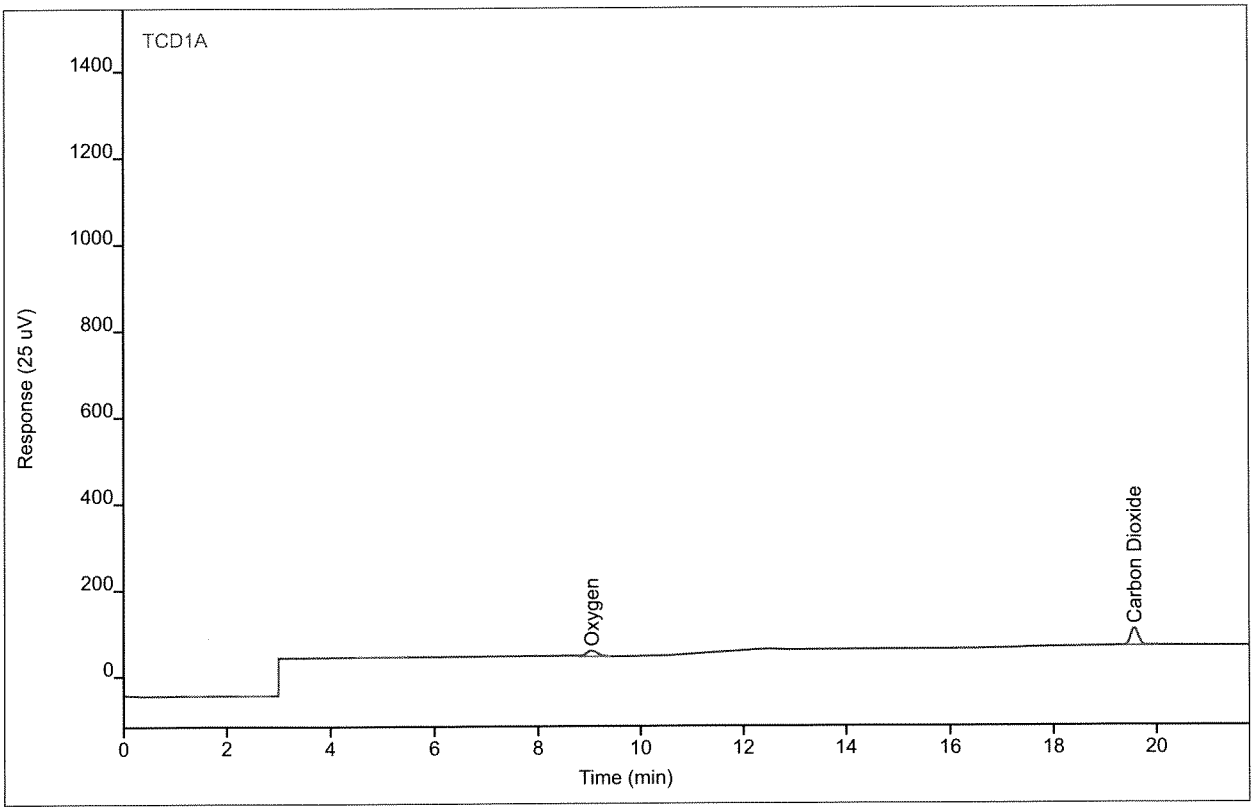
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	5.79	1.92117	0.37755		1		
?	VV	5.00	2.66323	0.43564		1		
?	VV	2.64	5.97584	0.62839		1		
?	BV	4.62	1.99308	0.38828		1		
?	VV	2.27	61.2127	1.14749		1		
?	VB	5.11	1.54117	0.31966		1		
?	VV	2.88	1.60954	0.35413		1		
?	BV	1.46	18.9470	1.37617		1		
?	VB	3.07	728.380	62.1411		1		
?	VB	6.13	2.70757	0.37252		1		
?	BV	5.64	1.14716	0.31755		1		
?	VV	4.76	4.01393	0.39793		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.03	535.550	34.8530	1.37474	1	1.37474	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1024.24	96.9965	1.37647	1	1.37647	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0701.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 5:21 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 8
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

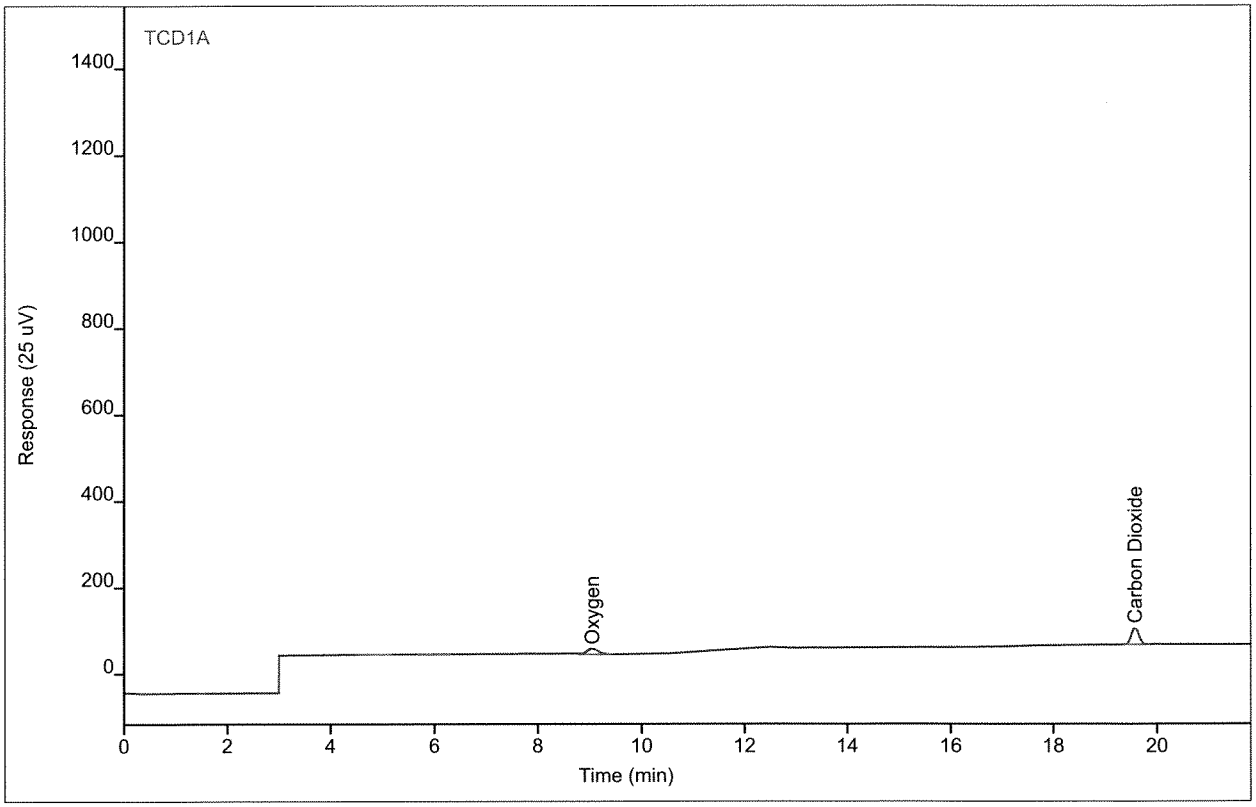


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.99	17.6586	0.54161		1		
?	BV	2.32	5.57168	0.59586		1		
?	BV	1.51	5.65855	0.50313		1		
?	VV	2.61	3.12562	0.38332		1		
?	VV	2.78	1.54822	0.30933		1		
?	VV	2.47	2.12618	0.45412		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	214.725	13.9341	0.53512	1	0.53512	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	423.172	40.1297	0.53283	1	0.53283	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0702.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 8
Injection Date	6/24/2015 5:51 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

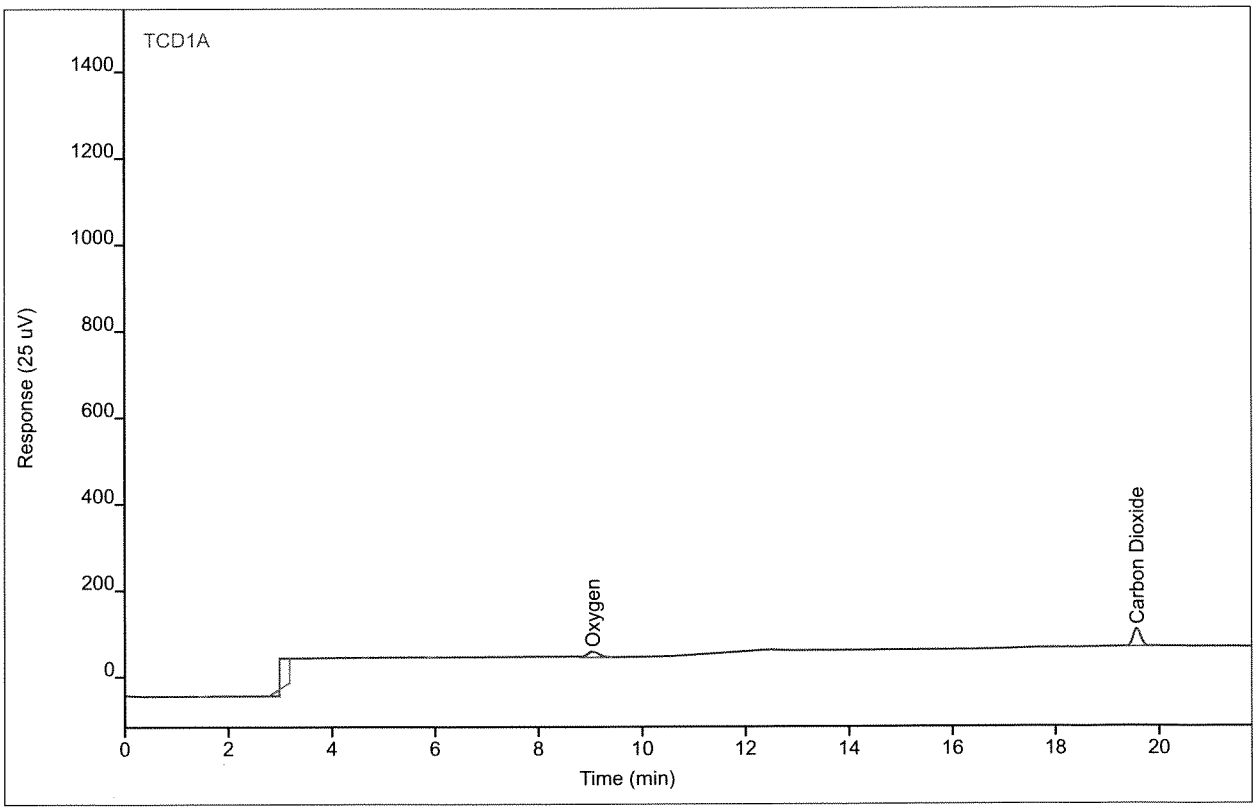


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	1.45	3.15087	0.44002		1		
?	BV	4.72	4.20614	0.48932		1		
?	VB	5.02	2.55183	0.27862		1		
?	BB	6.14	1.24686	0.23469		1		
?	BB	5.82	1.51287	0.22623		1		
?	VV	4.90	2.86163	0.44424		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	215.668	13.8467	0.53747	1	0.53747	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	420.526	39.8516	0.52949	1	0.52949	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0703.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 8
Injection Date	6/24/2015 6:20 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

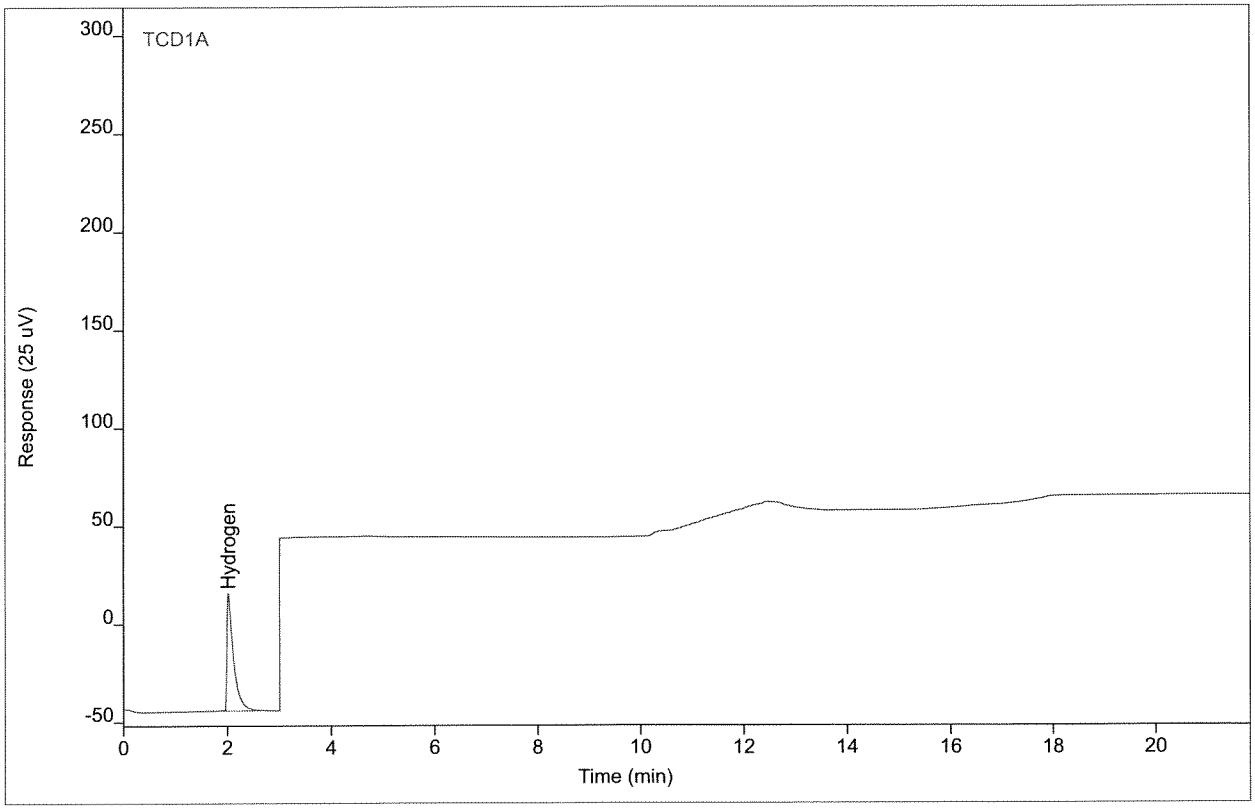


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	3.04	668.472	70.3759		1		
?	BB	4.62	1.62261	0.34018		1		
?	BV	1.50	3.80463	0.53505		1		
?	VB	5.89	1.40129	0.35491		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	216.612	14.2341	0.53982	1	0.53982	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	427.523	40.6313	0.53830	1	0.53830	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.3	Vial Number	Vial 9
Data File	009F0401.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 3
Injection Date	3/23/2016 9:02 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	3/24/2016 10:17 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:36 AM
Operator	Justin Guenzler	Printed	4/5/2016 7:49 AM



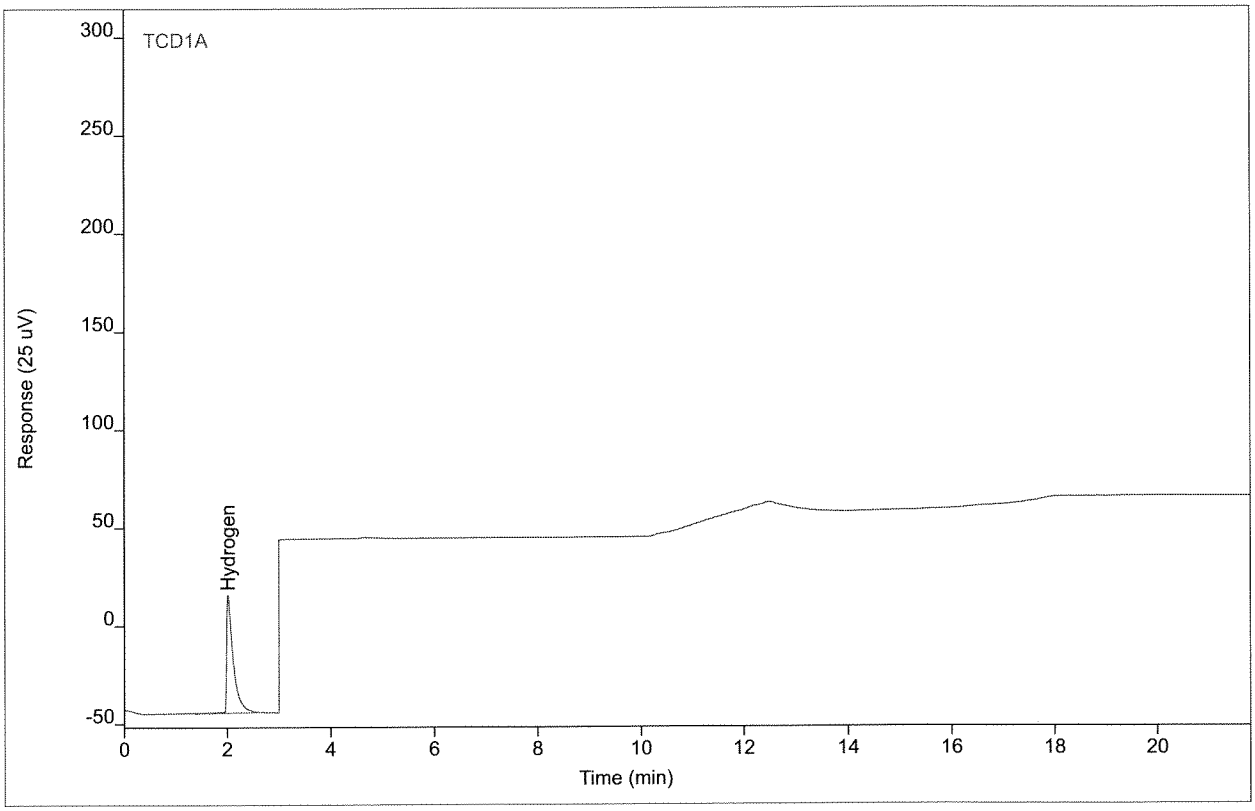
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.02	519.372	60.1510	28.9272	1	28.9272	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)
Sequence Name	BETTYP348 ver.3
Data File	009F0402.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 9:32 AM
File Modified	3/24/2016 10:18 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM

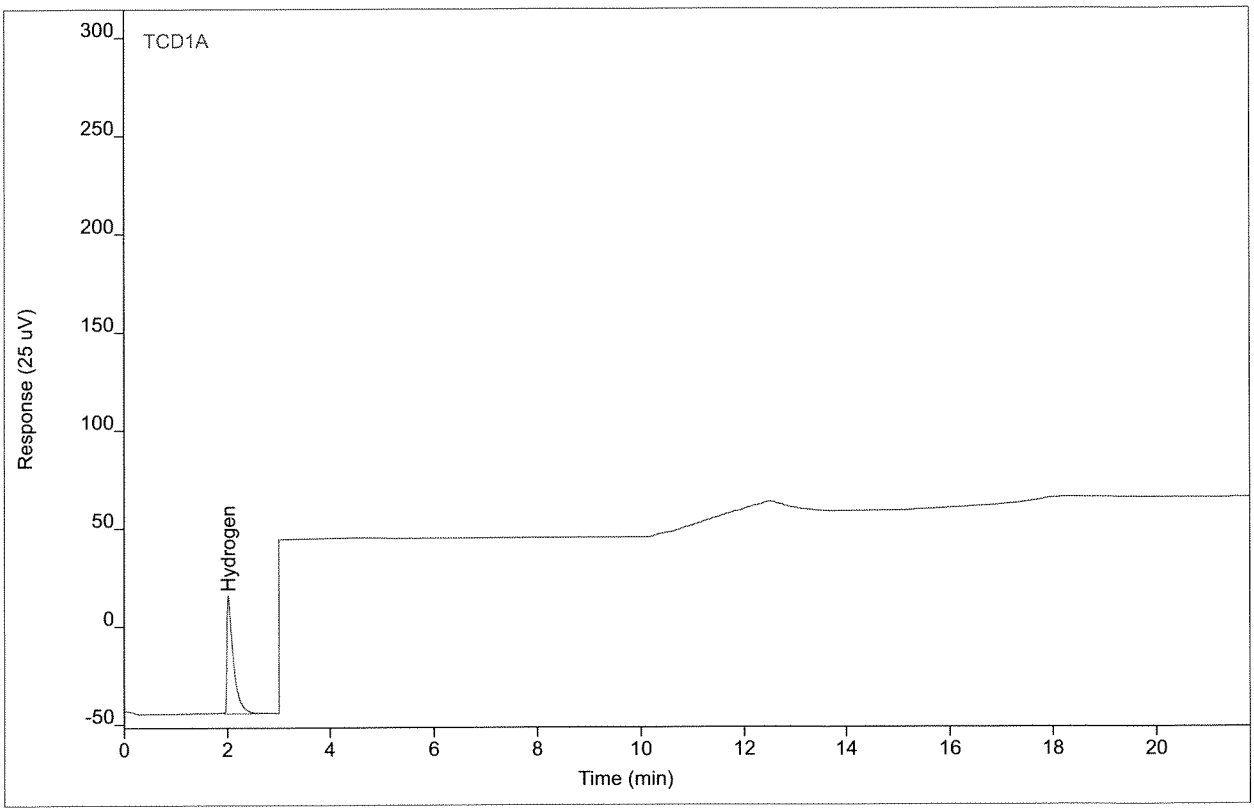


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	VB	2.02	533.976	60.3929	29.7404	1	29.7404	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.3	Vial Number	Vial 9
Data File	009F0403.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 3
Injection Date	3/23/2016 10:02 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	3/24/2016 10:18 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:36 AM
Operator	Justin Guenzler	Printed	4/5/2016 7:49 AM



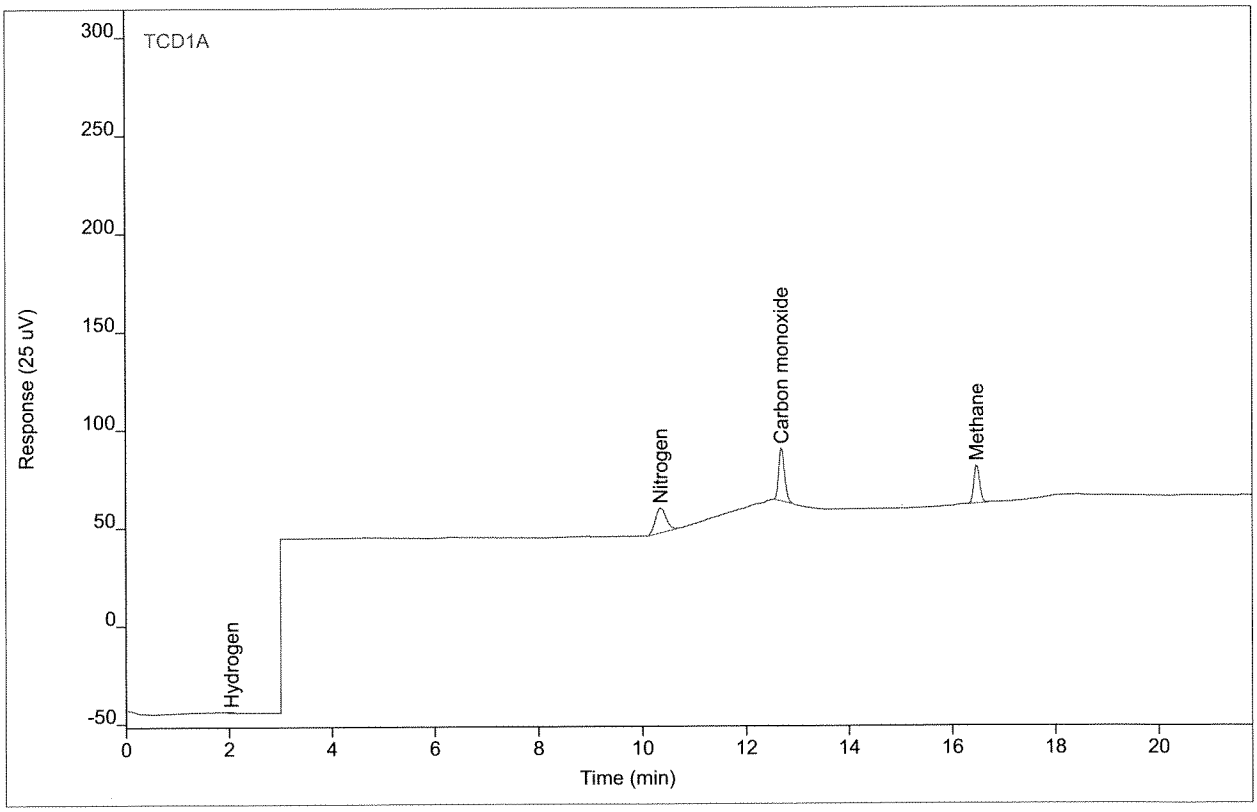
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.02	521.211	60.2486	29.0296	1	29.0296	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP348 ver.3
Data File	009F0801.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 1:34 PM
File Modified	4/5/2016 7:38 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.04	5.49422	0.77557	0.31096	1	0.31096	%
Nitrogen	BB	10.35	185.913	12.9416	0.37476	1	0.37476	%
Carbon monoxide	MM	12.69	213.187	26.9160	0.37888	1	0.37888	%
Methane	MM	16.49	154.929	19.4239	0.30841	1	0.30841	%

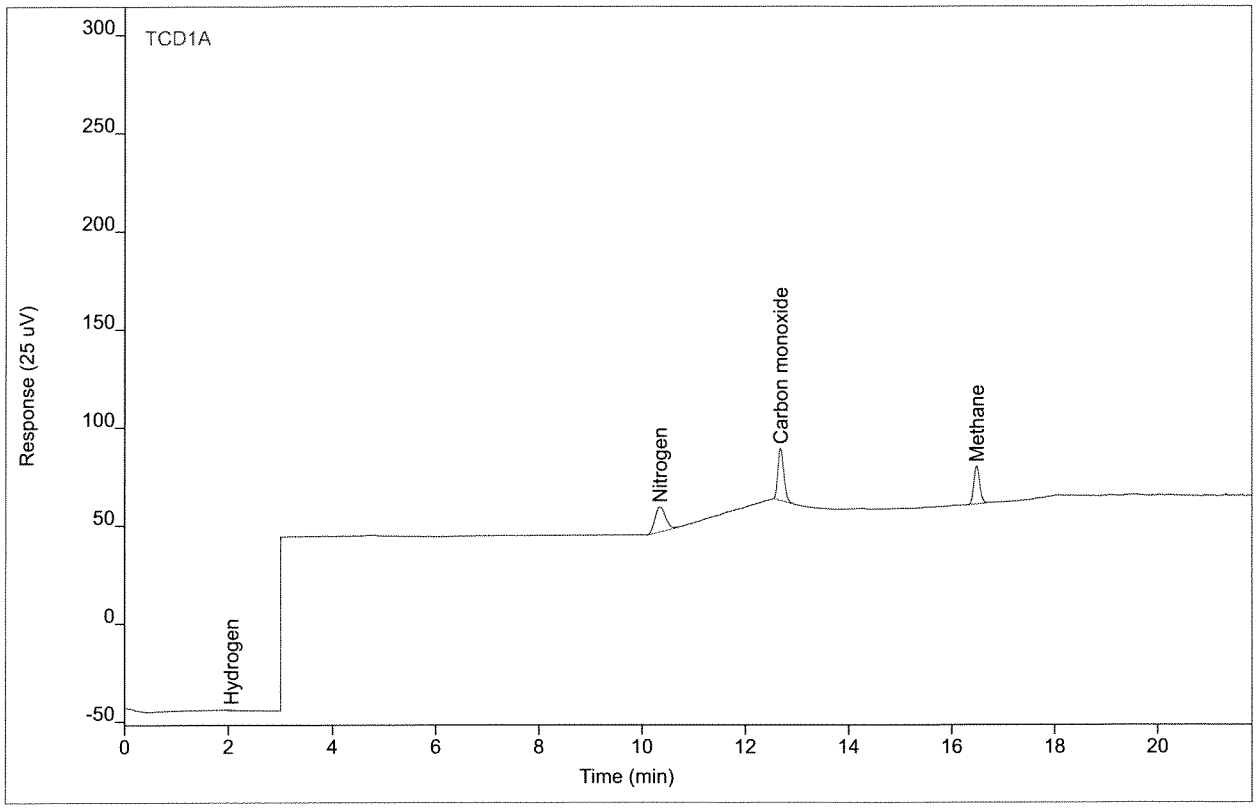
Analyst Peak Integration Comments

08:55:18 03/24/16 Nicholas Traversa II-Baseline
09:03:17 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.3	Vial Number	Vial 9
Data File	009F0802.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	2 of 2
Injection Date	3/23/2016 2:04 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	4/5/2016 7:38 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:36 AM
Operator	Justin Guenzler	Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	5.36152	0.91806	0.30347	1	0.30347	%
Nitrogen	BB	10.35	185.816	12.9857	0.37456	1	0.37456	%
Carbon monoxide	MM	12.70	212.362	26.5751	0.37741	1	0.37741	%
Methane	MM	16.49	150.895	19.2575	0.30038	1	0.30038	%

Analyst Peak Integration Comments

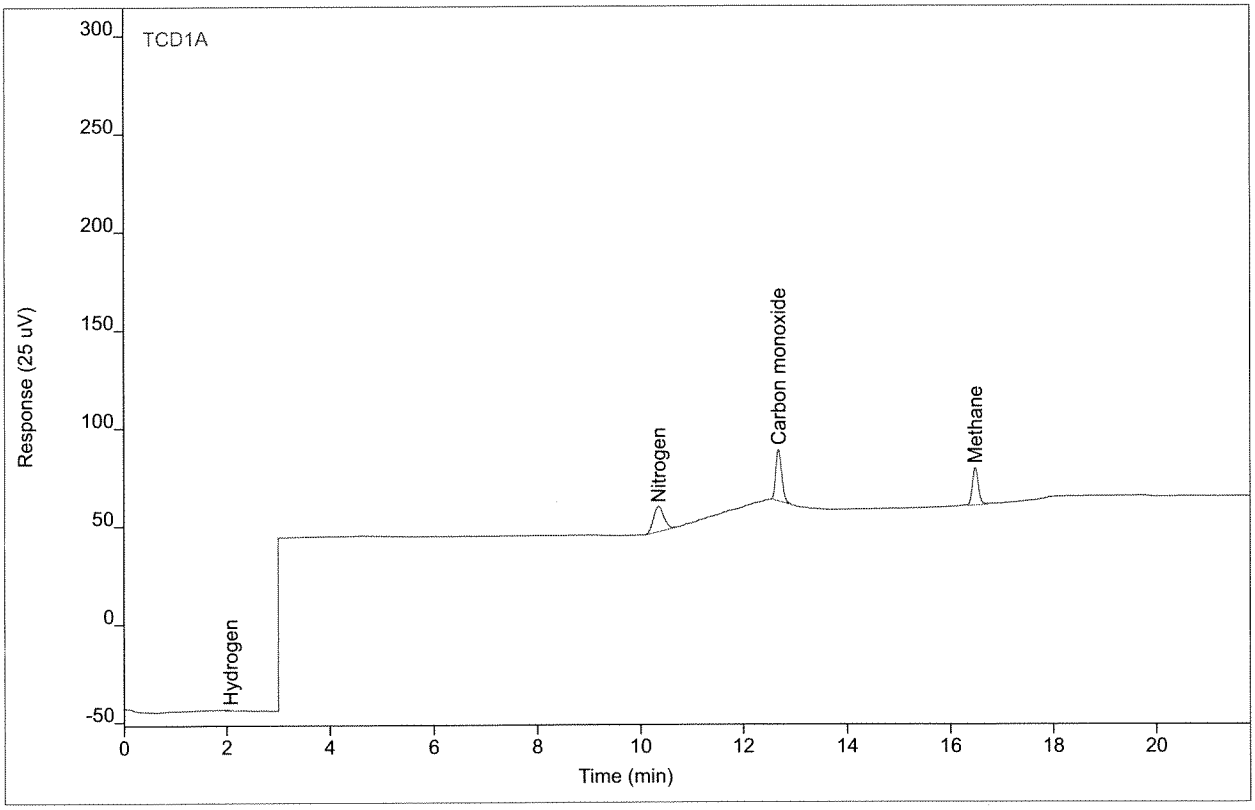
08:55:45 03/24/16 Nicholas Traversa II-Baseline
09:02:45 03/24/16 Nicholas Traversa II-Baseline
09:03:30 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP348 ver.3
Data File	009F0901.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 2:34 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 1
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	5.29924	0.81828	0.29994	1	0.29994	%
Nitrogen	BB	10.36	183.272	12.8308	0.36944	1	0.36944	%
Carbon monoxide	MM	12.70	207.954	26.3487	0.36957	1	0.36957	%
Methane	MM	16.49	153.785	19.1904	0.30613	1	0.30613	%

Analyst Peak Integration Comments

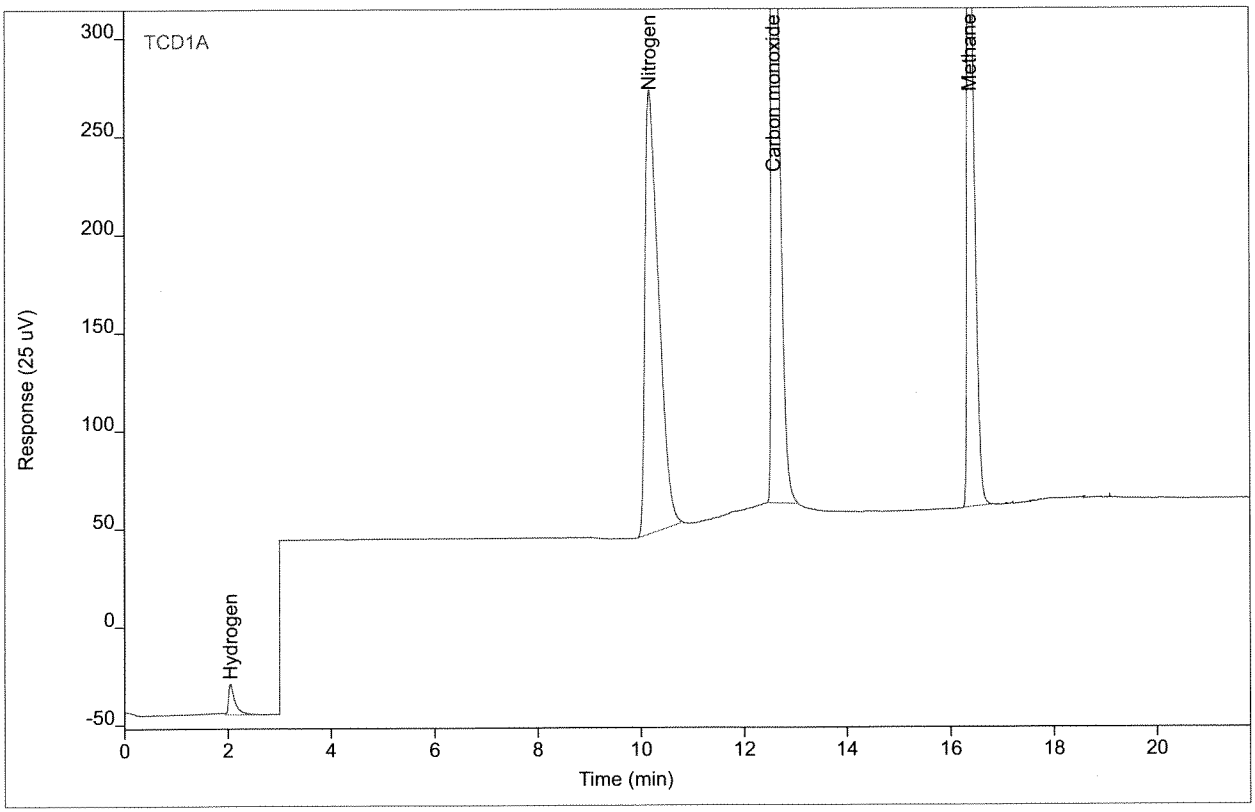
08:56:13 03/24/16 Nicholas Traversa II-Baseline
09:03:42 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP348 ver.3
Data File	009F1001.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 3:04 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.05	137.324	15.8087	7.65211	1	7.65211	%
Nitrogen	BB	10.18	4148.31	225.866	9.64130	1	9.64130	%
Carbon monoxide	MM	12.59	4977.34	498.519	9.44841	1	9.44841	%
Methane	MM	16.39	3354.70	371.621	7.48842	1	7.48842	%

Analyst Peak Integration Comments

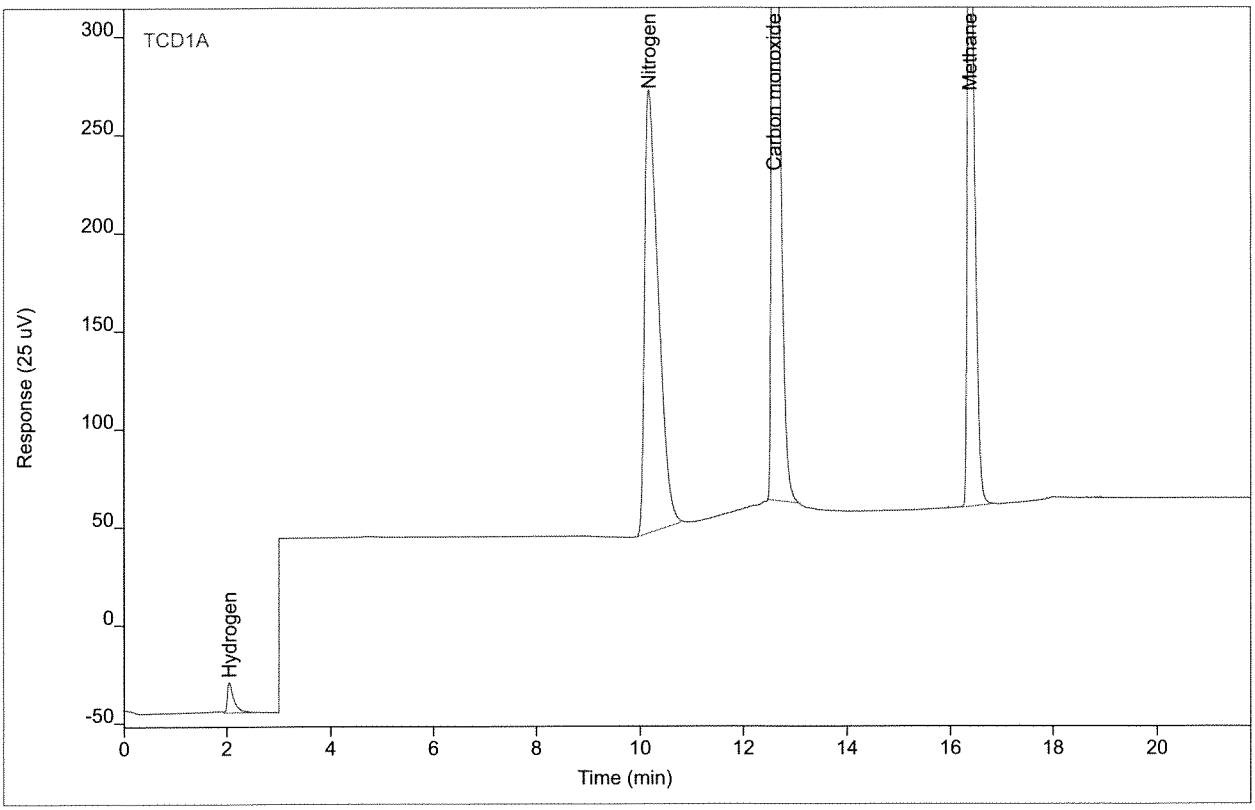
08:45:25 03/24/16 Nicholas Traversa II-Baseline
09:03:55 03/24/16 Nicholas Traversa II-Baseline
09:12:14 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP348 ver.3
Data File	009F1002.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 3:35 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.05	134.279	15.7425	7.48258	1	7.48258	%
Nitrogen	BB	10.18	4153.57	225.778	9.65360	1	9.65360	%
Carbon monoxide	MM	12.59	4951.82	497.879	9.39983	1	9.39983	%
Methane	MM	16.39	3360.50	368.710	7.50143	1	7.50143	%

Analyst Peak Integration Comments

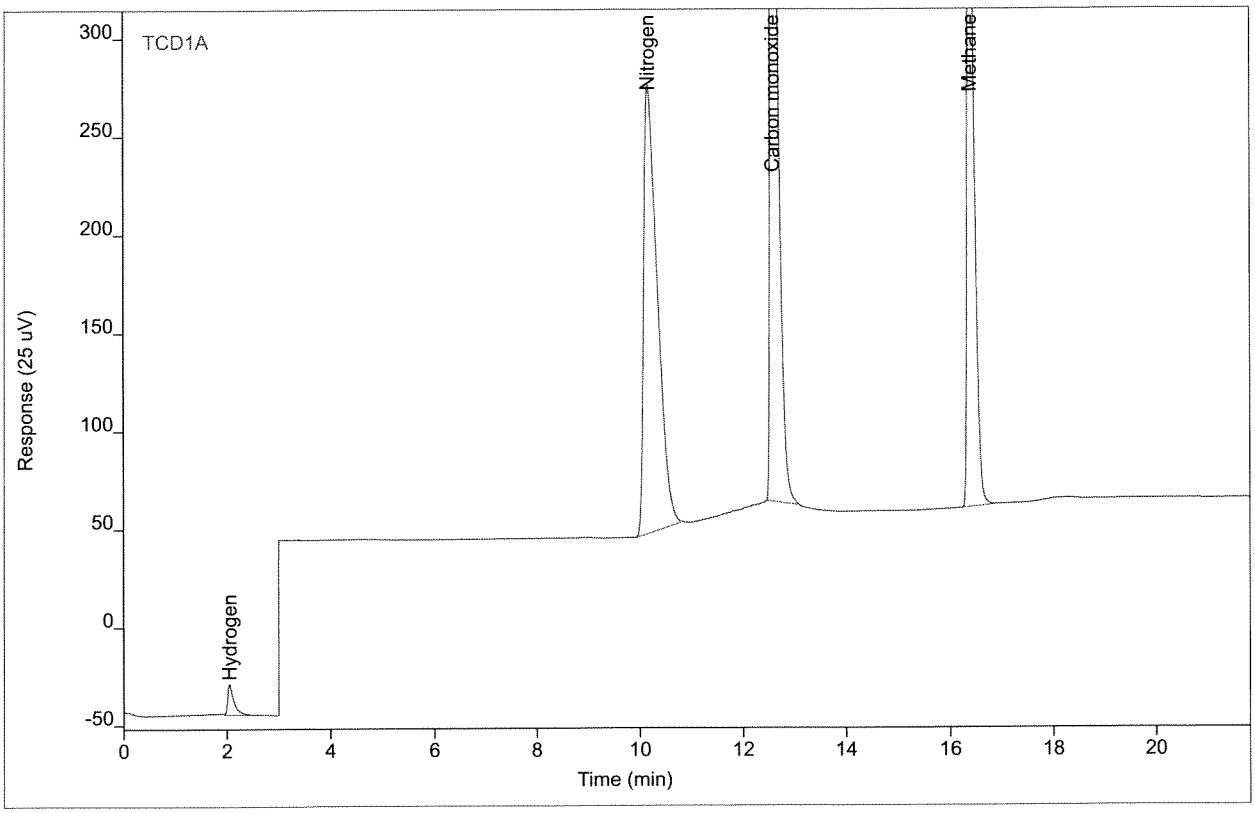
08:45:39 03/24/16 Nicholas Traversa II-Baseline
09:04:06 03/24/16 Nicholas Traversa II-Baseline
09:12:36 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP348 ver.3
Data File	009F1003.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 4:05 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.05	132.742	15.7215	7.39697	1	7.39697	%
Nitrogen	BB	10.18	4187.73	228.103	9.73348	1	9.73348	%
Carbon monoxide	MM	12.59	5018.52	501.603	9.52680	1	9.52680	%
Methane	MM	16.39	3386.77	373.896	7.56039	1	7.56039	%

Analyst Peak Integration Comments

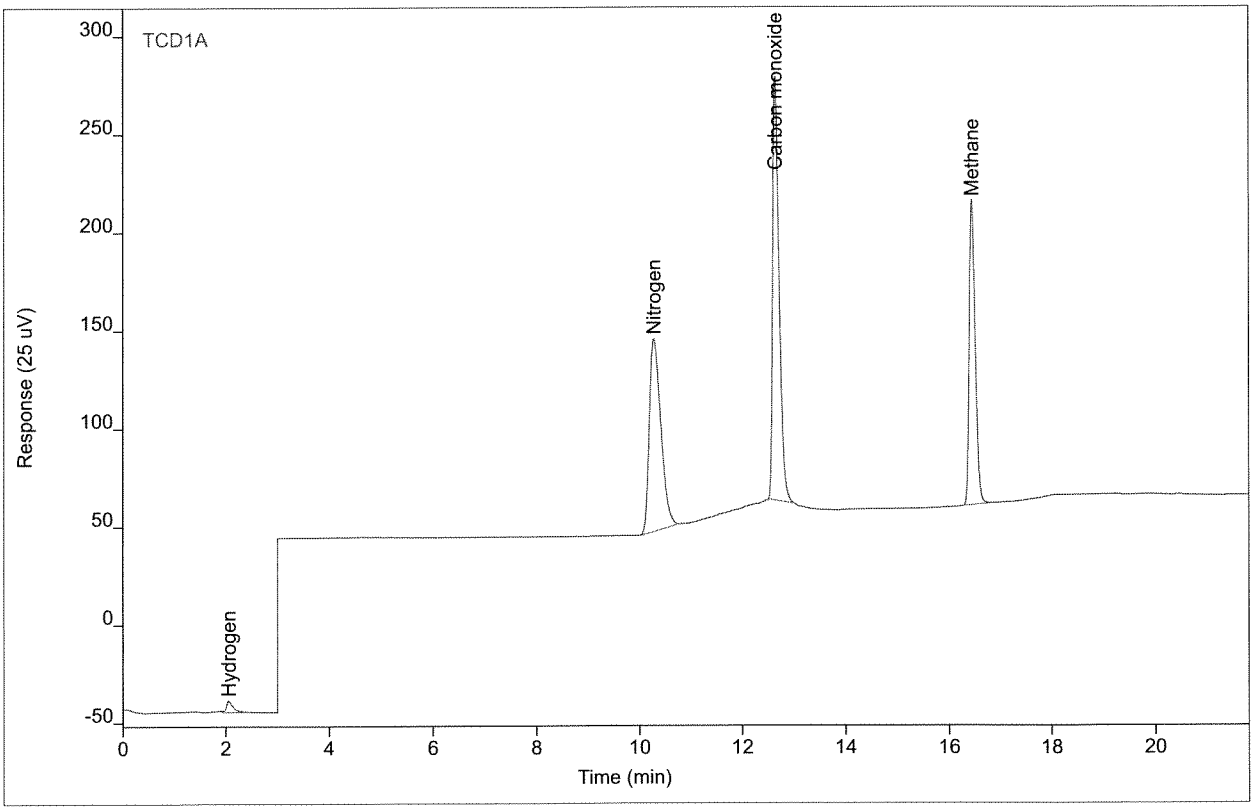
08:45:48 03/24/16 Nicholas Traversa II-Baseline
09:04:39 03/24/16 Nicholas Traversa II-Baseline
09:12:45 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP348 ver.3
Data File	009F1101.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 4:35 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	52.6585	5.96946	2.93739	1	2.93739	%
Nitrogen	BB	10.29	1547.13	98.3703	3.55757	1	3.55757	%
Carbon monoxide	MM	12.66	1870.95	216.410	3.53472	1	3.53472	%
Methane	MM	16.45	1276.56	155.048	2.82513	1	2.82513	%

Analyst Peak Integration Comments

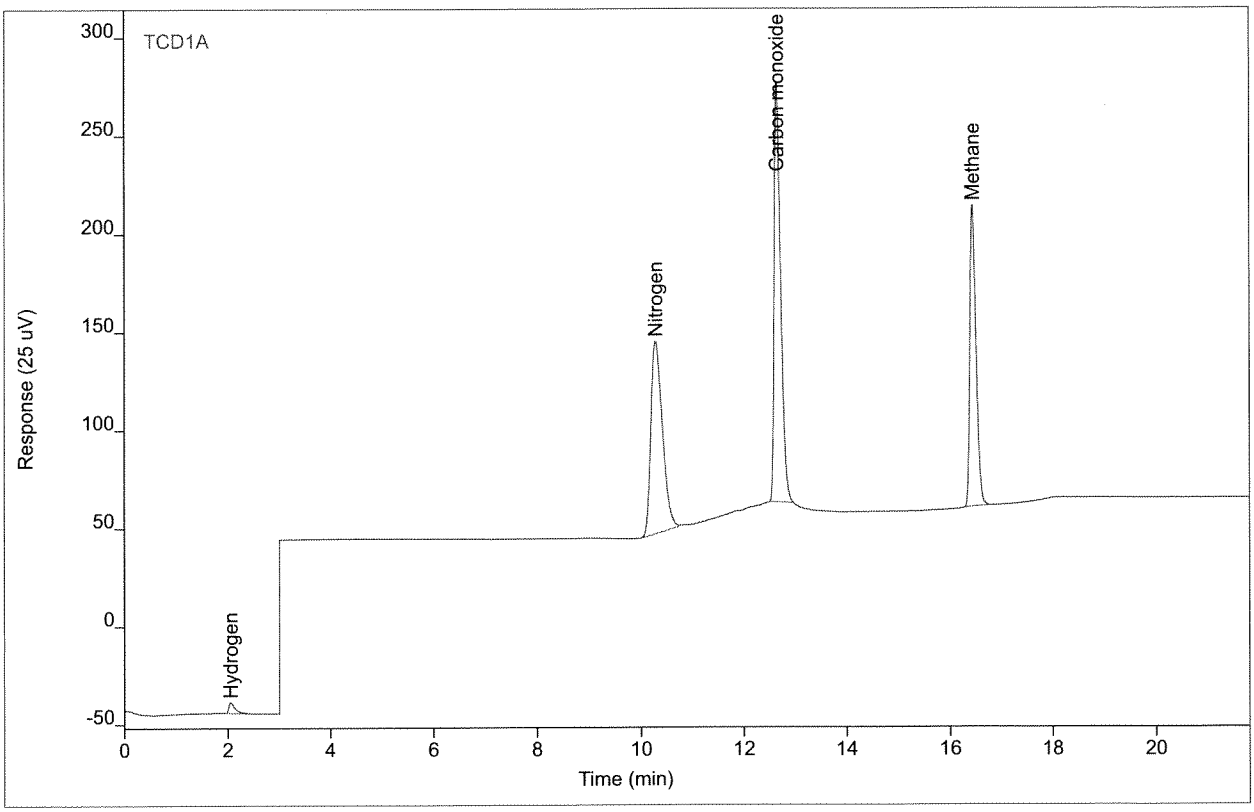
08:45:59 03/24/16 Nicholas Traversa II-Baseline
09:04:47 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP348 ver.3
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 5:05 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	48.9512	5.67245	2.73094	1	2.73094	%
Nitrogen	BB	10.29	1549.76	98.3593	3.56372	1	3.56372	%
Carbon monoxide	MM	12.66	1848.34	213.936	3.49166	1	3.49166	%
Methane	MM	16.45	1256.81	153.654	2.78080	1	2.78080	%

Analyst Peak Integration Comments

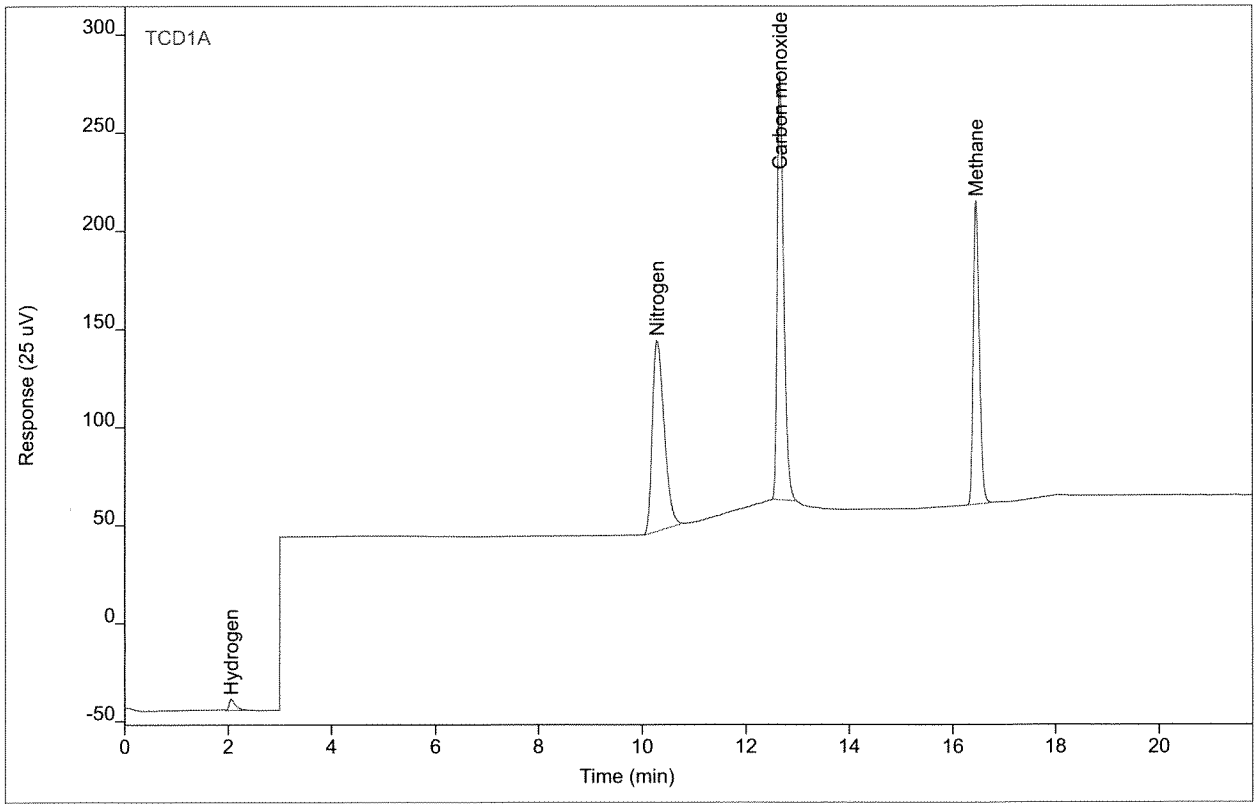
08:46:16 03/24/16 Nicholas Traversa II-Baseline
08:46:28 03/24/16 Nicholas Traversa II-Baseline
09:05:03 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP348 ver.3
Data File	009F1103.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 5:35 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	52.3935	5.77112	2.92263	1	2.92263	%
Nitrogen	BB	10.29	1540.08	97.4970	3.54109	1	3.54109	%
Carbon monoxide	MM	12.66	1847.04	216.057	3.48919	1	3.48919	%
Methane	MM	16.45	1267.68	154.655	2.80520	1	2.80520	%

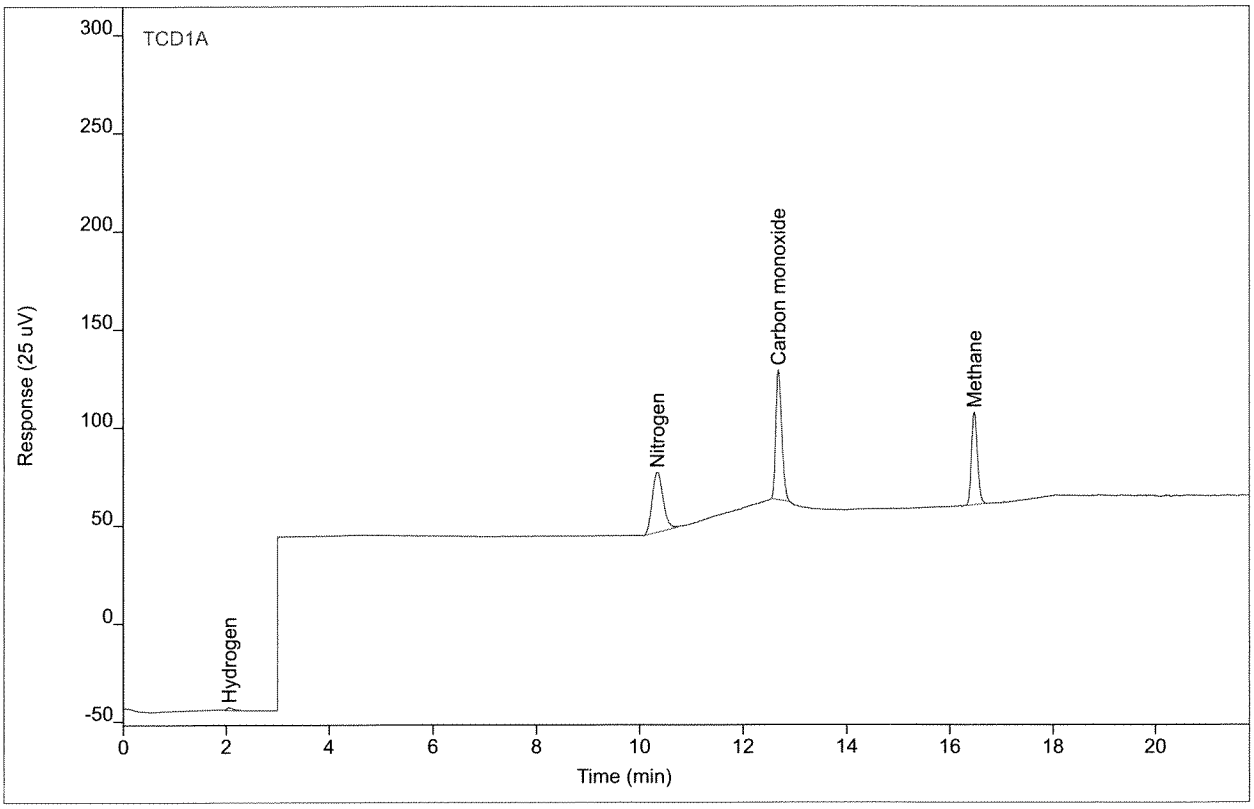
Analyst Peak Integration Comments

08:46:39 03/24/16 Nicholas Traversa II-Baseline
09:05:13 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.3	Vial Number	Vial 9
Data File	009F1201.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 3
Injection Date	3/23/2016 6:05 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	4/5/2016 7:39 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:36 AM
Operator	Nicholas Traversa	Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	14.7037	1.68924	0.82381	1	0.82381	%
Nitrogen	BB	10.35	452.429	30.8067	0.99726	1	0.99726	%
Carbon monoxide	MM	12.69	527.447	66.4169	0.97706	1	0.97706	%
Methane	MM	16.48	380.129	47.3088	0.81355	1	0.81355	%

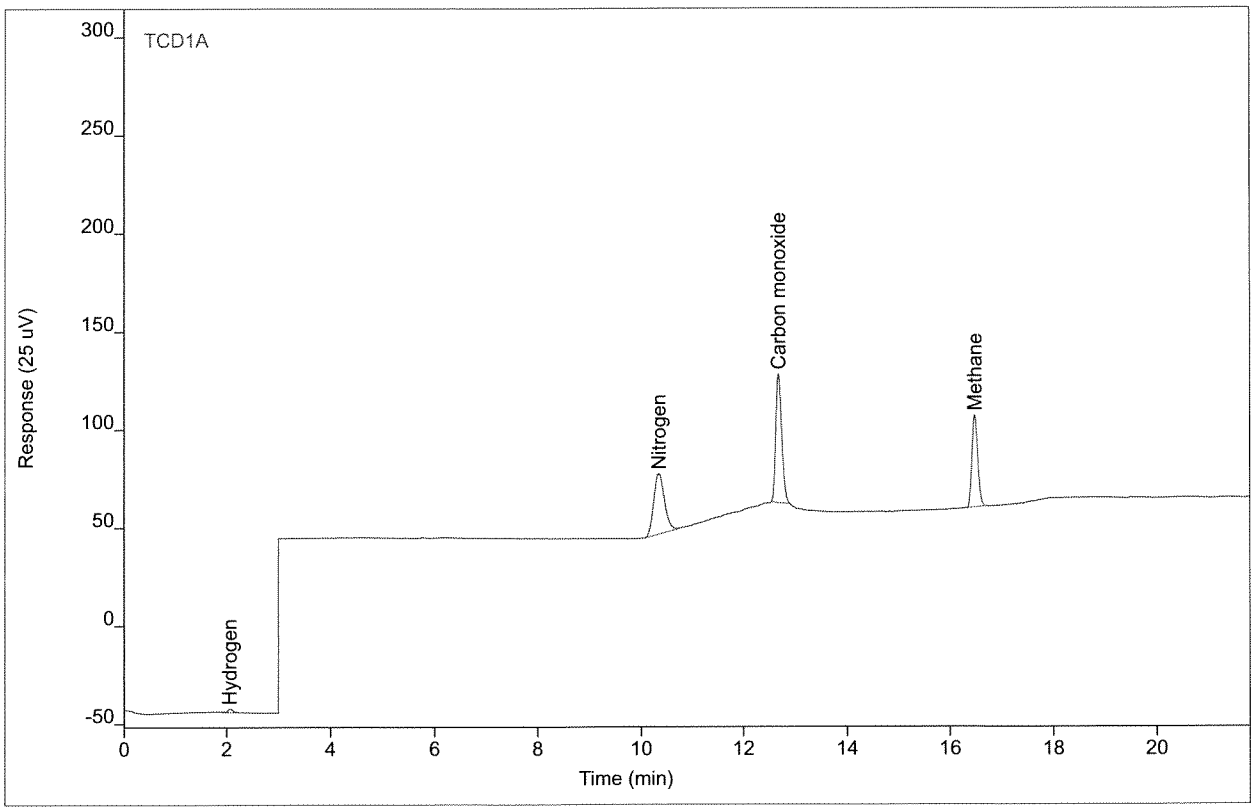
Analyst Peak Integration Comments

08:46:48 03/24/16 Nicholas Traversa II-Baseline
08:56:44 03/24/16 Nicholas Traversa II-Baseline
09:05:21 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.3	Vial Number	Vial 9
Data File	009F1202.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	2 of 3
Injection Date	3/23/2016 6:35 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	4/5/2016 7:39 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:36 AM
Operator	Nicholas Traversa	Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	14.6516	1.80771	0.82091	1	0.82091	%
Nitrogen	BB	10.35	454.621	30.9233	1.00238	1	1.00238	%
Carbon monoxide	MM	12.69	525.484	65.7675	0.97332	1	0.97332	%
Methane	MM	16.48	368.696	46.9784	0.78789	1	0.78789	%

Analyst Peak Integration Comments

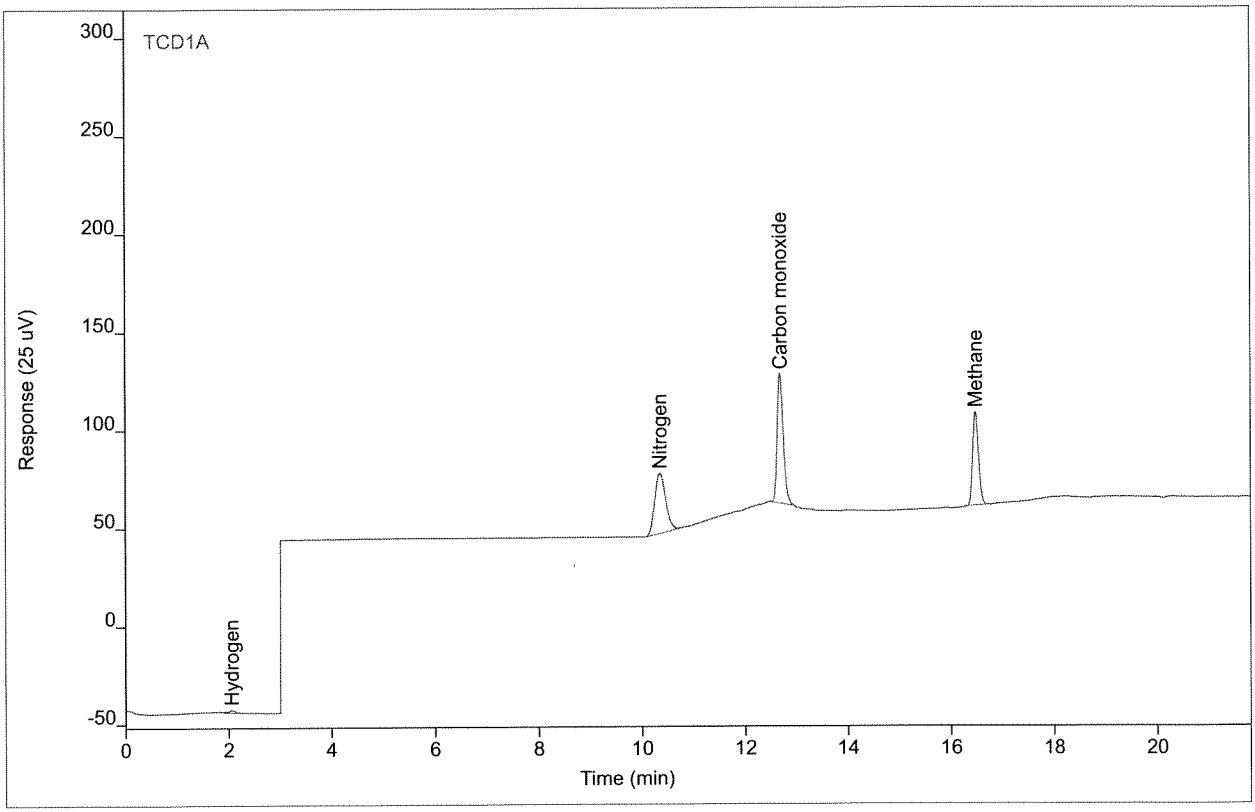
08:46:58 03/24/16 Nicholas Traversa II-Baseline
08:49:19 03/24/16 Nicholas Traversa II-FP
08:56:59 03/24/16 Nicholas Traversa II-Baseline
09:05:28 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)
Sequence Name	BETTYP348 ver.3
Data File	009F1203.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 7:05 PM
File Modified	4/5/2016 7:39 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:36 AM
Printed	4/5/2016 7:49 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	14.5852	1.85799	0.81721	1	0.81721	%
Nitrogen	BB	10.35	454.883	30.8415	1.00299	1	1.00299	%
Carbon monoxide	MM	12.69	543.881	66.0508	1.00834	1	1.00834	%
Methane	MM	16.48	374.812	47.6111	0.80162	1	0.80162	%

Analyst Peak Integration Comments

08:47:08 03/24/16 Nicholas Traversa II-Baseline
08:51:29 03/24/16 Nicholas Traversa II-Baseline
08:57:16 03/24/16 Nicholas Traversa II-Baseline
09:05:37 03/24/16 Nicholas Traversa II-Baseline

PRAXAIR

Making our planet more productive

Issue Date: 12-08-2014

To:

Attn:

Praxair Order Number:
Customer Order Number:
Customer Reference Number:

Product Lot Number: 1124002724A1
Product Part Number: ME 5.0RS-G

CERTIFICATE OF ANALYSIS

(Methane 99.999%, Research)

Cylinder Serial Number	*Analytes*	*Specification*	
RA071907	Methane	99.999	%
RA072283	Ethane	ND < 0.1	ppm
*RA072293	Nitrogen	ND < 0.1	ppm
RA072328	Oxygen	0.1	ppm
	Moisture	0.3	ppm
	Other Hydrocarbons	ND < 0.1	ppm

Cylinder Style: G
Cylinder Pressure @70°F (21°C): 2000 PSI
Cylinder Volume: 40 Cubic Feet

Valve Outlet Connection: 350 CGA
Filling Method: Pressure

Approved Signer: _____
Patrick Philpot

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: XC010510B
Cylinder Size/CGA: 150/590
Fill Pressure: 2015 PSIA
Gas Volume:3700 liters
Date of Mfg: 02/04/14
Expiration Date: 02/04/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	011614-004	01151401	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Oxygen	10 %	10.01 % +/- 0.2 %	Gravimetric Master Gas
Carbon Dioxide	10 %	10.01 % +/- 0.2 %	
Helium	balance	balance	

NOTES:

Blend Tolerance: +/- 2 %

Analytical Tolerance: +/- 2 %

Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis

Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.

Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFIED MASTER CLASS
Single-Certified Calibration Standard

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 55814398-001
Item No.: MC500418-P-44
P.O. No.: 06181401

Cylinder Number: NKA197
Cylinder Size: 44
Certification Date: 30Jun2014
Expiration Date: 01Jul2017
Lot Number: PLU0288940

Customer

ENTHALPY ANALYTICAL, INC.
GREG TATE
800-1 CAPITOLA DRIVE
DURHAM, NC 27703
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
CARBON MONOXIDE	10.0	%	2
HYDROGEN	8.2	%	2
METHANE	8.0	%	2
NITROGEN	10.0	%	2
HELIUM		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: _____ DATE: 7-3-14
LAMONT SHIELDS

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
CARBON MONOXIDE	10.	%	10.0	%	.0	2.00
HYDROGEN	8.	%	8.2	%	2.5	2.00
METHANE	8.	%	8.0	%	.0	2.00
NITROGEN	10.	%	10.0	%	.0	2.00
HELIUM		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: 44

Pressure: 2015 PSIG
Expiration Date: 01Jul2017

Valve Connection: CGA 350

SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

Use of calibration standards at or below dew point temperature may result in calibration error.

Calibration Table

Calib. Data Modified : 3/24/2016 9:24:48 AM

Rel. Reference Window : 2.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 2.000 %
Abs. Non-ref. Window : 0.200 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: TCD1 A,
Signal 2: FID2 B,

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref Grp	Name
2.047	1	5	3.10000e-1	5.38499	5.75674e-2		Hydrogen
		6	7.90000e-1	14.64684	5.39365e-2		
		7	2.76000	51.33442	5.37651e-2		
		8	8.20000	134.78149	6.08392e-2		
		29	28.54000	524.85293	5.43771e-2		
8.969	1	1	5.44000e-1	215.66828	2.52239e-3		Oxygen
		2	1.33000	532.64663	2.49697e-3		
		3	4.81000	1881.28426	2.55676e-3		
		4	10.01000	3778.10091	2.64948e-3		
		23	99.99900	3.74652e4	2.66912e-3		
9.410	1	5	3.80000e-1	185.00033	2.05405e-3		Nitrogen
		6	9.60000e-1	453.97759	2.11464e-3		
		7	3.37000	1545.65592	2.18030e-3		
		8	10.00000	4163.20394	2.40200e-3		
		22	99.90000	4.08941e4	2.44290e-3		
12.591	1	5	3.80000e-1	211.16778	1.79952e-3		Carbon monoxide
		6	9.60000e-1	532.27047	1.80359e-3		
		7	3.37000	1855.44157	1.81628e-3		
		8	10.00000	4982.55648	2.00700e-3		
16.387	1	5	3.10000e-1	153.20321	2.02346e-3		Methane
		6	7.70000e-1	374.54545	2.05583e-3		
		7	2.70000	1267.01778	2.13099e-3		
		8	8.00000	3367.32218	2.37578e-3		
19.573	1	1	5.44000e-1	423.74036	1.28381e-3		Carbon Dioxide
		2	1.33000	1022.49255	1.30074e-3		
		3	4.81000	3525.11686	1.36449e-3		
		4	10.01000	6909.76790	1.44867e-3		

More compound-specific settings:

Compound: Hydrogen
  Time Window : From 1.929 min To 2.165 min

Compound: Oxygen
  Time Window : From 8.686 min To 9.125 min

Compound: Nitrogen
  Time Window : From 9.070 min To 9.610 min

Compound: Carbon monoxide
  Time Window : From 11.991 min To 12.741 min

Compound: Methane
  Time Window : From 15.969 min To 16.737 min

Compound: Carbon Dioxide
  Time Window : From 18.958 min To 19.804 min

1 Warnings or Errors :

Warning : Overlapping peak time windows at 8.969 min, signal 1

==========

Peak Sum Table

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No Entries in table

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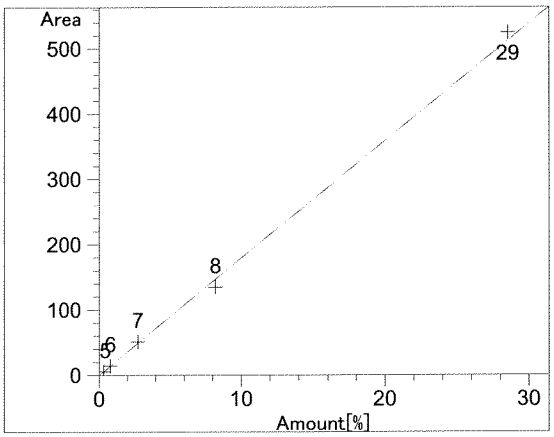
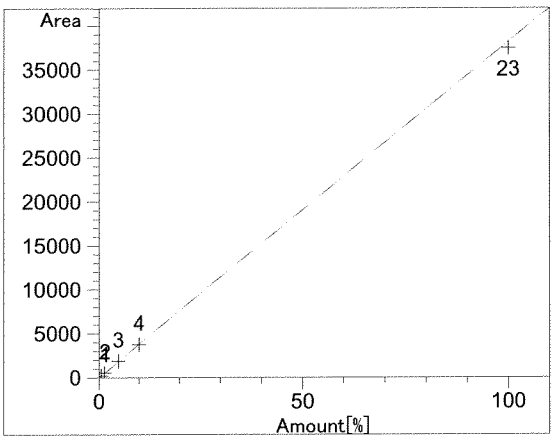
Calibration Curves

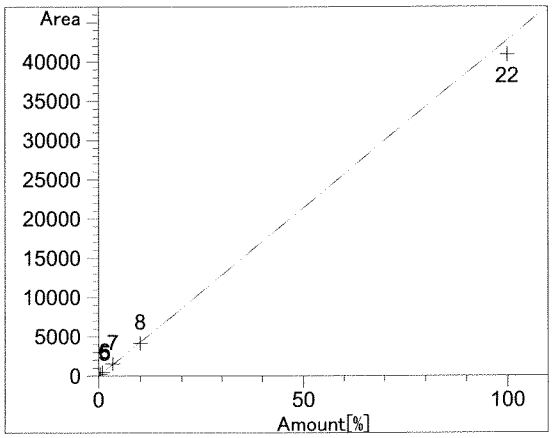
==========



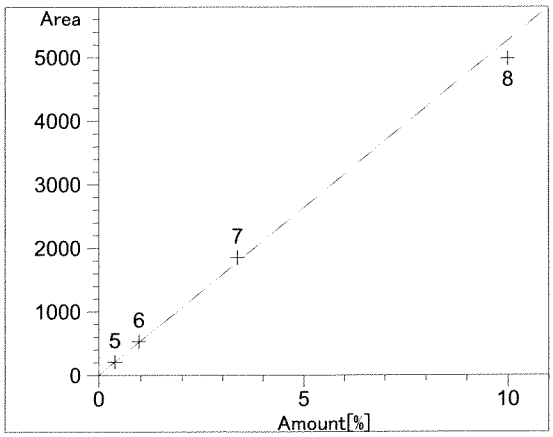
Hydrogen at exp. RT: 2.047
TCD1 A,
Correlation: 0.99816
Residual Std. Dev.: 10.19235
Formula: y = mx + b
m: 17.95758
b: -8.98765e-2
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.153982
Level 7 : 0.012616
Level 8 : 0.001429
Level 29 : 0.000118



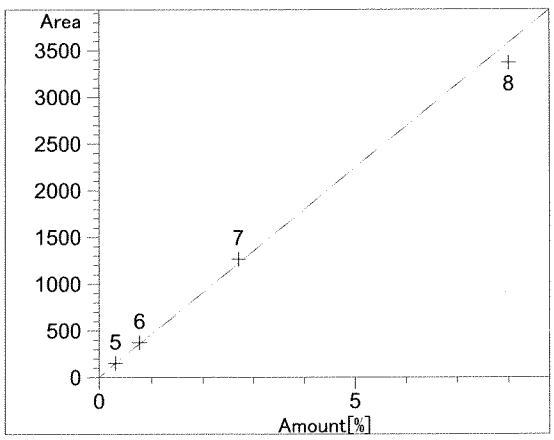
Oxygen at exp. RT: 8.969
TCD1 A,
Correlation: 0.99968
Residual Std. Dev.: 426.21037
Formula: y = mx + b
m: 381.90247
b: 10.53345
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953
Level 23 : 0.00003



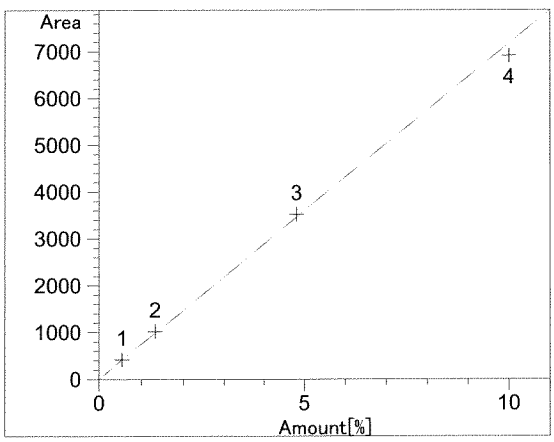
Nitrogen at exp. RT: 9.410
TCD1 A,
Correlation: 0.99861
Residual Std. Dev.: 1069.57781
Formula: y = mx + b
m: 427.56420
b: 26.03866
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 22 : 0.000014



Carbon monoxide at exp. RT: 12.591
TCD1 A,
Correlation: 0.99861
Residual Std. Dev.: 207.59836
Formula: y = mx + b
m: 525.28704
b: 14.21056
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444



Methane at exp. RT: 16.387
TCD1 A,
Correlation: 0.99818
Residual Std. Dev.: 156.06275
Formula: y = mx + b
m: 445.63688
b: 17.58213
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.162085
Level 7 : 0.013182
Level 8 : 0.001502



Carbon Dioxide at exp. RT: 19.573
TCD1 A,
Correlation: 0.99919
Residual Std. Dev.: 193.00669
Formula: y = mx + b
m: 712.61305
b: 41.55839
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167299
Level 3 : 0.012791
Level 4 : 0.002953

ample Name: BettyP187 #FG22 ENV(1=0,4=450)

```
================================================================================
Acq. Operator    : Chester Burnett                  Seq. Line :   1
Acq. Instrument  : Betty                             Location : Vial 9
Injection Date   : 6/24/2015 10:01:37 AM                 Inj :   1
                                                   Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\BETTY\QUARTER 2\BETTYP209\BETTYP017_CAL.M
Last changed     : 6/30/2014 5:46:14 PM by Thorne Gregory
Analysis Method  : C:\GC\2015\BETTY\METHODS\BETTYP209_FGA_CRYO.M
Last changed     : 3/24/2016 9:25:02 AM by Nicholas Traversa
ECM Server       : http://ecm-server/enthalpy
ECM Operator     : Nicholas Traversa
ECM Path         : GC\2015\Betty\Quarter 2\BETTYP209.SC.SSIzip
ECM Version      : 15 (modified after loading)
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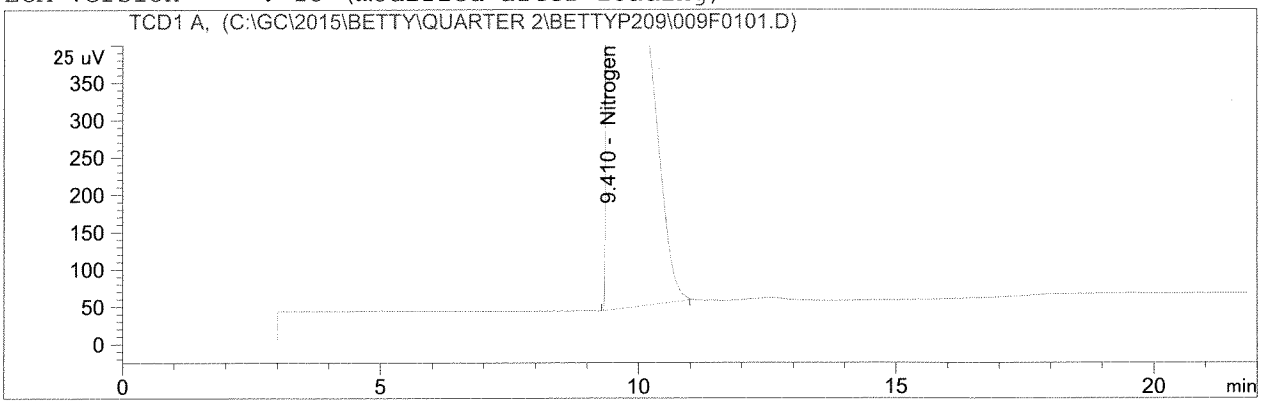


```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      3/24/2016 9:24:48 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

RetTime  Type     Area      Amt/Area    Amount   Grp   Name
 [min]         [25 uV*s]                 [%]
-------|------|----------|----------|----------|--|------------------
  2.047           -          -          -          Hydrogen
  8.969           -          -          -          Oxygen
  9.410 BB    4.06542e4  2.33733e-3   95.02229     Nitrogen
 12.591           -          -          -          Carbon monoxide
 16.387           -          -          -          Methane
 19.573           -          -          -          Carbon Dioxide

Totals :                                95.02229


2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

================================================================================
                          *** End of Report ***
```

ample Name: BettyP187 #FG22 ENV(1=0,4=450)

```
================================================================================
Acq. Operator    : Chester Burnett                  Seq. Line :   1
Acq. Instrument  : Betty                             Location : Vial 9
Injection Date   : 6/24/2015 10:31:36 AM                 Inj :   2
                                                   Inj Volume : 250 µl
Acq. Method      : C:\GC\2015\BETTY\QUARTER 2\BETTYP209\BETTYP017_CAL.M
Last changed     : 6/30/2014 5:46:14 PM by Thorne Gregory
Analysis Method  : C:\GC\2015\BETTY\METHODS\BETTYP209_FGA_CRYO.M
Last changed     : 3/24/2016 9:25:02 AM by Nicholas Traversa
ECM Server       : http://ecm-server/enthalpy
ECM Operator     : Nicholas Traversa
ECM Path         : GC\2015\Betty\Quarter 2\BETTYP209.SC.SSIzip
ECM Version      : 15 (modified after loading)
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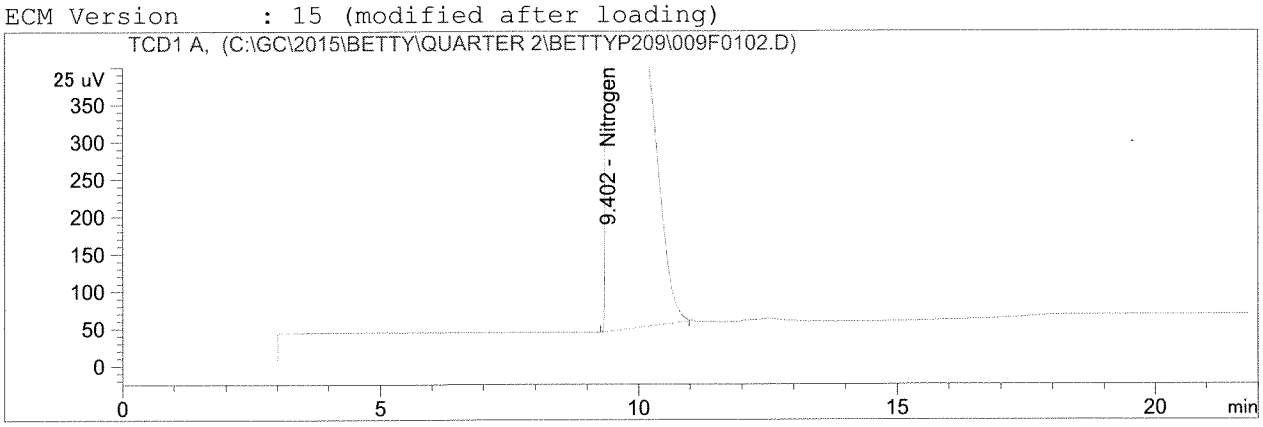


```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      3/24/2016 9:24:48 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,
```

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
2.047		-	-	-		Hydrogen
8.969		-	-	-		Oxygen
9.402	BB	4.10650e4	2.33735e-3	95.98314		Nitrogen
12.591		-	-	-		Carbon monoxide
16.387		-	-	-		Methane
19.573		-	-	-		Carbon Dioxide
Totals :				95.98314		

```
2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

================================================================================
                          *** End of Report ***
```

ample Name: BettyP187 #FG22 ENV(1=0,4=450)

```
================================================================================
Acq. Operator   : Chester Burnett                Seq. Line :   1
Acq. Instrument : Betty                           Location : Vial 9
Injection Date  : 6/24/2015 11:01:25 AM               Inj :   3
                                                 Inj Volume : 250 µl
Acq. Method     : C:\GC\2015\BETTY\QUARTER 2\BETTYP209\BETTYP017_CAL.M
Last changed    : 6/30/2014 5:46:14 PM by Thorne Gregory
Analysis Method : C:\GC\2015\BETTY\METHODS\BETTYP209_FGA_CRYO.M
Last changed    : 3/24/2016 9:25:02 AM by Nicholas Traversa
ECM Server      : http://ecm-server/enthalpy
ECM Operator    : Nicholas Traversa
ECM Path        : GC\2015\Betty\Quarter 2\BETTYP209.SC.SSIzip
ECM Version     : 15 (modified after loading)
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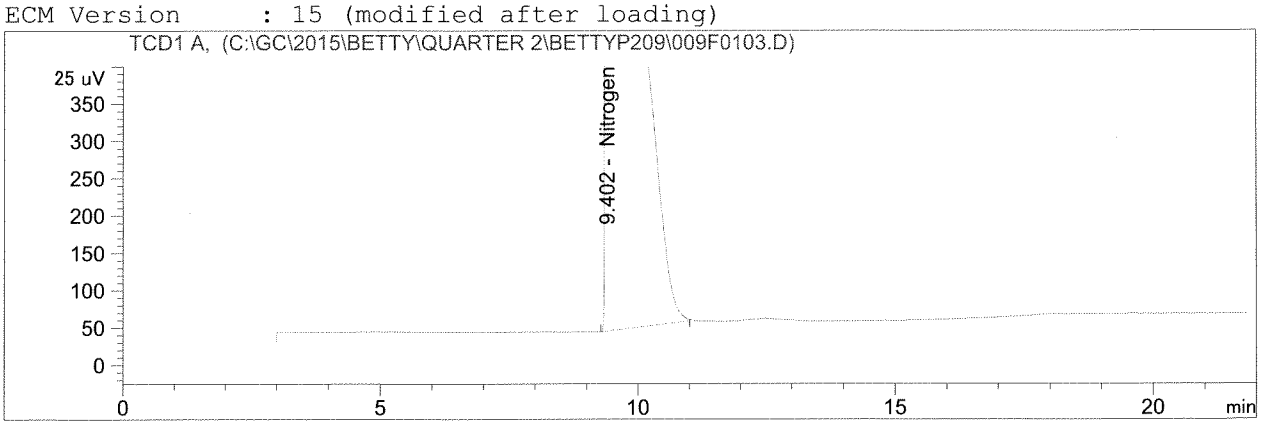



```
================================================================================
                        External Standard Report
================================================================================

Sorted By             :      Signal
Calib. Data Modified  :      3/24/2016 9:24:48 AM
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,
```

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
2.047		-	-	-		Hydrogen
8.969		-	-	-		Oxygen
9.402	BB	4.09631e4	2.33734e-3	95.74482		Nitrogen
12.591		-	-	-		Carbon monoxide
16.387		-	-	-		Methane
19.573		-	-	-		Carbon Dioxide
Totals :				95.74482		

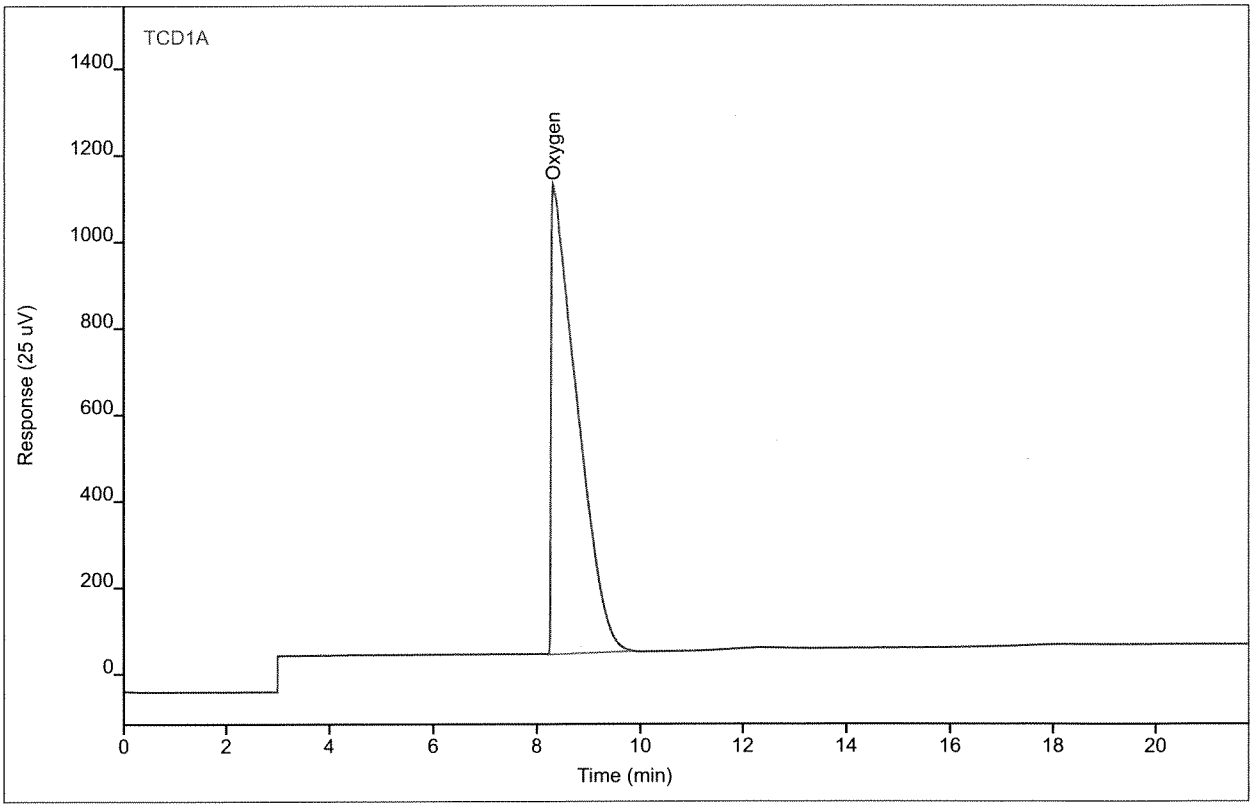
```
2 Warnings or Errors :

Warning : Calibration warnings (see calibration table listing)
Warning : Calibrated compound(s) not found

================================================================================
                          *** End of Report ***
```

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0301.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:28 AM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



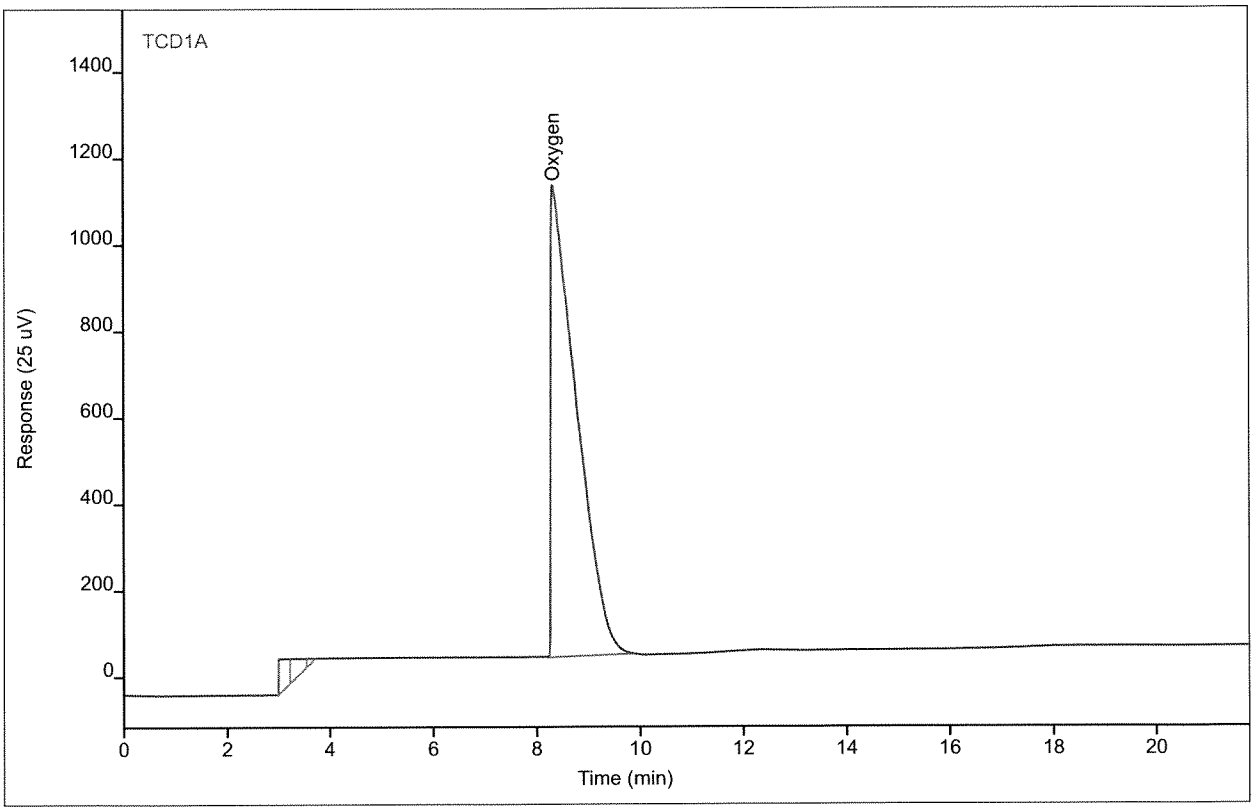
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.07)				1		
Oxygen	BB	8.33	37554.3	1087.29	98.3071	1	98.3071	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0302.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 11:56 AM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



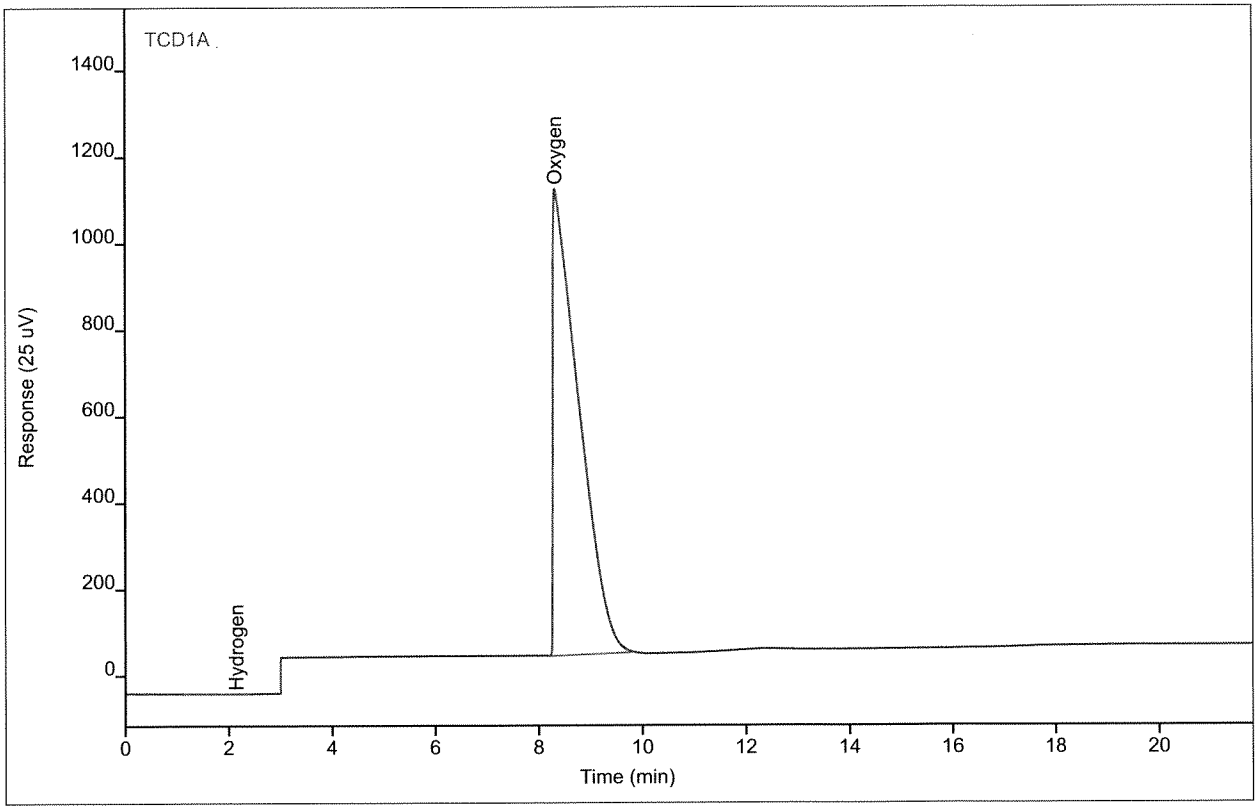
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	3.51	771.074	25.0036		1		
?	VB	3.59	103.631	16.1120		1		
?	BV	3.20	928.600	60.9281		1		
Hydrogen		(2.07)				1		
Oxygen	BB	8.33	37575.0	1091.96	98.3614	1	98.3614	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	O2 99.999% #FG23
Sequence Name	BETTYP209 ver.15
Data File	016F0303.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 12:23 PM
File Modified	7/23/2015 12:11 PM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 16
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



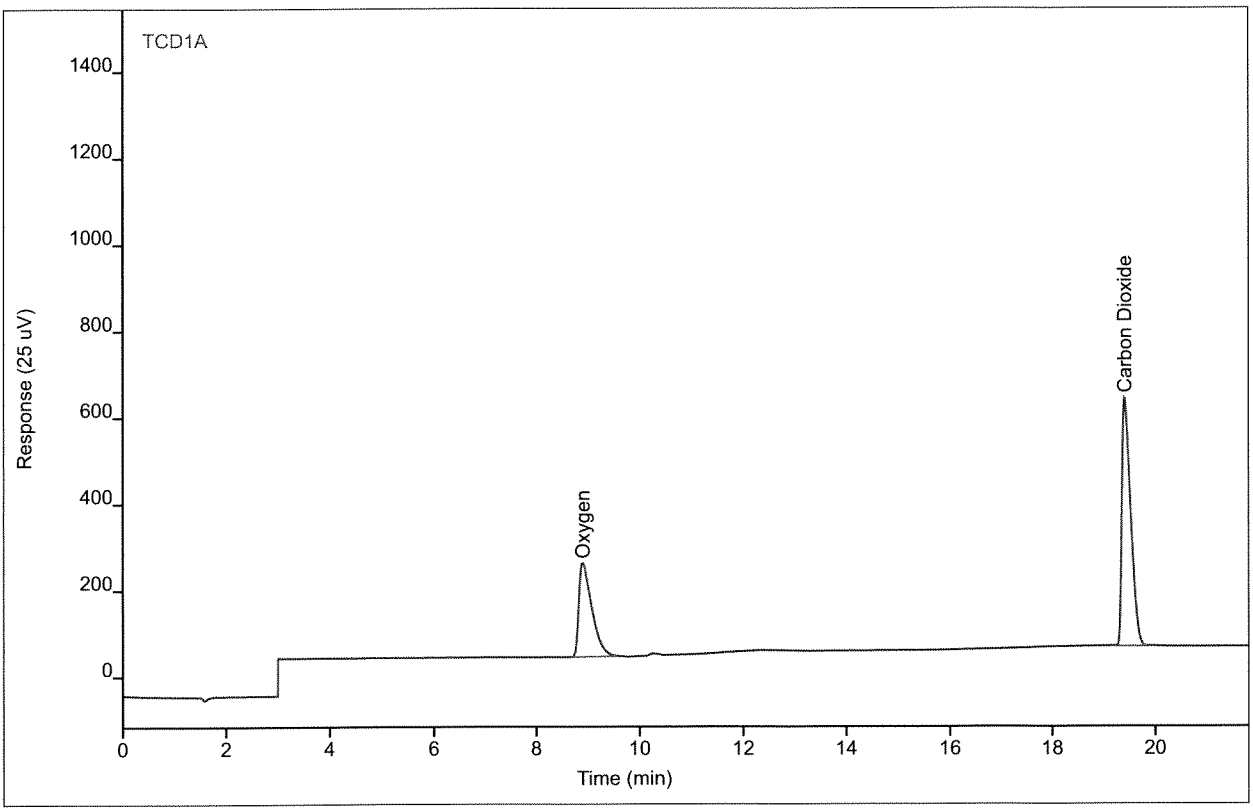
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	1.44	35.8647	1.00630		1		
Hydrogen	VB	2.14	2.56380	0.30871	0.18578	1	0.18578	%
Oxygen	BB	8.33	37266.3	1080.49	97.5530	1	97.5530	%
Nitrogen		(9.41)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide		(19.57)				1		

Chromatogram Report

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0401.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 12:53 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



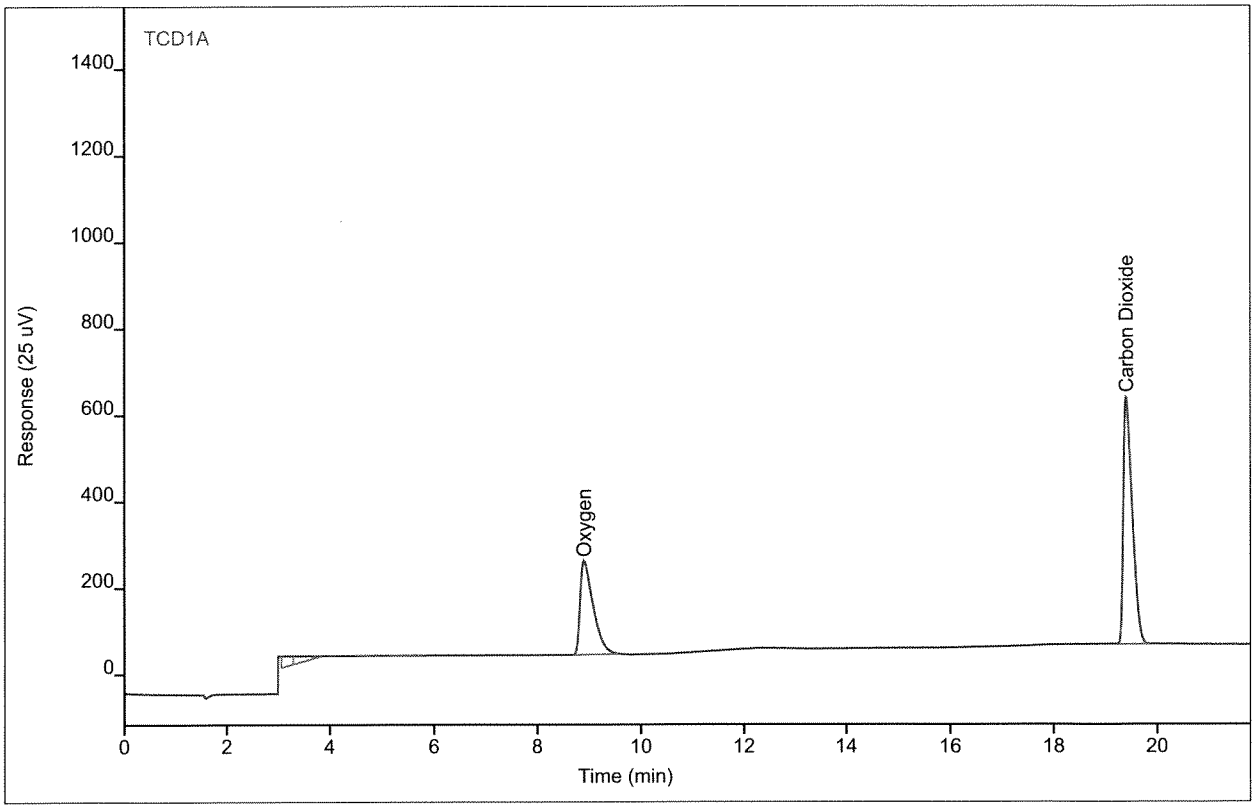
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(2.12)				1		
Oxygen	BB	8.90	3794.10	218.358	9.90714	1	9.90714	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6917.48	576.146	9.65631	1	9.65631	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0402.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 1:23 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



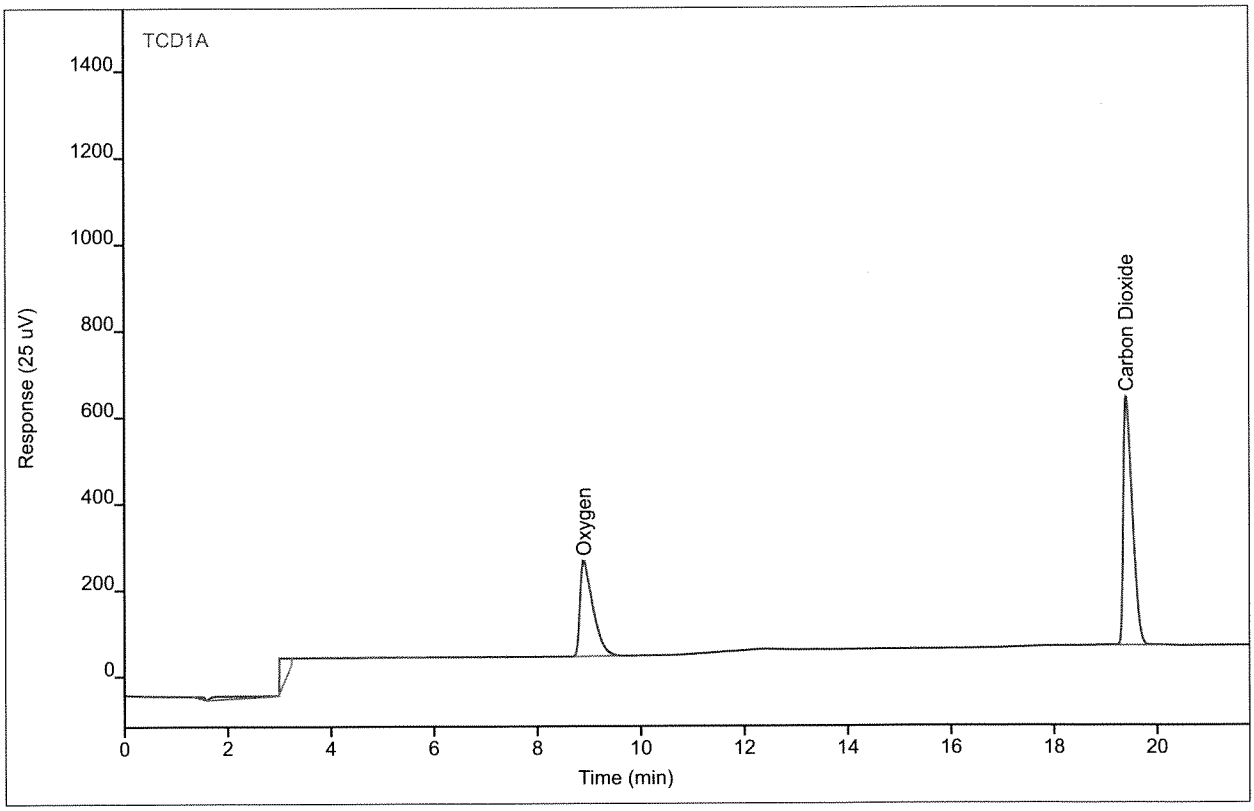
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.74	4.04918	0.40809		1		
?	BV	4.10	1.30274	0.27732		1		
?	BV	3.23	332.033	22.6362		1		
?	VV	5.53	1.69649	0.24561		1		
?	BV	5.24	2.99967	0.39018		1		
?	VB	5.63	1.11602	0.26381		1		
?	VB	3.45	322.496	15.1499		1		
?	BB	3.74	28.3920	4.98907		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.91	3749.89	216.664	9.79139	1	9.79139	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6854.54	573.042	9.56788	1	9.56788	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG4 ENV(1=0,2=358.99)
Sequence Name	BETTYP209 ver.15
Data File	009F0403.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 1:52 PM
File Modified	7/23/2015 11:29 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

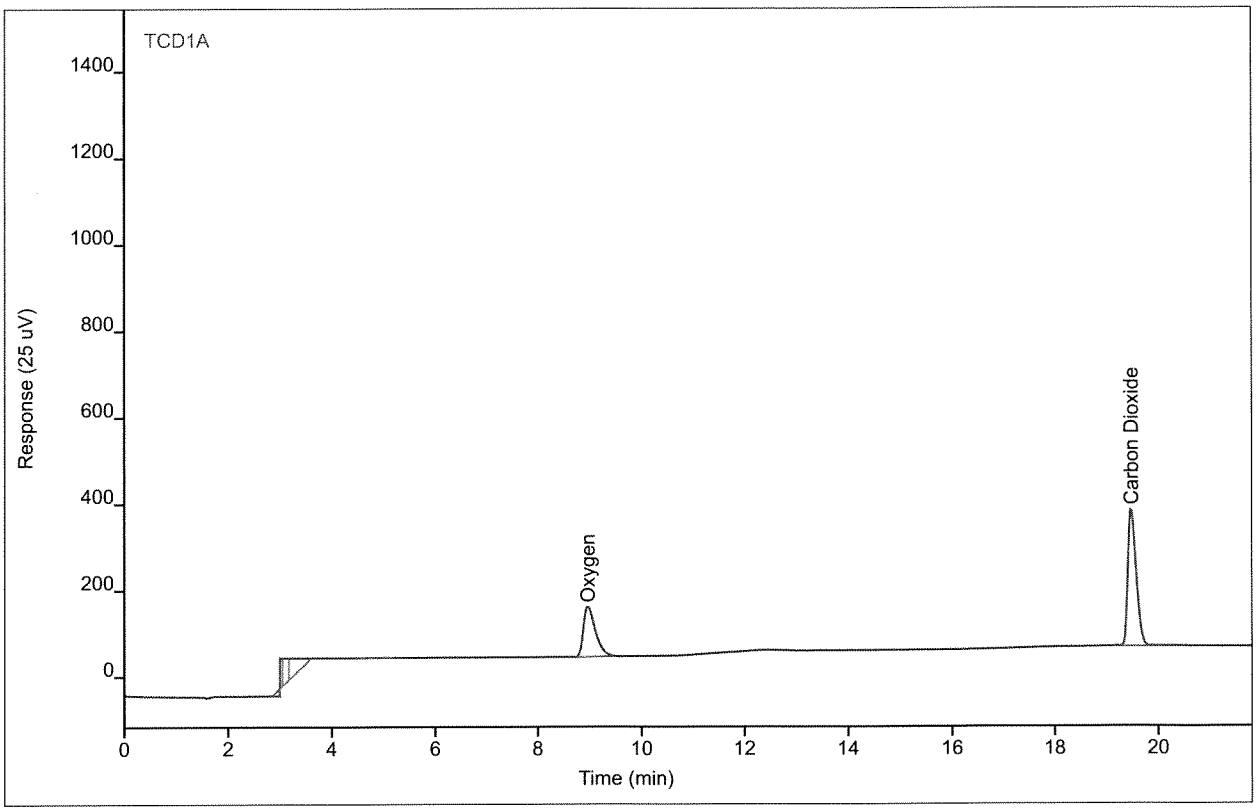


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	5.59	1.76345	0.28809		1		
?	BB	5.30	1.09445	0.26829		1		
?	VB	5.73	1.08640	0.35516		1		
?	BV	1.48	66.5766	6.47789		1		
?	BV	4.77	4.11549	0.40070		1		
?	VV	2.47	403.496	4.35509		1		
?	VB	3.07	725.880	64.1523		1		
?	VB	4.90	2.13294	0.36700		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.91	3790.32	223.265	9.89725	1	9.89725	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.41	6957.29	577.325	9.71225	1	9.71225	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0501.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 3
Injection Date	6/24/2015 2:22 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

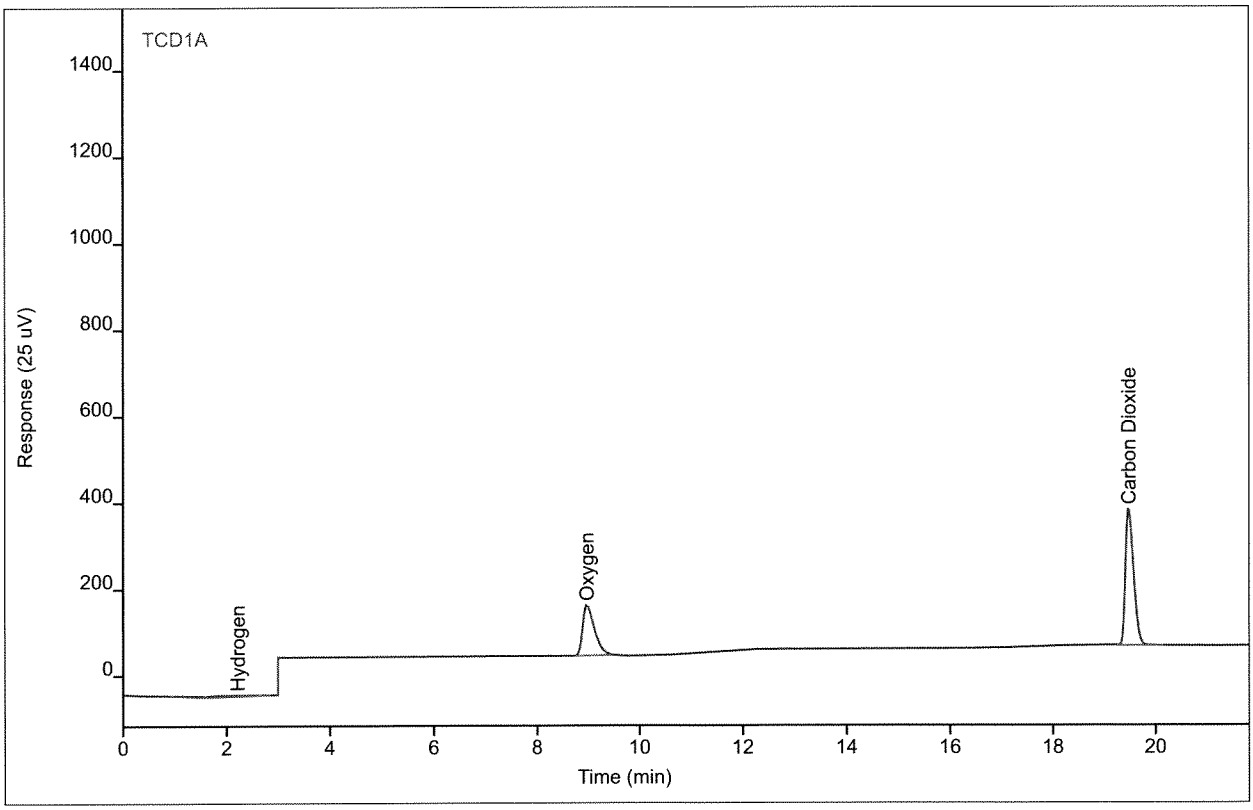


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	3.02	119.761	70.5758		1		
?	VV	4.72	4.83026	0.62773		1		
?	BB	5.05	4.73888	0.46953		1		
?	VB	3.29	671.787	37.7567		1		
?	VV	3.12	439.998	57.6324		1		
?	VB	4.84	1.76323	0.45602		1		
?	BV	4.60	1.15390	0.35488		1		
?	BB	5.31	1.09147	0.22290		1		
Hydrogen		(2.12)				1		
Oxygen	BB	8.97	1886.74	116.525	4.91280	1	4.91280	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3534.71	317.187	4.90362	1	4.90362	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0502.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 3
Injection Date	6/24/2015 2:52 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:29 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

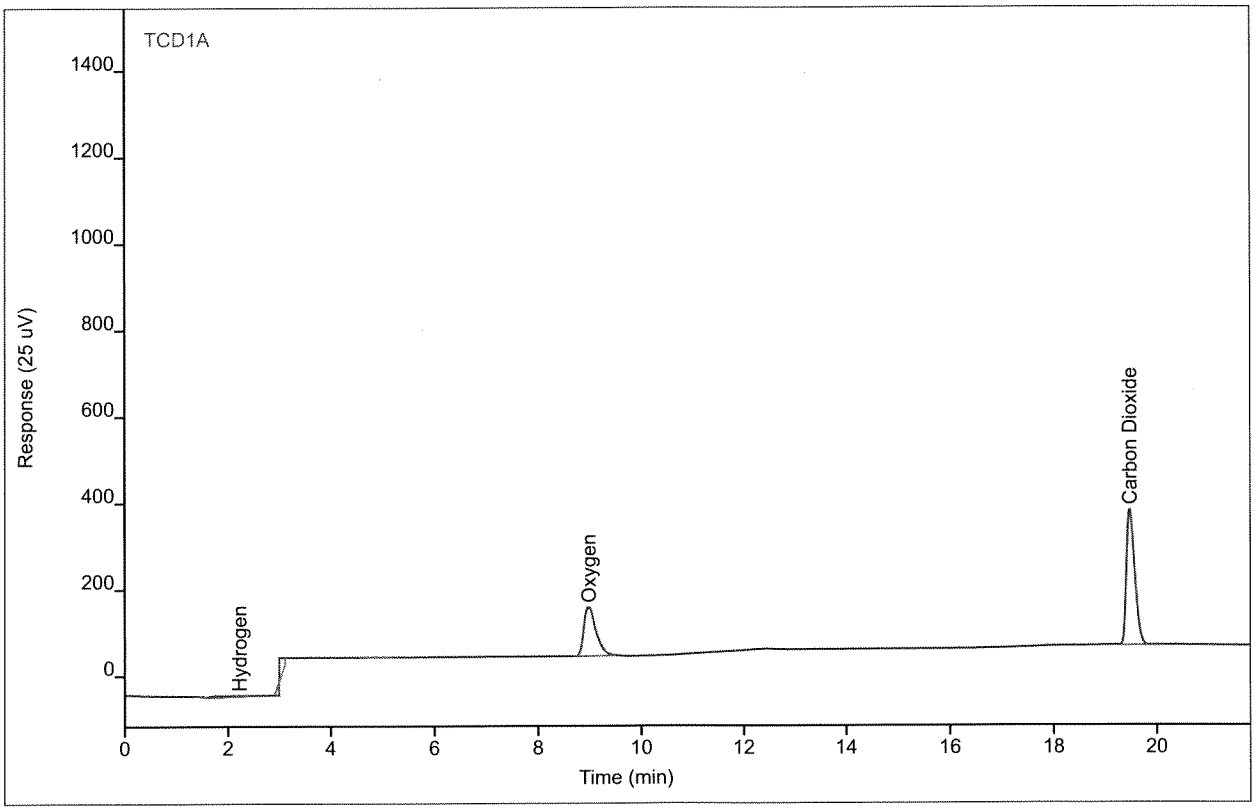


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	1.50	87.2012	4.63347		1		
?	BV	1.11	33.1340	2.56250		1		
Hydrogen	VV	2.22	180.488	2.86920	11.9571	1	11.9571	%
Oxygen	BB	8.97	1879.79	116.870	4.89460	1	4.89460	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3520.38	316.168	4.88348	1	4.88348	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG3 ENV(1=374.56,2=391.18)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0503.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/24/2015 3:22 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



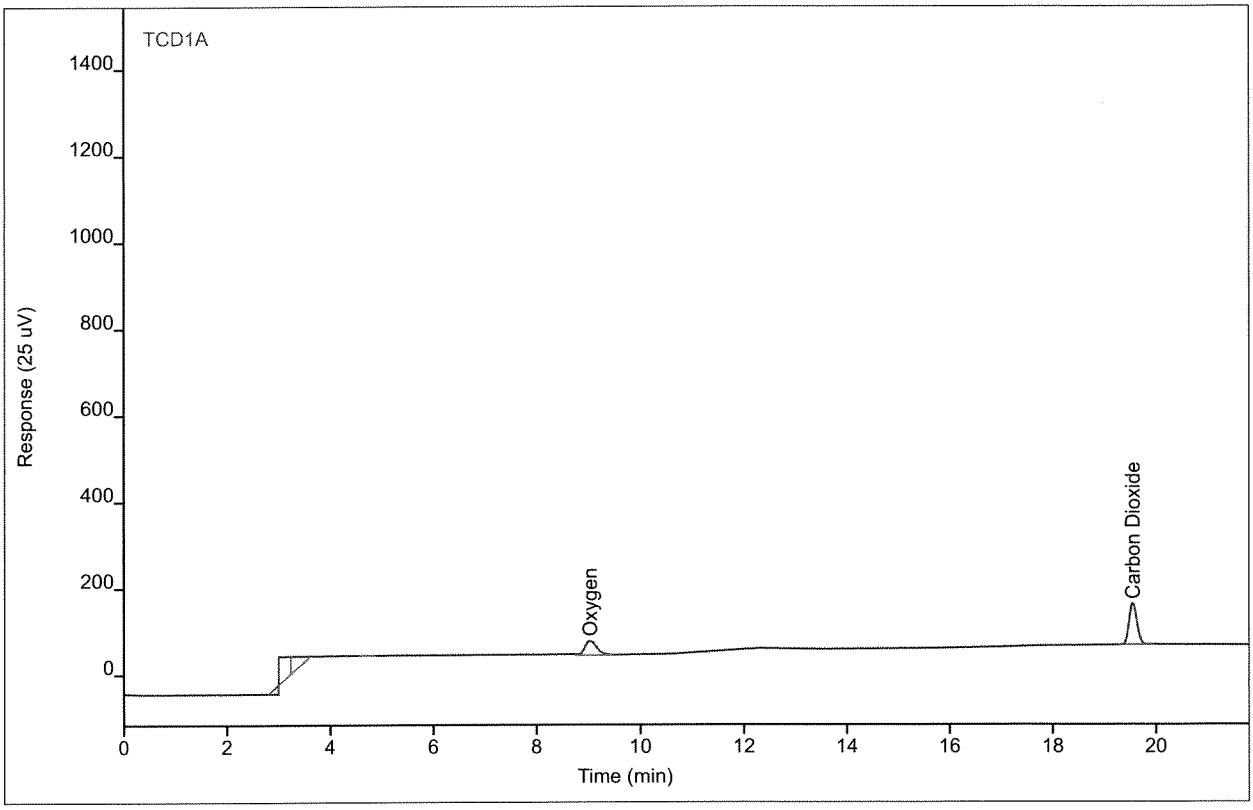
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VV	4.90	3.31082	0.43548		1		
?	BV	1.46	29.2454	2.75103		1		
?	VB	5.02	2.90801	0.32670		1		
?	BB	3.02	154.023	50.7444		1		
?	VV	4.69	4.26213	0.46804		1		
Hydrogen	VV	2.23	135.263	2.45799	8.96517	1	8.96517	%
Oxygen	BB	8.99	1877.32	114.333	4.88811	1	4.88811	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.48	3520.26	315.360	4.88331	1	4.88331	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0601.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 3:52 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM

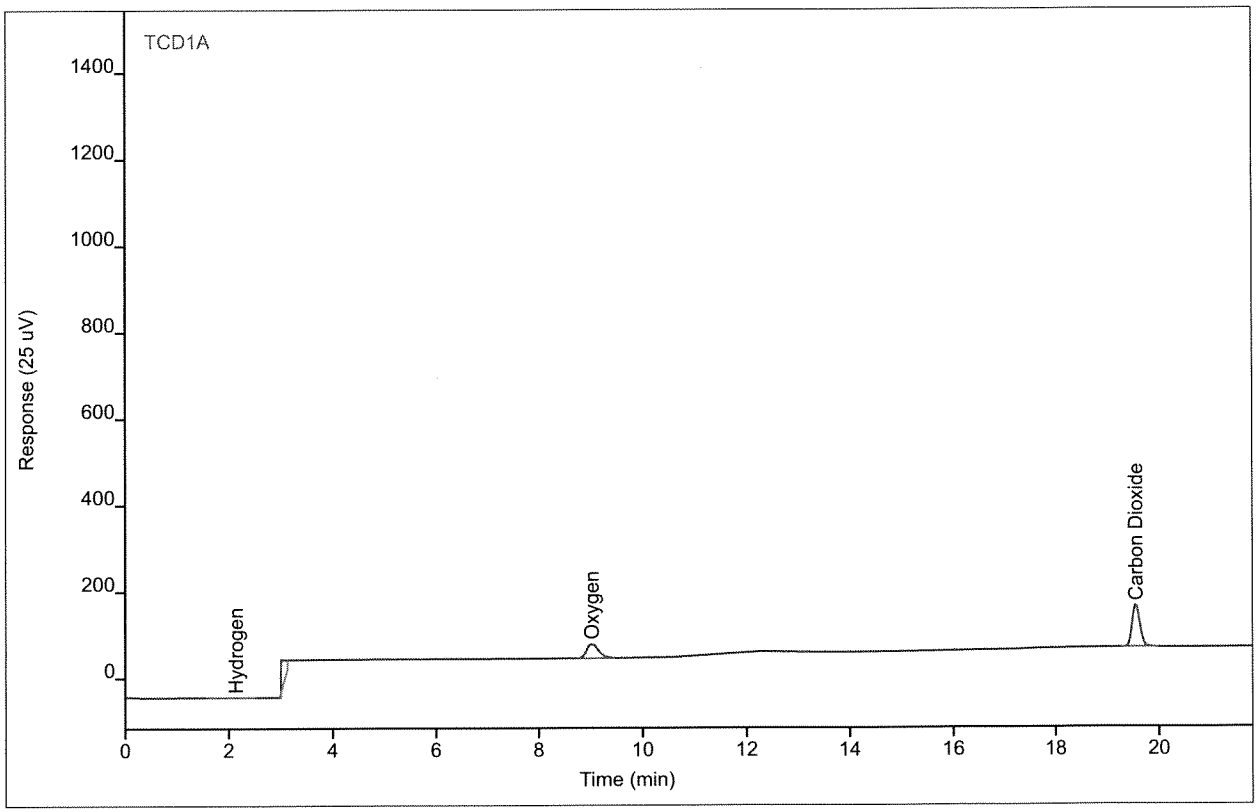


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	3.36	480.188	29.2607		1		
?	BB	4.72	2.62776	0.42083		1		
?	BV	3.02	643.563	65.7392		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.03	529.673	33.9172	1.35935	1	1.35935	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1015.25	96.0081	1.36384	1	1.36384	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0602.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 3
Injection Date	6/24/2015 4:21 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

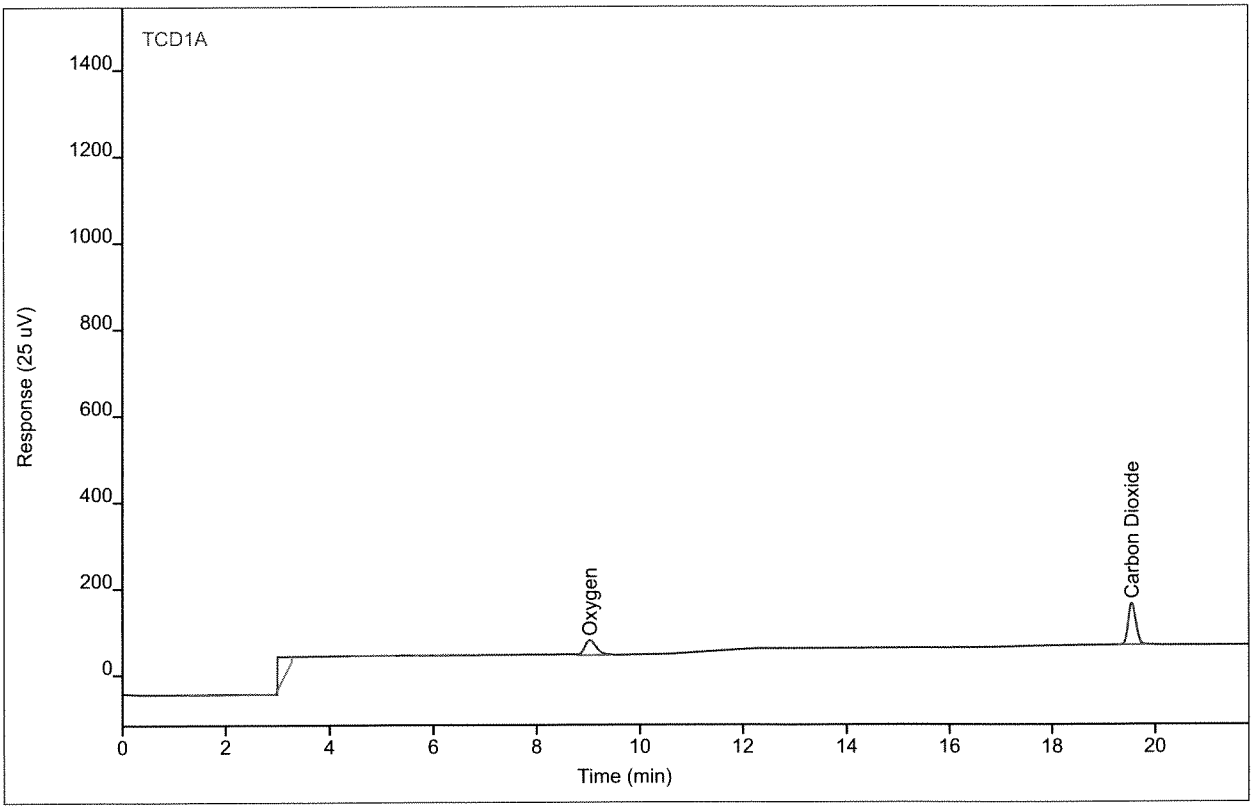


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	2.43	1.90608	0.28758		1		
?	VV	2.26	2.81387	0.41121		1		
?	BB	3.02	365.282	71.3322		1		
Hydrogen	BV	2.14	12.6786	0.60943	0.85551	1	0.85551	%
Oxygen	BB	9.03	532.716	34.0263	1.36732	1	1.36732	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1027.99	96.6383	1.38175	1	1.38175	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG2 ENV(1=1272.08,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0603.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	3 of 3
Injection Date	6/24/2015 4:51 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

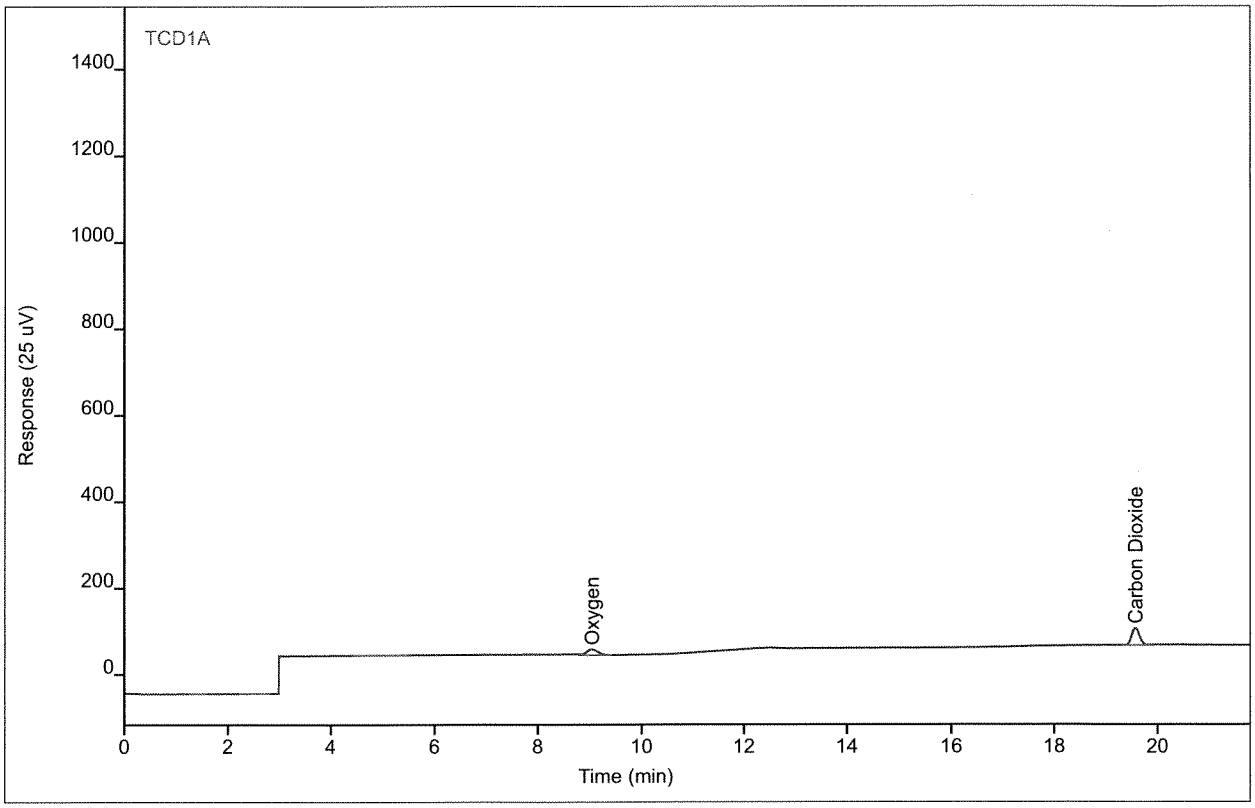


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	5.79	1.92117	0.37755		1		
?	VV	5.00	2.66323	0.43564		1		
?	VV	2.64	5.97584	0.62839		1		
?	BV	4.62	1.99308	0.38828		1		
?	VV	2.27	61.2127	1.14749		1		
?	VB	5.11	1.54117	0.31966		1		
?	VV	2.88	1.60954	0.35413		1		
?	BV	1.46	18.9470	1.37617		1		
?	VB	3.07	728.380	62.1411		1		
?	VB	6.13	2.70757	0.37252		1		
?	BV	5.64	1.14716	0.31755		1		
?	VV	4.76	4.01393	0.39793		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.03	535.550	34.8530	1.37474	1	1.37474	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.55	1024.24	96.9965	1.37647	1	1.37647	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0701.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	1 of 8
Injection Date	6/24/2015 5:21 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM

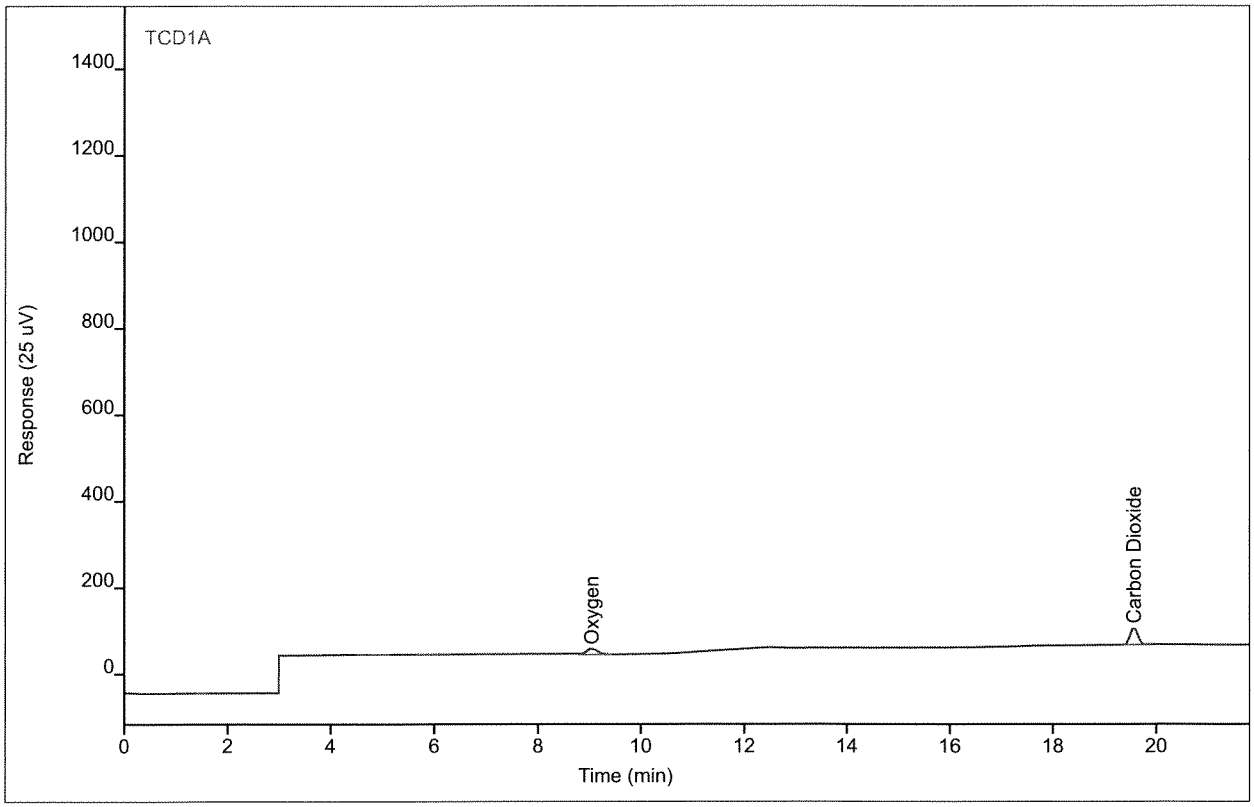


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	4.99	17.6586	0.54161		1		
?	BV	2.32	5.57168	0.59586		1		
?	BV	1.51	5.65855	0.50313		1		
?	VV	2.61	3.12562	0.38332		1		
?	VV	2.78	1.54822	0.30933		1		
?	VV	2.47	2.12618	0.45412		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	214.725	13.9341	0.53512	1	0.53512	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	423.172	40.1297	0.53283	1	0.53283	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)	Sample Type	Calibration
Sequence Name	BETTYP209 ver.15	Vial Number	Vial 9
Data File	009F0702.D	Injection Volume	250
File Location	GC/2015/Betty/Quarter 2	Injection	2 of 8
Injection Date	6/24/2015 5:51 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	7/23/2015 11:30 AM	Analysis Method	BETTYP209_FGA_CRYO.M
Instrument	Betty	Method Modified	7/23/2015 12:10 PM
Operator	Chester Burnett	Printed	7/23/2015 12:47 PM



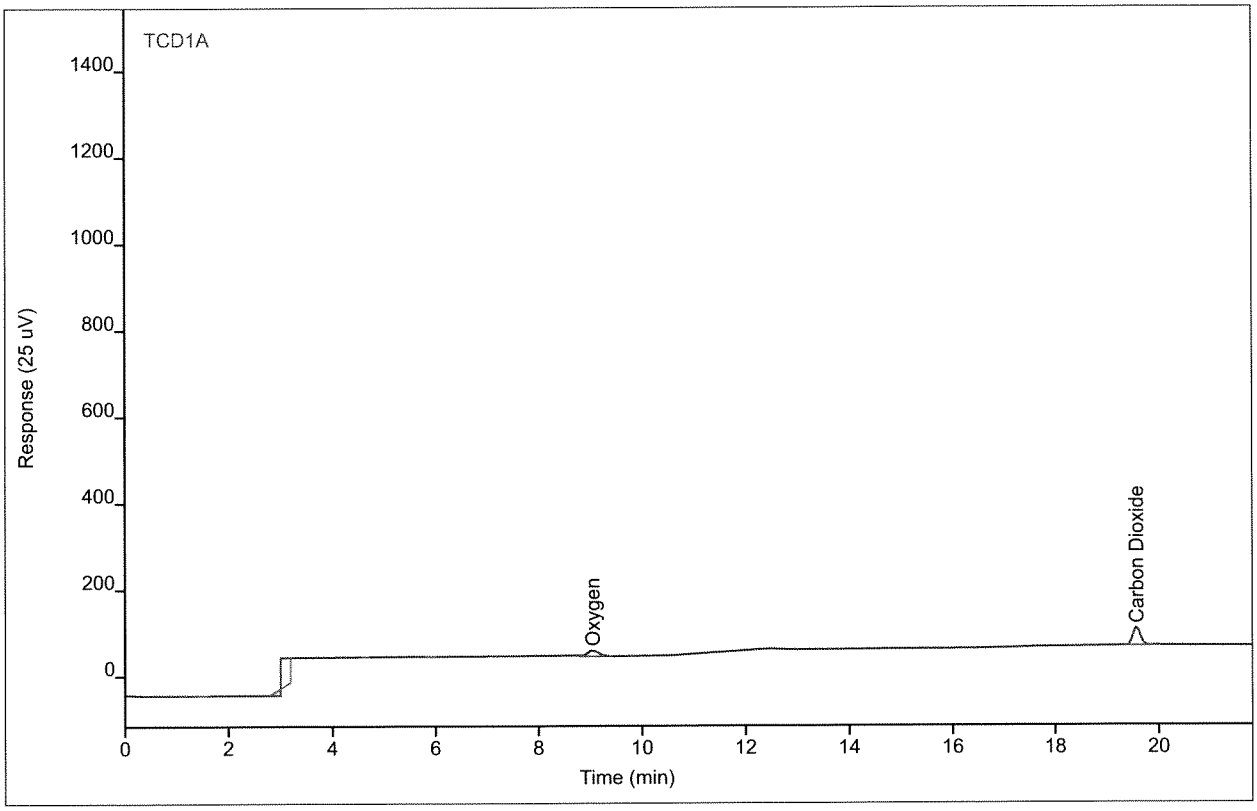
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BV	1.45	3.15087	0.44002		1		
?	BV	4.72	4.20614	0.48932		1		
?	VB	5.02	2.55183	0.27862		1		
?	BB	6.14	1.24686	0.23469		1		
?	BB	5.82	1.51287	0.22623		1		
?	VV	4.90	2.86163	0.44424		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	215.668	13.8467	0.53747	1	0.53747	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	420.526	39.8516	0.52949	1	0.52949	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP070 #FG1 ENV(1=3392.23,2=219.94)
Sequence Name	BETTYP209 ver.15
Data File	009F0703.D
File Location	GC/2015/Betty/Quarter 2
Injection Date	6/24/2015 6:20 PM
File Modified	7/23/2015 11:30 AM
Instrument	Betty
Operator	Chester Burnett

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 8
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP209_FGA_CRYO.M
Method Modified	7/23/2015 12:10 PM
Printed	7/23/2015 12:47 PM



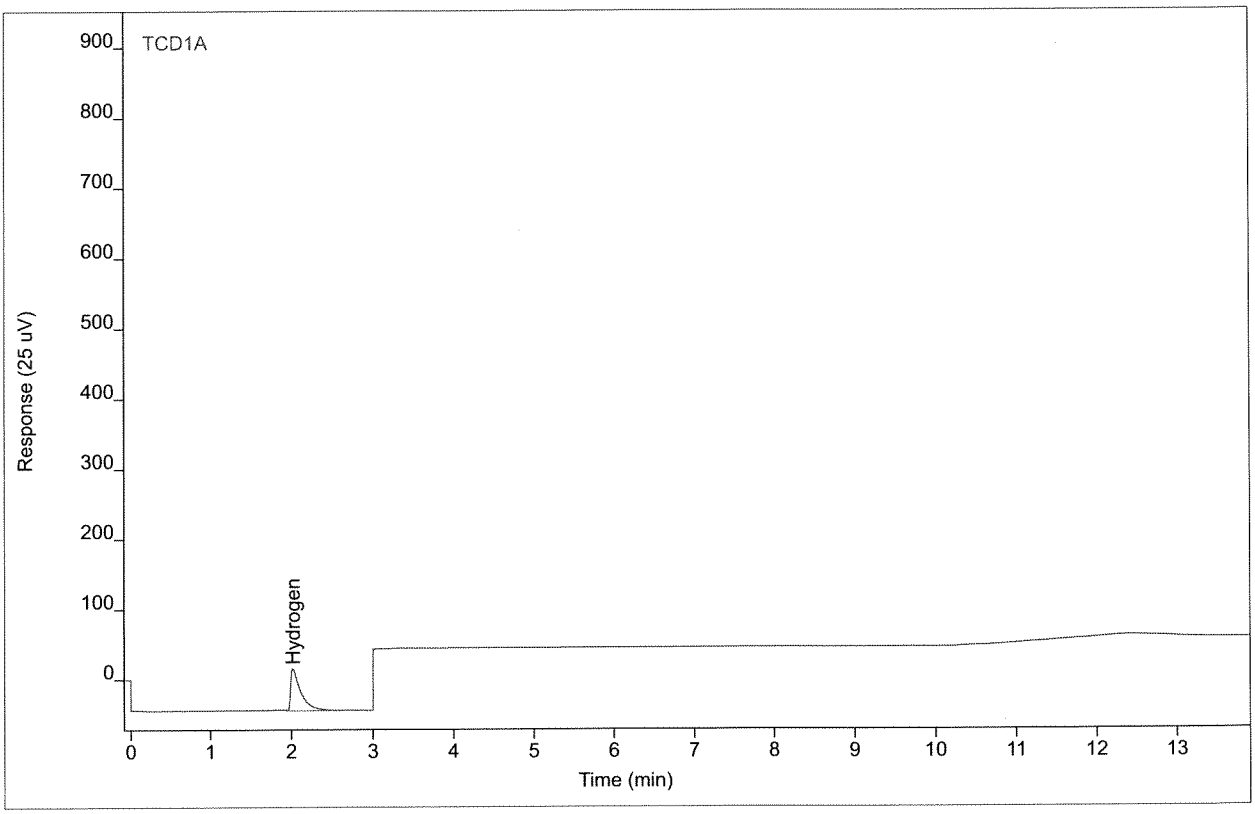
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	VB	3.04	668.472	70.3759		1		
?	BB	4.62	1.62261	0.34018		1		
?	BV	1.50	3.80463	0.53505		1		
?	VB	5.89	1.40129	0.35491		1		
Hydrogen		(2.12)				1		
Oxygen	BB	9.05	216.612	14.2341	0.53982	1	0.53982	%
Nitrogen		(10.32)				1		
Carbon monoxide		(12.66)				1		
Methane		(16.47)				1		
Carbon Dioxide	MM	19.57	427.523	40.6313	0.53830	1	0.53830	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)
Sequence Name	BETTYP348 ver.1
Data File	009F0401.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 9:02 AM
File Modified	3/24/2016 9:52 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM

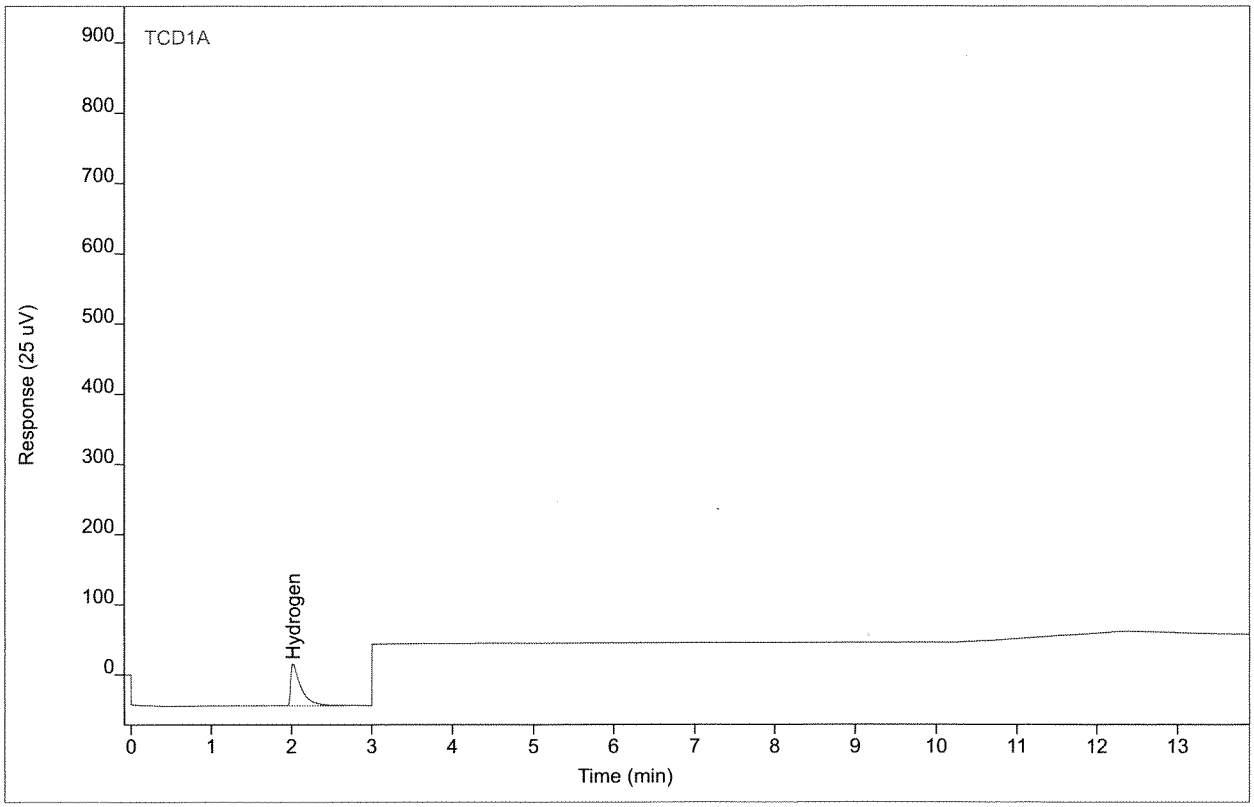


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.02	519.372	60.1510	28.9272	1	28.9272	%
Nitrogen		(10.17)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.1	Vial Number	Vial 9
Data File	009F0402.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	2 of 3
Injection Date	3/23/2016 9:32 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	3/24/2016 9:52 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:43 AM
Operator	Justin Guenzler	Printed	3/24/2016 9:56 AM

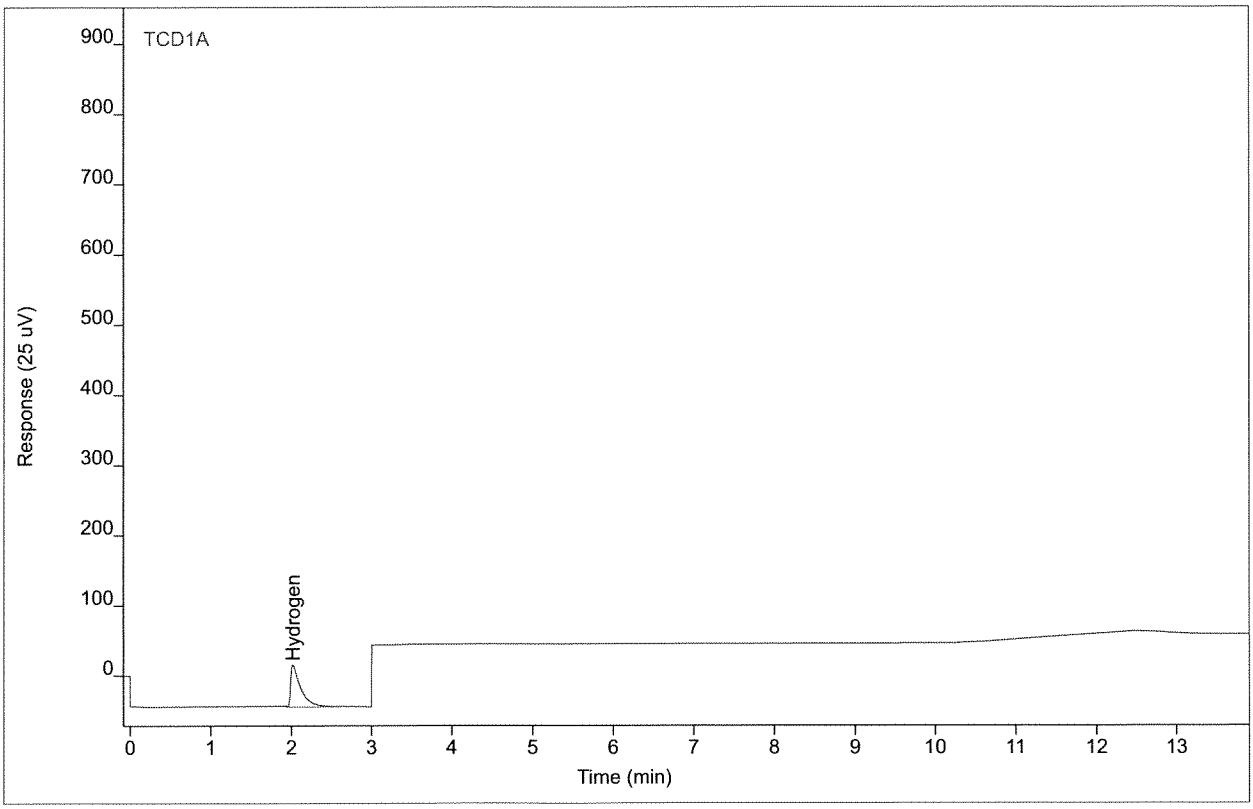


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	VB	2.02	533.976	60.3929	29.7404	1	29.7404	%
Nitrogen		(10.17)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.1	Vial Number	Vial 9
Data File	009F0403.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 3
Injection Date	3/23/2016 10:02 AM	Acquisition Method	BETTYP017_CAL.M
File Modified	3/24/2016 9:52 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:43 AM
Operator	Justin Guenzler	Printed	3/24/2016 9:56 AM



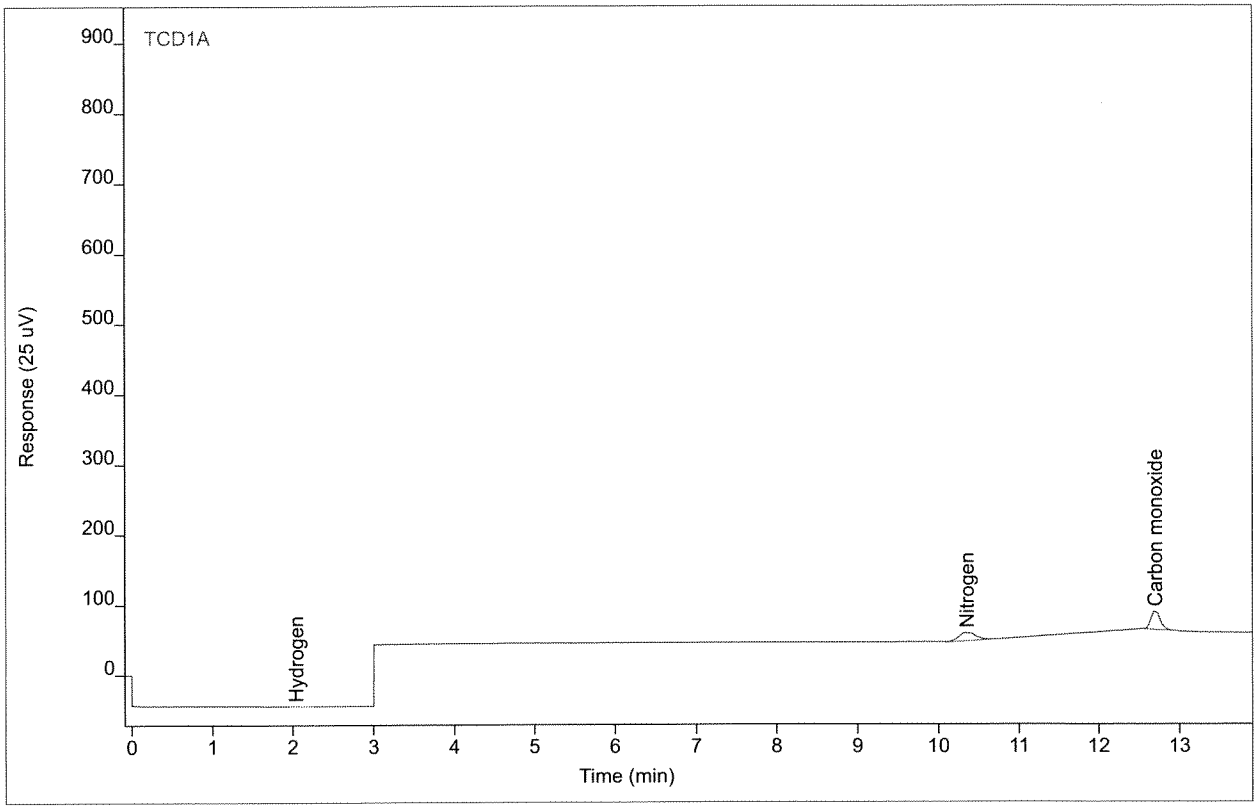
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.02	521.211	60.2486	29.0296	1	29.0296	%
Nitrogen		(10.17)				1		
Carbon monoxide		(12.59)				1		
Methane		(16.39)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP348 ver.1
Data File	009F0801.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 1:34 PM
File Modified	3/24/2016 9:52 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.04	5.49422	0.77557	0.31096	1	0.31096	%
Nitrogen	BB	10.35	185.913	12.9416	0.37476	1	0.37476	%
Carbon monoxide	MM	12.69	213.187	26.9160	0.37888	1	0.37888	%
Methane	MM	16.49	154.929	19.4239	0.30841	1	0.30841	%

Analyst Peak Integration Comments

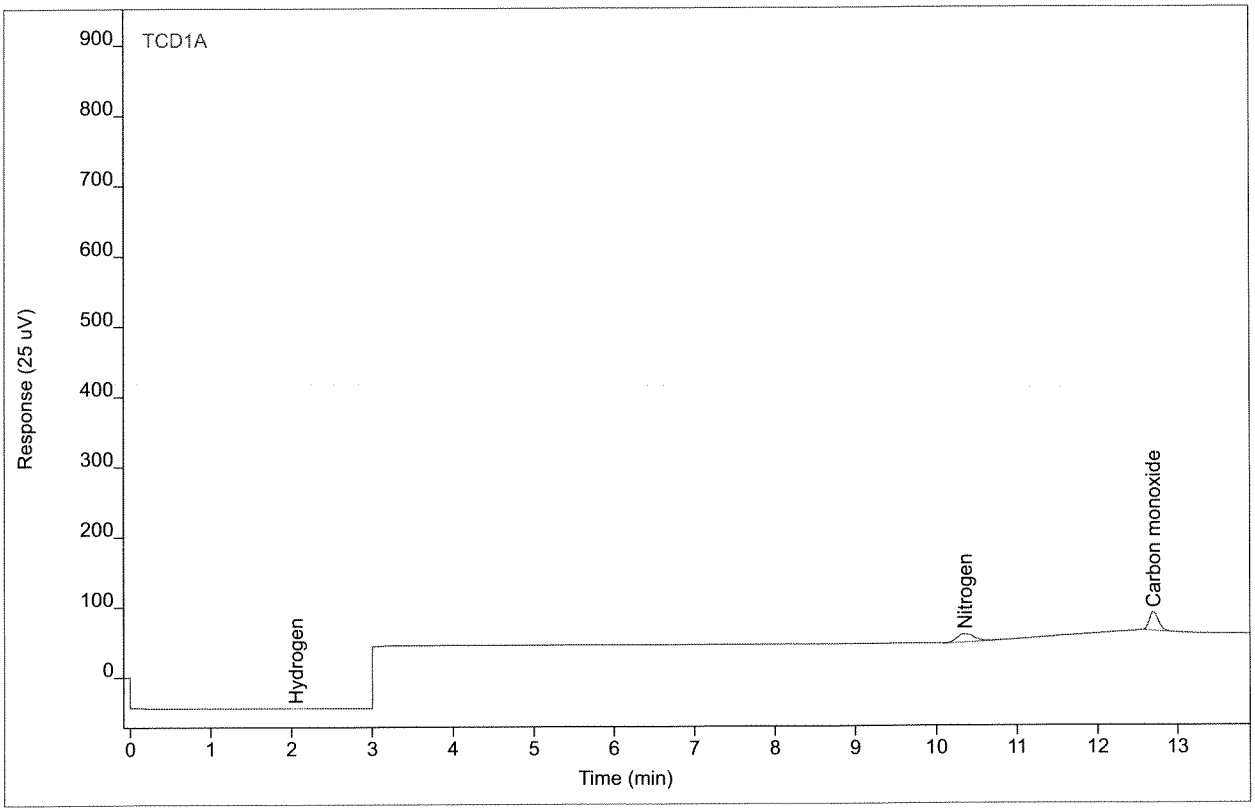
08:55:18 03/24/16 Nicholas Traversa II-Baseline
09:03:17 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP348 ver.1
Data File	009F0802.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 2:04 PM
File Modified	3/24/2016 9:52 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	5.36152	0.91806	0.30347	1	0.30347	%
Nitrogen	BB	10.35	185.816	12.9857	0.37456	1	0.37456	%
Carbon monoxide	MM	12.70	212.362	26.5751	0.37741	1	0.37741	%
Methane	MM	16.49	150.895	19.2575	0.30038	1	0.30038	%

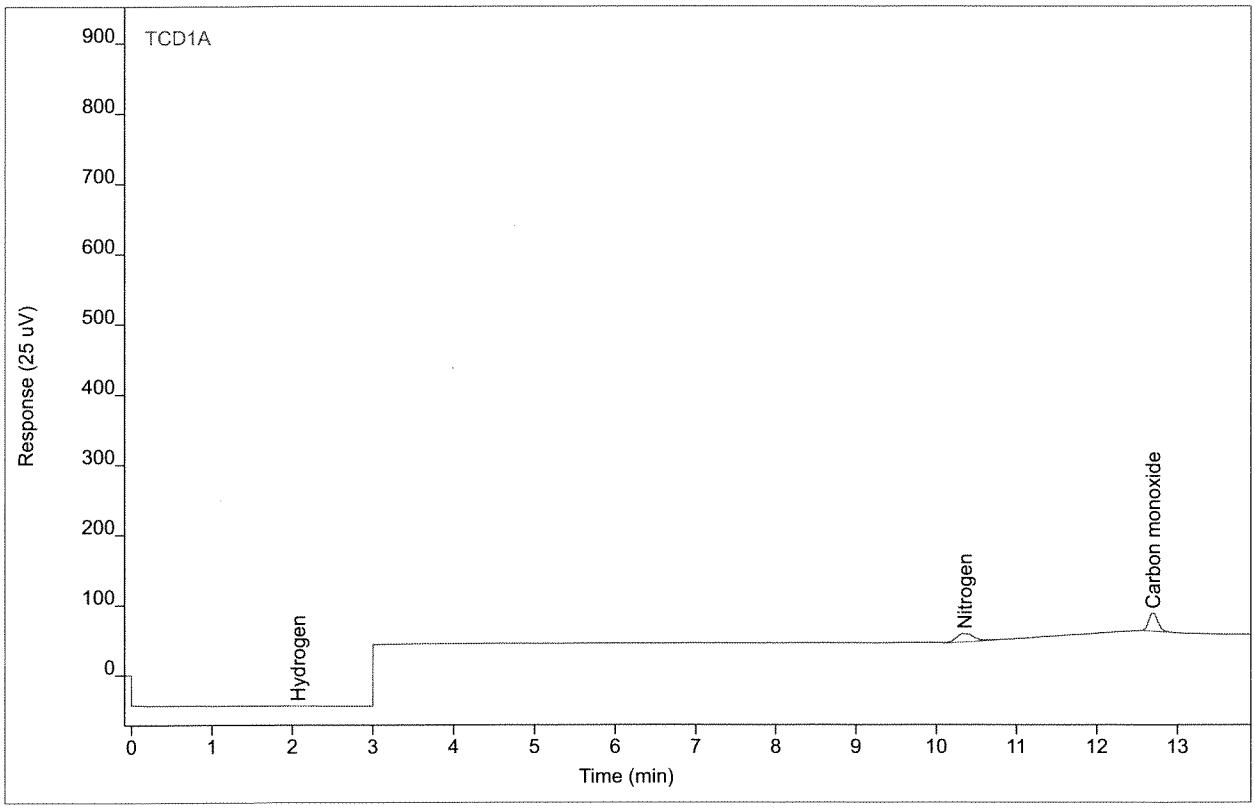
Analyst Peak Integration Comments

08:55:45 03/24/16 Nicholas Traversa II-Baseline
09:02:45 03/24/16 Nicholas Traversa II-Baseline
09:03:30 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.1	Vial Number	Vial 9
Data File	009F0901.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 1
Injection Date	3/23/2016 2:34 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	3/24/2016 9:52 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:43 AM
Operator	Justin Guenzler	Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.07	5.29924	0.81828	0.29994	1	0.29994	%
Nitrogen	BB	10.36	183.272	12.8308	0.36944	1	0.36944	%
Carbon monoxide	MM	12.70	207.954	26.3487	0.36957	1	0.36957	%
Methane	MM	16.49	153.785	19.1904	0.30613	1	0.30613	%

Analyst Peak Integration Comments

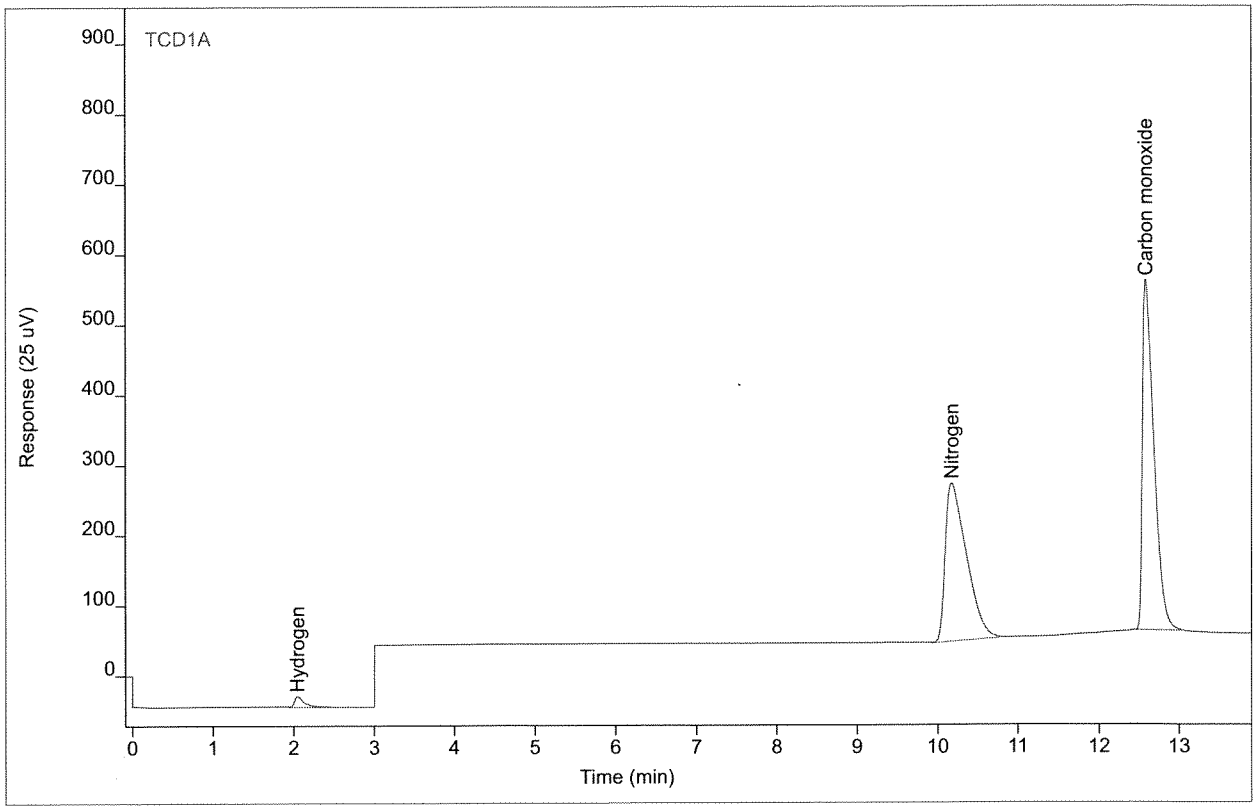
08:56:13 03/24/16 Nicholas Traversa II-Baseline
09:03:42 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP348 ver.1
Data File	009F1001.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 3:04 PM
File Modified	3/24/2016 9:52 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.05	137.324	15.8087	7.65211	1	7.65211	%
Nitrogen	BB	10.18	4148.31	225.866	9.64130	1	9.64130	%
Carbon monoxide	MM	12.59	4977.34	498.519	9.44841	1	9.44841	%
Methane	MM	16.39	3354.70	371.621	7.48842	1	7.48842	%

Analyst Peak Integration Comments

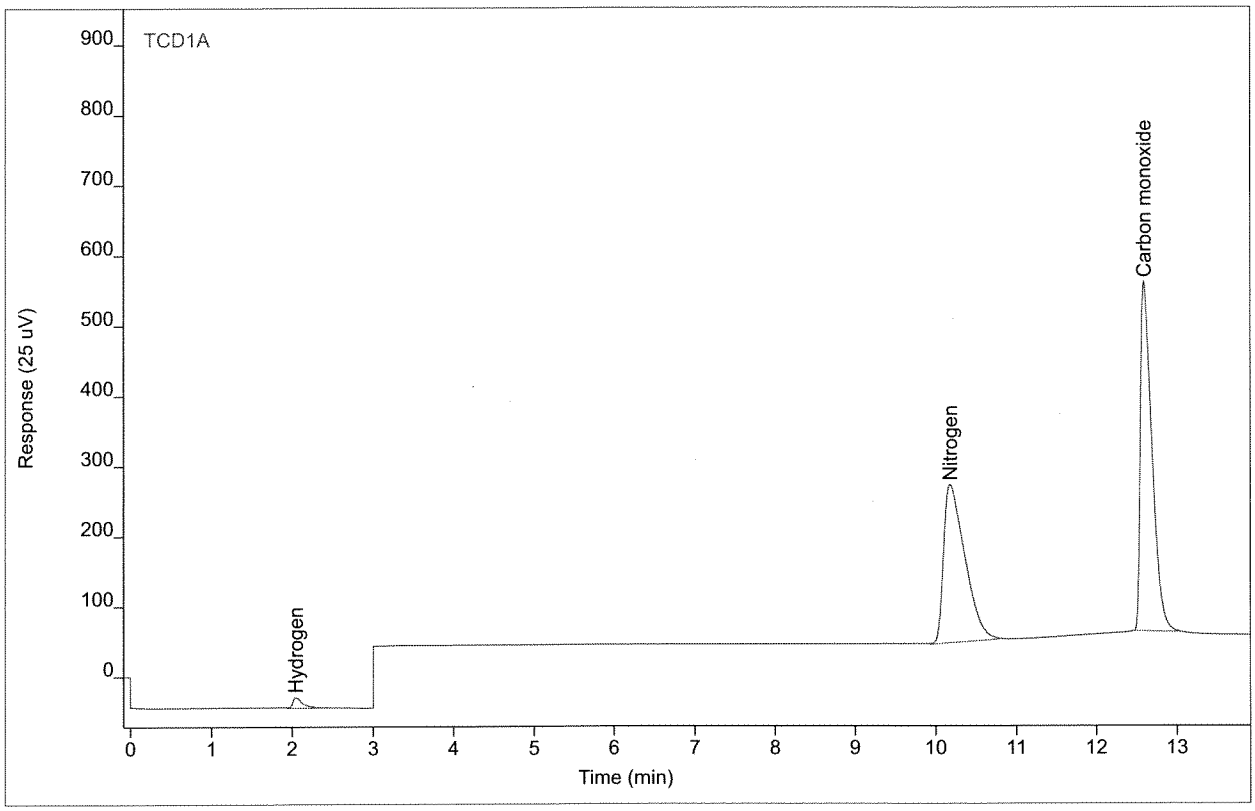
08:45:25 03/24/16 Nicholas Traversa II-Baseline
09:03:55 03/24/16 Nicholas Traversa II-Baseline
09:12:14 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP348 ver.1
Data File	009F1002.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 3:35 PM
File Modified	3/24/2016 9:52 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.05	134.279	15.7425	7.48258	1	7.48258	%
Nitrogen	BB	10.18	4153.57	225.778	9.65360	1	9.65360	%
Carbon monoxide	MM	12.59	4951.82	497.879	9.39983	1	9.39983	%
Methane	MM	16.39	3360.50	368.710	7.50143	1	7.50143	%

Analyst Peak Integration Comments

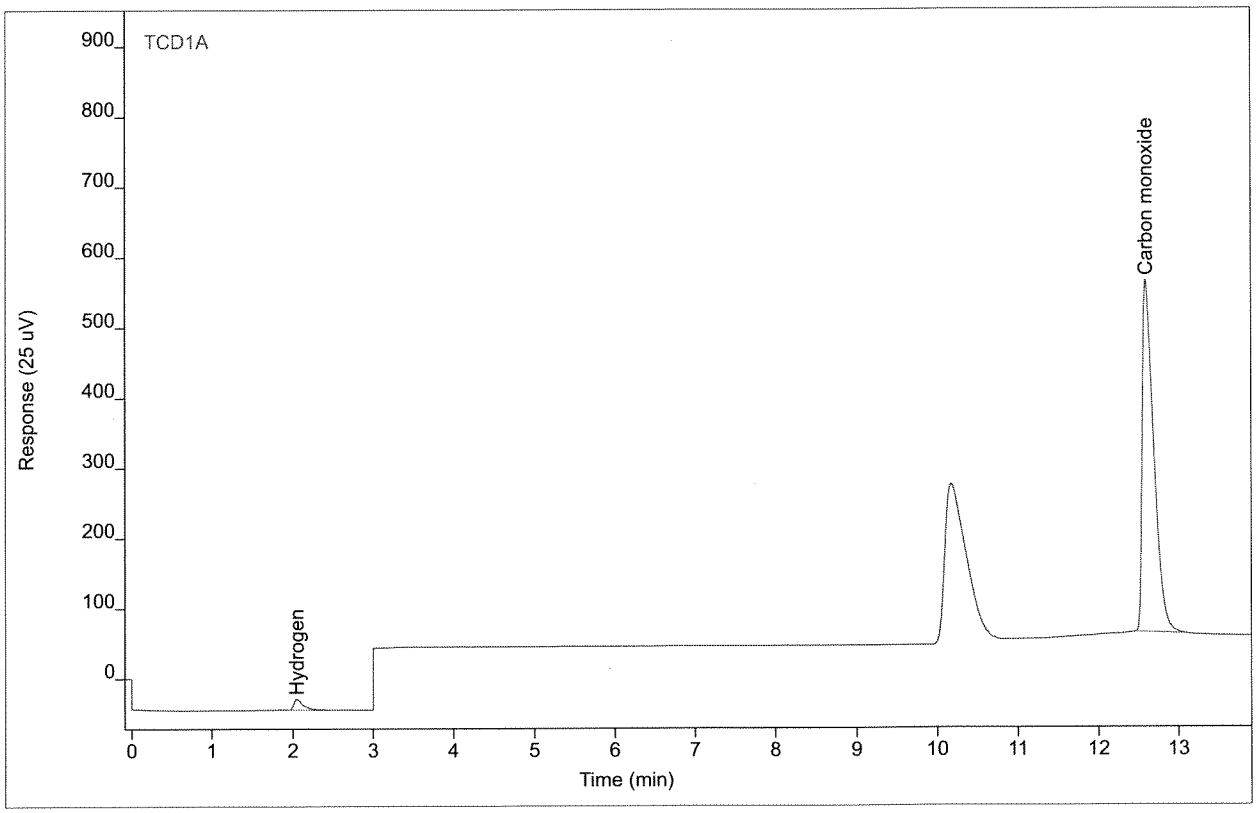
08:45:39 03/24/16 Nicholas Traversa II-Baseline
09:04:06 03/24/16 Nicholas Traversa II-Baseline
09:12:36 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP348 ver.1
Data File	009F1003.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 4:05 PM
File Modified	3/24/2016 9:45 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Method Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.05	132.742	15.7215	7.39697	1	7.39697	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.59	5018.52	501.603	9.52680	1	9.52680	%
Methane	MM	16.39	3386.77	373.896	7.56039	1	7.56039	%

Analyst Peak Integration Comments

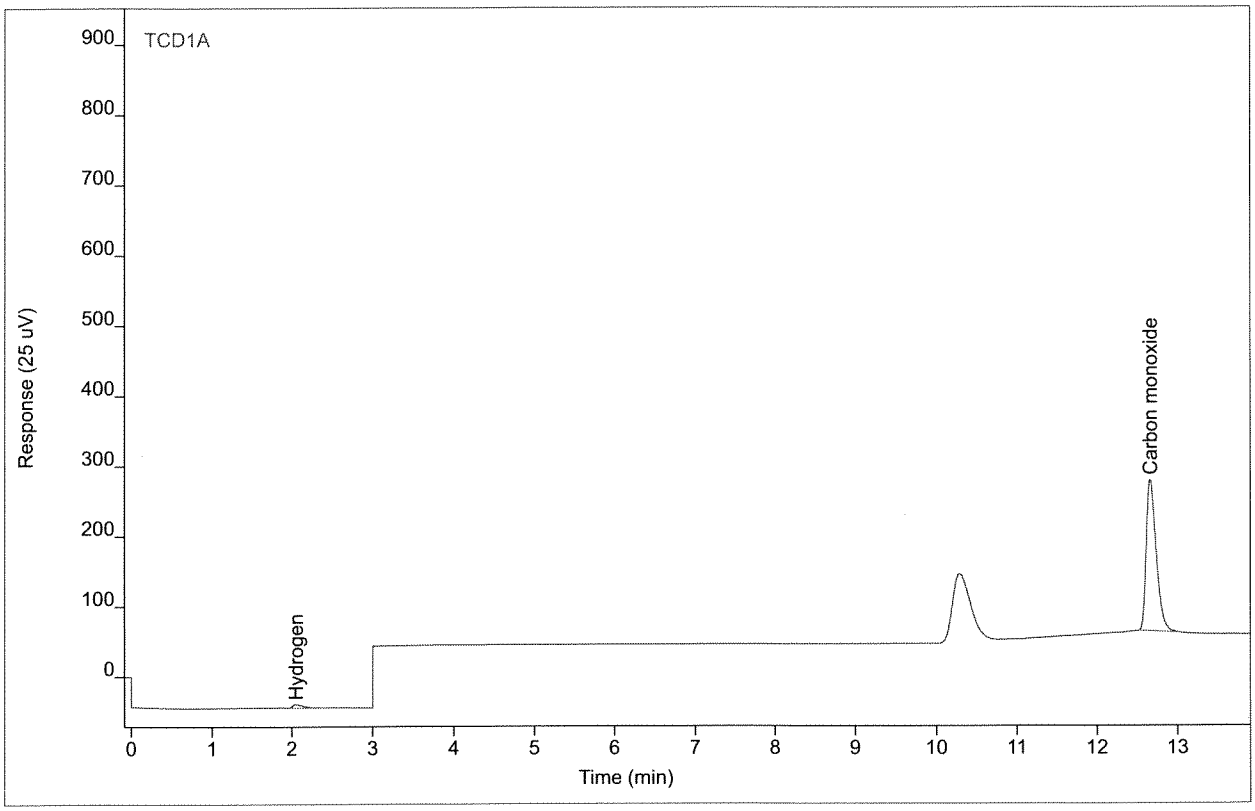
08:45:48 03/24/16 Nicholas Traversa II-Baseline
09:04:39 03/24/16 Nicholas Traversa II-Baseline
09:12:45 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP348 ver.1
Data File	009F1101.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 4:35 PM
File Modified	3/24/2016 9:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	52.6585	5.96946	2.93739	1	2.93739	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.66	1870.95	216.410	3.53472	1	3.53472	%
Methane	MM	16.45	1276.56	155.048	2.82513	1	2.82513	%

Analyst Peak Integration Comments

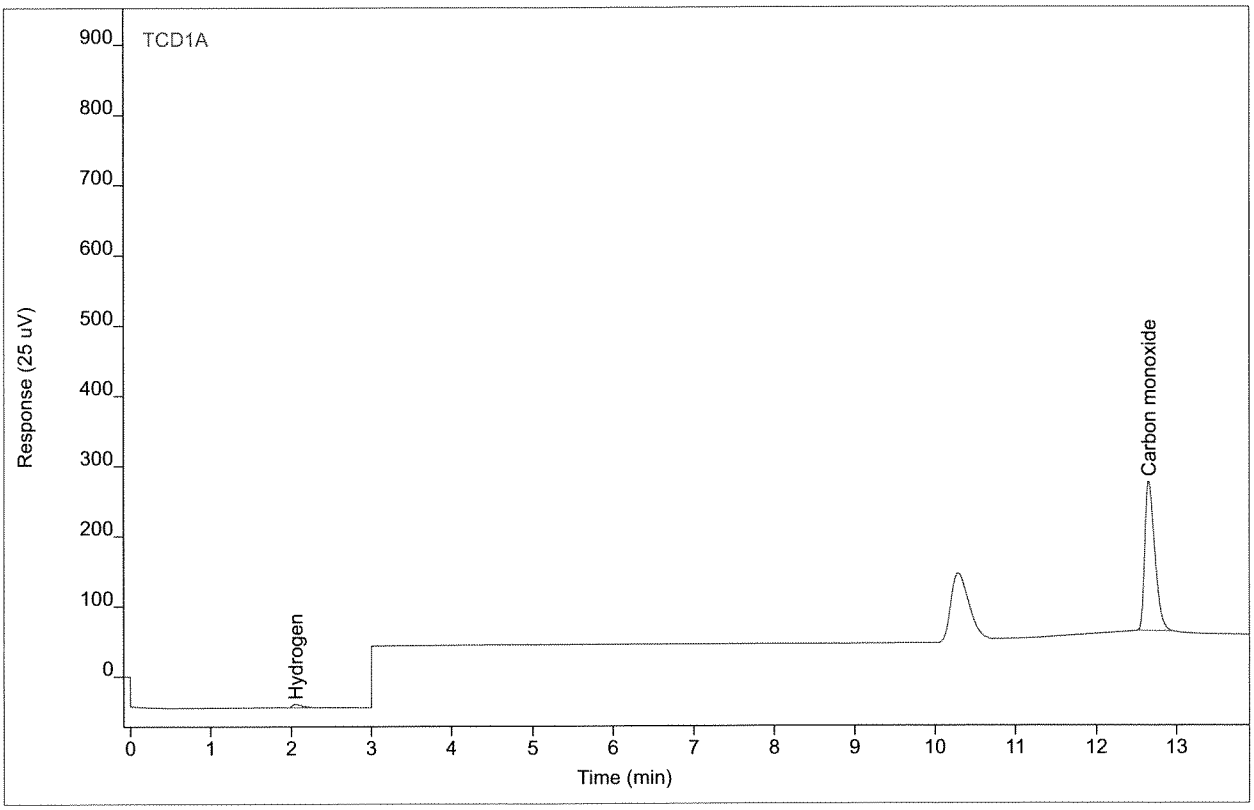
08:45:59 03/24/16 Nicholas Traversa II-Baseline
09:04:47 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP348 ver.1
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 5:05 PM
File Modified	3/24/2016 9:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	48.9512	5.67245	2.73094	1	2.73094	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.66	1848.34	213.936	3.49166	1	3.49166	%
Methane	MM	16.45	1256.81	153.654	2.78080	1	2.78080	%

Analyst Peak Integration Comments

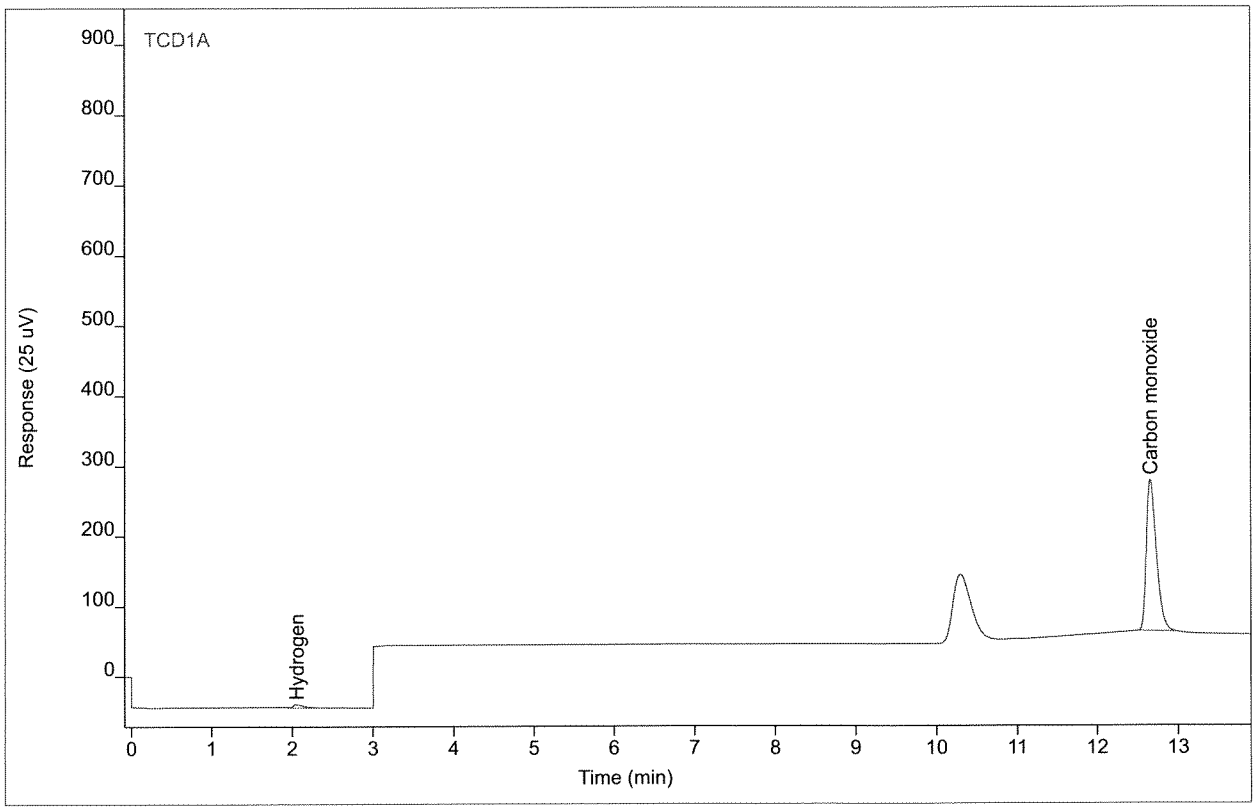
08:46:16 03/24/16 Nicholas Traversa II-Baseline
08:46:28 03/24/16 Nicholas Traversa II-Baseline
09:05:03 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP348 ver.1
Data File	009F1103.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 5:35 PM
File Modified	3/24/2016 9:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	2.05	52.3935	5.77112	2.92263	1	2.92263	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.66	1847.04	216.057	3.48919	1	3.48919	%
Methane	MM	16.45	1267.68	154.655	2.80520	1	2.80520	%

Analyst Peak Integration Comments

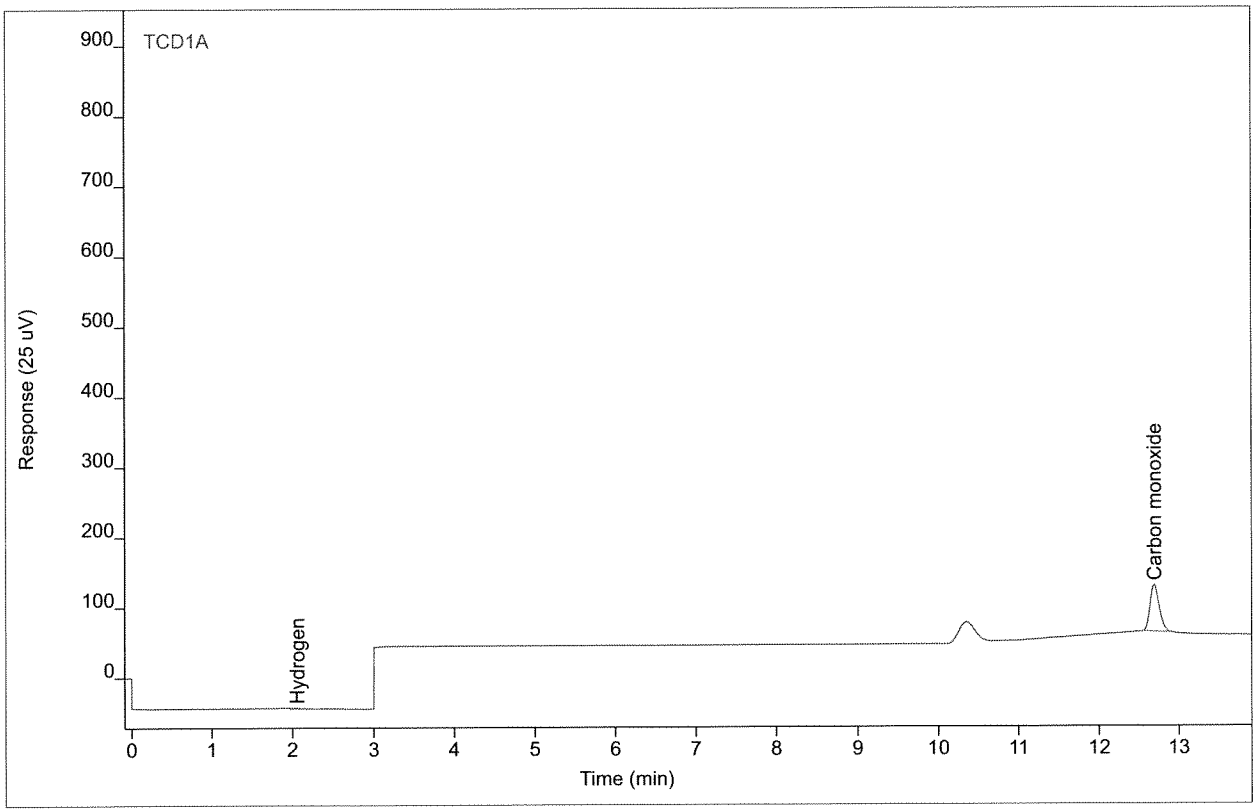
08:46:39 03/24/16 Nicholas Traversa II-Baseline
09:05:13 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)
Sequence Name	BETTYP348 ver.1
Data File	009F1201.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 6:05 PM
File Modified	3/24/2016 9:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	14.7037	1.68924	0.82381	1	0.82381	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.69	527.447	66.4169	0.97706	1	0.97706	%
Methane	MM	16.48	380.129	47.3088	0.81355	1	0.81355	%

Analyst Peak Integration Comments

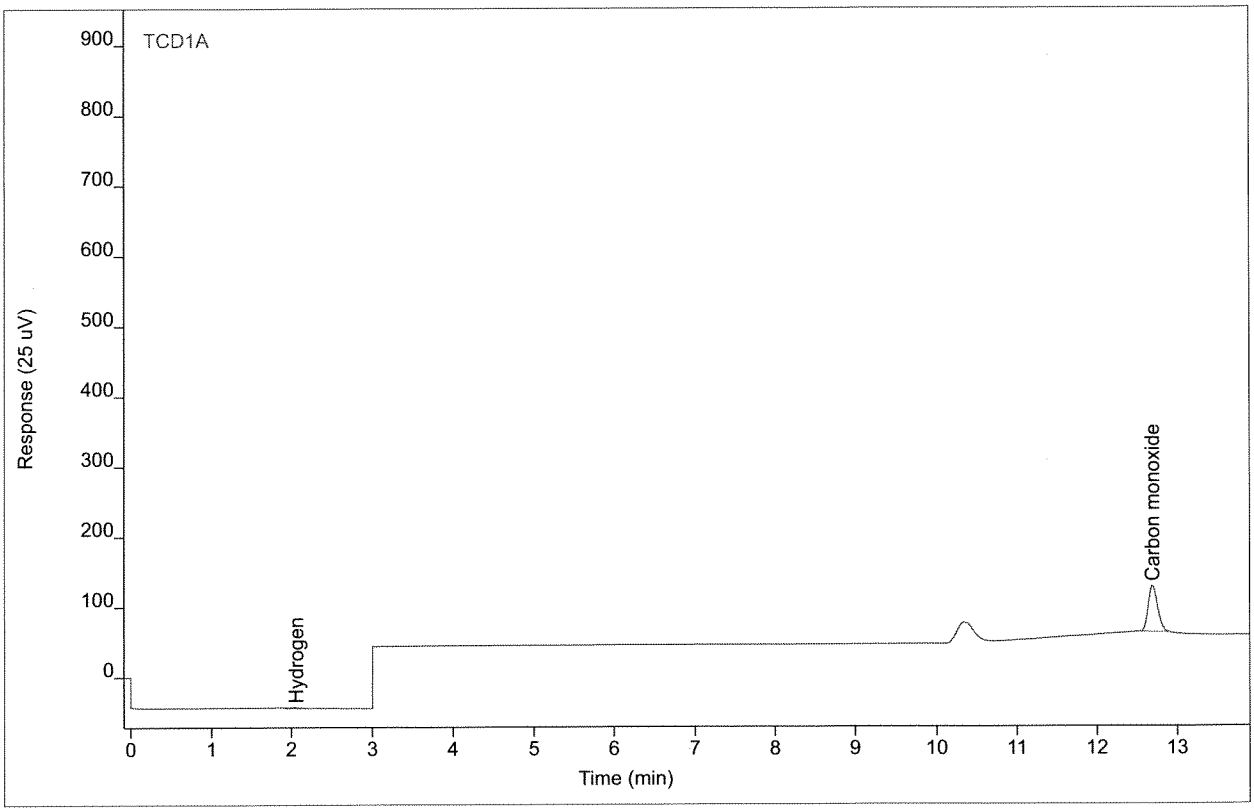
08:46:48 03/24/16 Nicholas Traversa II-Baseline
08:56:44 03/24/16 Nicholas Traversa II-Baseline
09:05:21 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)
Sequence Name	BETTYP348 ver.1
Data File	009F1202.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/23/2016 6:35 PM
File Modified	3/24/2016 9:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	BETTYP017_CAL.M
Analysis Method	BETTYP348_FGA_CRYO.M
Method Modified	3/24/2016 9:43 AM
Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	14.6516	1.80771	0.82091	1	0.82091	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.69	525.484	65.7675	0.97332	1	0.97332	%
Methane	MM	16.48	368.696	46.9784	0.78789	1	0.78789	%

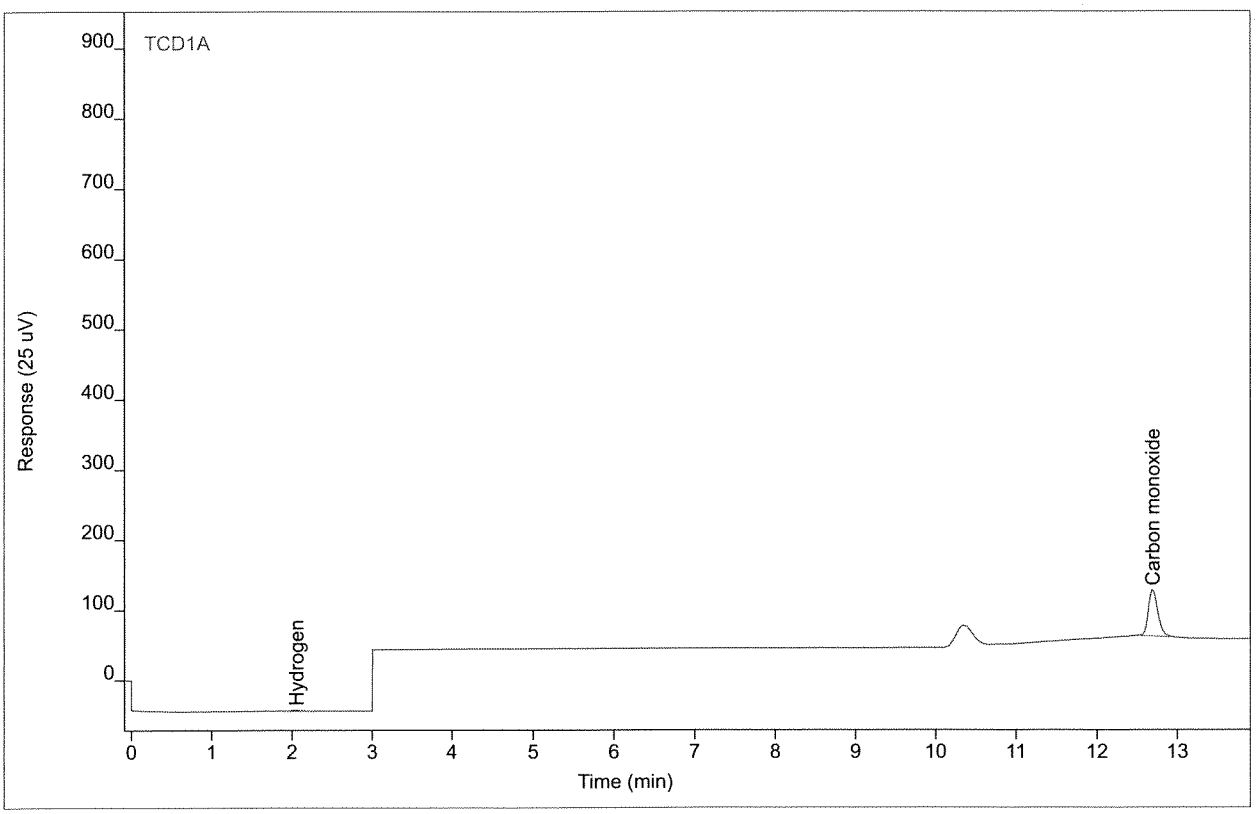
Analyst Peak Integration Comments

08:46:58 03/24/16 Nicholas Traversa II-Baseline
08:49:19 03/24/16 Nicholas Traversa II-FP
08:56:59 03/24/16 Nicholas Traversa II-Baseline
09:05:28 03/24/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP348 ver.1	Vial Number	Vial 9
Data File	009F1203.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 3
Injection Date	3/23/2016 7:05 PM	Acquisition Method	BETTYP017_CAL.M
File Modified	3/24/2016 9:45 AM	Analysis Method	BETTYP348_FGA_CRYO.M
Instrument		Method Modified	3/24/2016 9:43 AM
Operator	Nicholas Traversa	Printed	3/24/2016 9:56 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	2.06	14.5852	1.85799	0.81721	1	0.81721	%
Nitrogen		(9.41)				1		
Carbon monoxide	MM	12.69	543.881	66.0508	1.00834	1	1.00834	%
Methane	MM	16.48	374.812	47.6111	0.80162	1	0.80162	%

Analyst Peak Integration Comments

08:47:08 03/24/16 Nicholas Traversa II-Baseline
08:51:29 03/24/16 Nicholas Traversa II-Baseline
08:57:16 03/24/16 Nicholas Traversa II-Baseline
09:05:37 03/24/16 Nicholas Traversa II-Baseline

PRAXAIR

Making our planet more productive

Issue Date: 12-08-2014

To:

Attn:

Praxair Order Number:
Customer Order Number:
Customer Reference Number:

Product Lot Number: 1124002724A1
Product Part Number: ME 5.0RS-G

CERTIFICATE OF ANALYSIS

(Methane 99.999%, Research)

Cylinder Serial Number	*Analytes*	*Specification*	
RA071907	Methane	99.999	%
RA072283	Ethane	ND < 0.1	ppm
*RA072293	Nitrogen	ND < 0.1	ppm
RA072328	Oxygen	0.1	ppm
	Moisture	0.3	ppm
	Other Hydrocarbons	ND < 0.1	ppm

Cylinder Style: G
Cylinder Pressure @70°F (21°C): 2000 PSI
Cylinder Volume: 40 Cubic Feet

Valve Outlet Connection: 350 CGA
Filling Method: Pressure

Approved Signer: _____
Patrick Philpot

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:

Enthalpy Analytical, Inc.
800-1 Capitola Drive
Durham, NC 27713

Tel: (919) 595-1377

Cylinder Number: XC010510B
Cylinder Size/CGA: 150/590
Fill Pressure: 2015 PSIA
Gas Volume:3700 liters
Date of Mfg: 02/04/14
Expiration Date: 02/04/16

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	011614-004	01151401	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Oxygen	10 %	10.01 % +/- 0.2 %	Gravimetric Master Gas
Carbon Dioxide	10 %	10.01 % +/- 0.2 %	
Helium	balance	balance	

NOTES:

Blend Tolerance: +/- 2 %

Analytical Tolerance: +/- 2 %

Traceability: NIST by weight set. NIST Traceability No MT5061.
Internal Standards by analysis

Reactive Mixtures: Analyzed twice with required agreement between analyses of 2%.
Required wait time between analyses of >7 days.

Caution: Do not use below 150 PSIG.

Authorized Signature:

Joseph A. Ernst

*Every effort has been made to establish the actual concentration of the components using master gas blending technology however, Custom Gas Solutions shall have no liability in excess of the established charge for this material.

AIR LIQUIDE Air Liquide America Specialty Gases LLC

Scott

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFIED MASTER CLASS
Single-Certified Calibration Standard

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 55814398-001
Item No.: MC500418-P-44
P.O. No.: 06181401

Cylinder Number: NKA197
Cylinder Size: 44
Certification Date: 30Jun2014
Expiration Date: 01Jul2017
Lot Number: PLU0288940

Customer

ENTHALPY ANALYTICAL, INC.
GREG TATE
800-1 CAPITOLA DRIVE
DURHAM, NC 27703
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
CARBON MONOXIDE	10.0	%	2
HYDROGEN	8.2	%	2
METHANE	8.0	%	2
NITROGEN	10.0	%	2
HELIUM		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: LAMONT SHIELDS DATE: 7-3-14

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
CARBON MONOXIDE	10.	%	10.0	%	.0	2.00
HYDROGEN	8.	%	8.2	%	2.5	2.00
METHANE	8.	%	8.0	%	.0	2.00
NITROGEN	10.	%	10.0	%	.0	2.00
HELIUM		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: 44

Pressure: 2015 PSIG
Expiration Date: 01Jul2017

Valve Connection: CGA 350

SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

Use of calibration standards at or below dew point temperature may result in calibration error.

6890 GC METHOD

OVEN

Initial temp: -15 C (On)
Initial time: 10.00 min
Ramps:

#	Rate	Final temp	Final time
1	30.00	220	4.00
2	0 (Off)		

Post temp: 40 C
Post time: 0.00 min
Run time: 21.83 min
Maximum temp: 250 C
Equilibration time: 0.50 min

CRYO (N2)

Cryo: On
Cryo fault: On
Cryo timeout: 40.00 min (On)
Quick cryo cool: Off
Ambient temp: 30 C

FRONT INLET (SPLIT/SPLITLESS)

Mode: Splitless
Initial temp: 200 C (On)
Pressure: 58.0 psi (On)
Purge flow: 0.0 mL/min
Purge time: 0.00 min
Total flow: 12.3 mL/min
Gas saver: Off
Gas type: Helium

BACK INLET (SPLIT/SPLITLESS)

Mode: Split
Initial temp: 200 C (On)
Pressure: 9.0 psi (On)
Split ratio: 5:1
Split flow: 12.3 mL/min
Total flow: 17.6 mL/min
Gas saver: Off
Gas type: Helium

COLUMN 1

Packed Column
Model Number: 19808
Description: Rt-ShinCarbon 2m x 1mm I
Max temperature: 250 C
Mode: constant pressure
Pressure: 58.0 psi
Inlet: Front Inlet
Outlet: Front Detector
Outlet pressure: ambient

COLUMN 2

Capillary Column
Model Number: 10198
Description: Rtx-1 30m x 0.32mm x 4um
Max temperature: 250 C
Nominal length: 30.0 m
Nominal diameter: 320.00 um
Nominal film thickness: 4.00 um
Mode: constant flow
Initial flow: 2.5 mL/min
Nominal init pressure: 9.0 psi
Average velocity: 35 cm/sec
Inlet: Back Inlet
Outlet: (other)
Outlet pressure: ambient

FRONT DETECTOR (TCD)

Temperature: 275 C (On)
Reference flow: 20.0 mL/min (On)
Mode: Constant makeup flow
Makeup flow: 10.0 mL/min (On)
Makeup Gas Type: Helium
Filament: On
Negative polarity: On

BACK DETECTOR (FID)

Temperature: 250 C (On)
Hydrogen flow: 60.0 mL/min (On)
Air flow: 450.0 mL/min (On)
Mode: Constant makeup flow
Makeup flow: 40.0 mL/min (On)
Makeup Gas Type: Nitrogen
Flame: On
Electrometer: On
Lit offset: 2.0

SIGNAL 1

Data rate: 20 Hz
Type: front detector
Save Data: On

SIGNAL 2

Data rate: 20 Hz
Type: back detector
Save Data: On

THERMAL AUX 1

Use: Valve Box Heater
Initial temp: 130 C (On)

VALVES

Valve 1 Gas Sampling
Loop Volume: 0.250 mL

POST RUN

Post Time: 0.00 min

dified on: 6/30/2014 at 5:46:14 PM
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet
Valve 2 Gas Sampling
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet

TIME TABLE

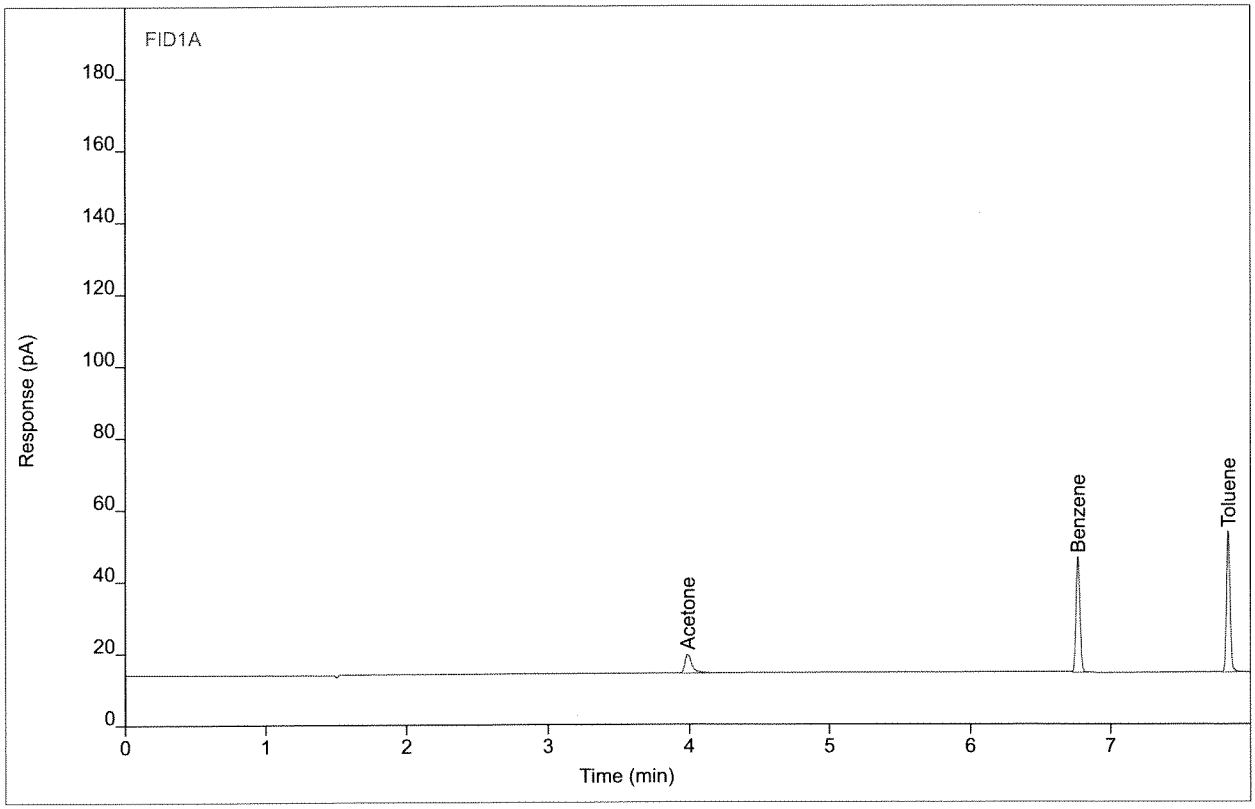
Time(min)	Parameter & Setpoint	
3.00	Front Detector Polarity:	Off

Chromatogram Report

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP765 ver.1
Data File	002F1202.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:25 AM
File Modified	10/20/2016 11:22 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:40 AM



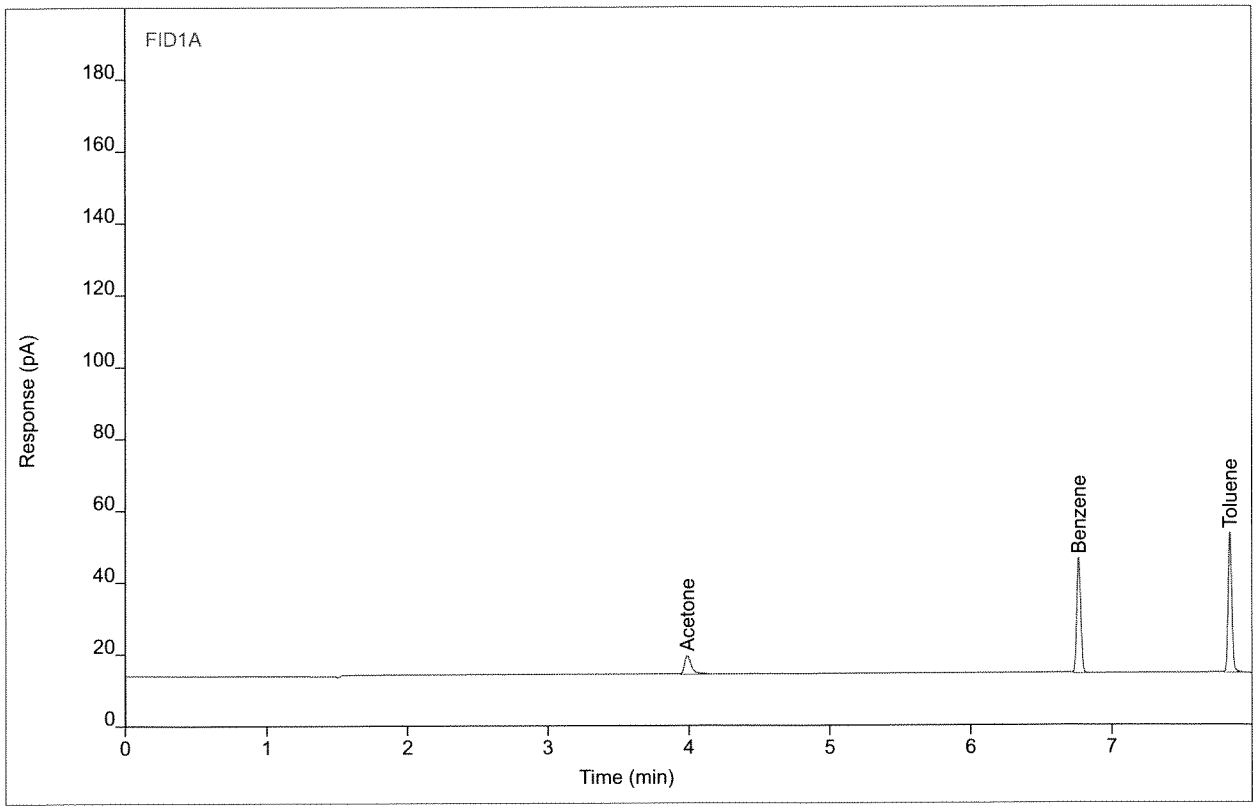
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.54	0.16201	0.15068		1		
Acetone	BB	3.99	18.5108	5.33893	40.9970	1	40.9970	ppm
Benzene	BB	6.77	64.0959	32.2103	42.1621	1	42.1621	ppm
Toluene	BB	7.84	70.7523	39.1363	41.8756	1	41.8756	ppm
Ethylbenzene	BV	8.64	75.9126	40.1104	41.8109	1	41.8109	ppm
m-p-Xylenes	VB	8.71	75.7123	35.6680	41.7953	1	41.7953	ppm
o-Xylene	BB	8.93	73.5685	36.4433	41.8050	1	41.8050	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP765 ver.1
Data File	002F1203.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:40 AM
File Modified	10/20/2016 11:22 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:40 AM



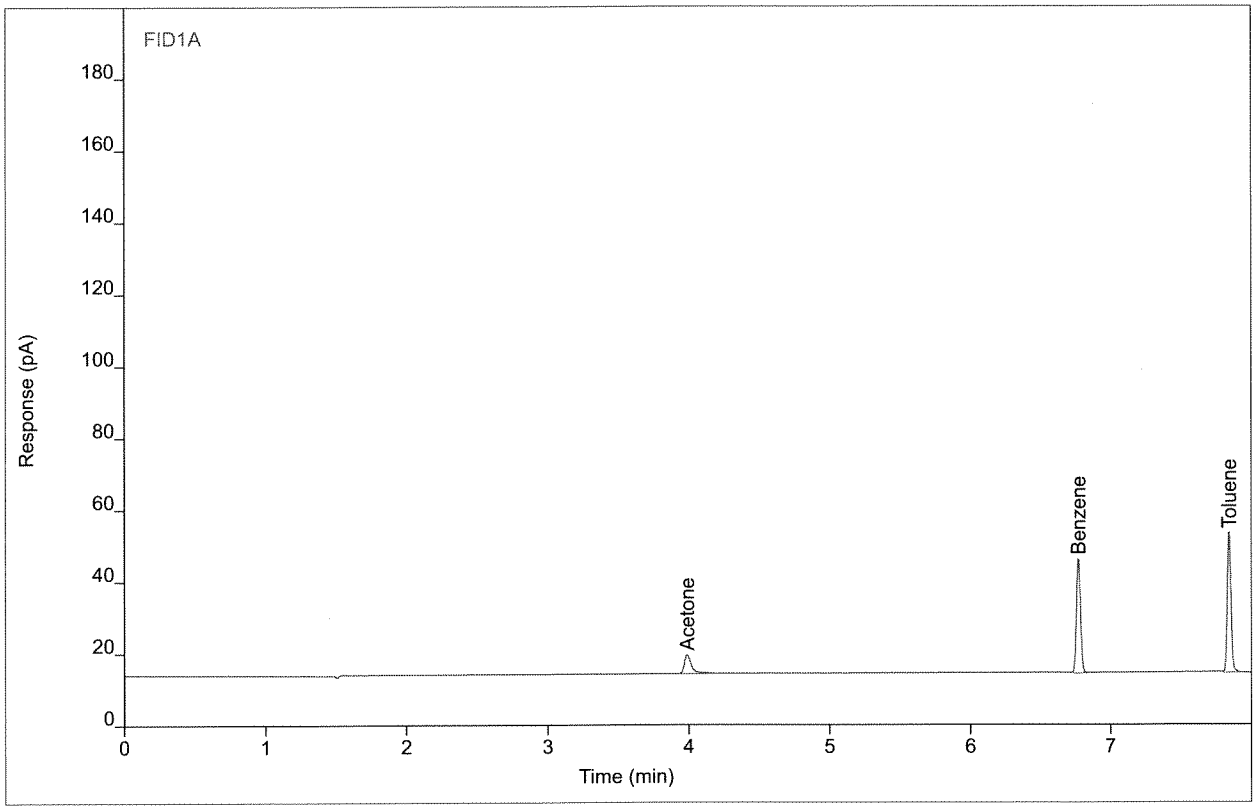
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.54	0.22244	0.14220		1		
Acetone	BB	3.99	18.2188	5.28715	40.3535	1	40.3535	ppm
Benzene	BB	6.77	63.4722	32.0492	41.7527	1	41.7527	ppm
Toluene	BB	7.84	70.4302	38.9578	41.6859	1	41.6859	ppm
Ethylbenzene	BV	8.64	75.8065	40.0031	41.7529	1	41.7529	ppm
m-p-Xylenes	VB	8.71	75.8143	35.6875	41.8510	1	41.8510	ppm
o-Xylene	BB	8.93	73.5697	36.3984	41.8057	1	41.8057	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP765 ver.1
Data File	002F1204.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:55 AM
File Modified	10/20/2016 11:22 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:40 AM



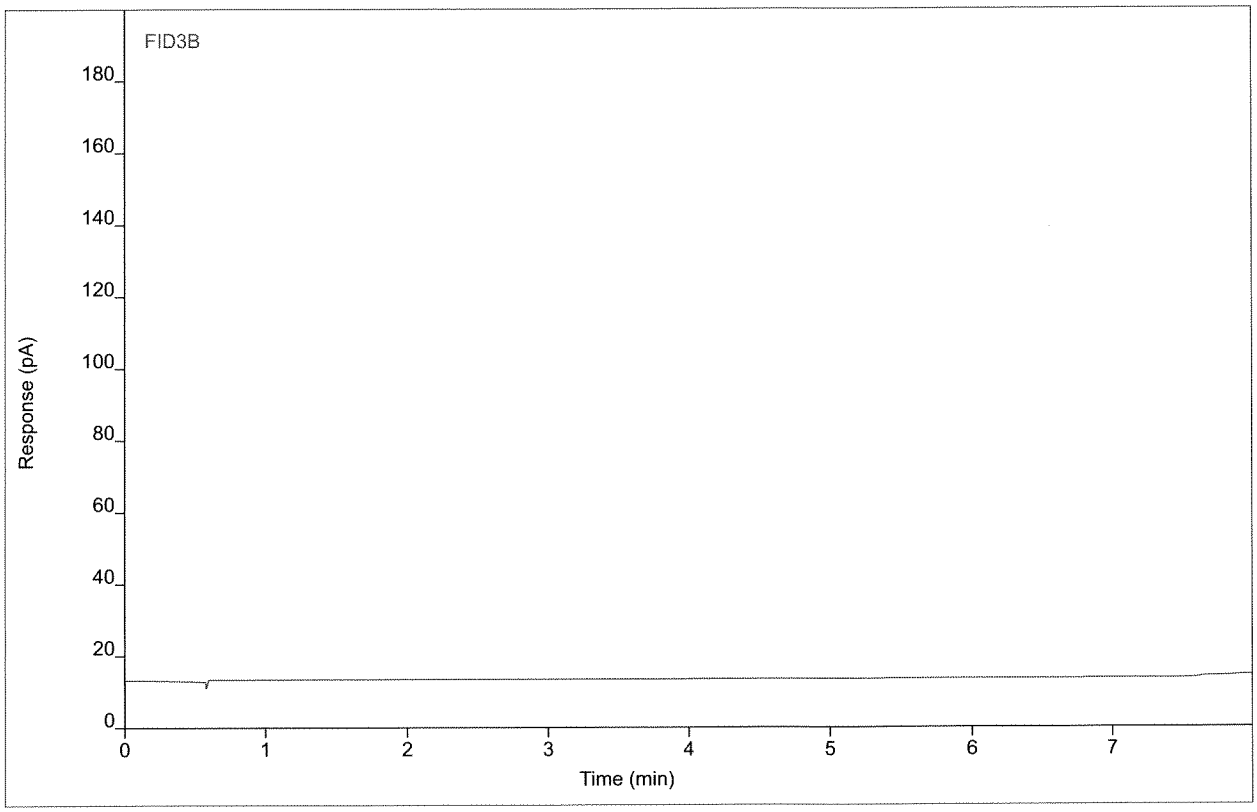
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.54	0.15574	0.12659		1		
Acetone	BB	3.99	18.2314	5.26371	40.3812	1	40.3812	ppm
Benzene	BB	6.77	63.3249	31.8426	41.6559	1	41.6559	ppm
Toluene	BB	7.84	70.2815	38.8824	41.5984	1	41.5984	ppm
Ethylbenzene	BV	8.64	75.7113	39.8752	41.7009	1	41.7009	ppm
m-p-Xylenes	VB	8.71	75.7267	35.7312	41.8031	1	41.8031	ppm
o-Xylene	BB	8.93	73.5625	36.5685	41.8017	1	41.8017	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Zero Air Blank #LB
Sequence Name	EDITHP766 ver.4
Data File	032B1501.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 7:40 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 32
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/20/2016 11:24 AM
Printed	10/24/2016 9:41 AM



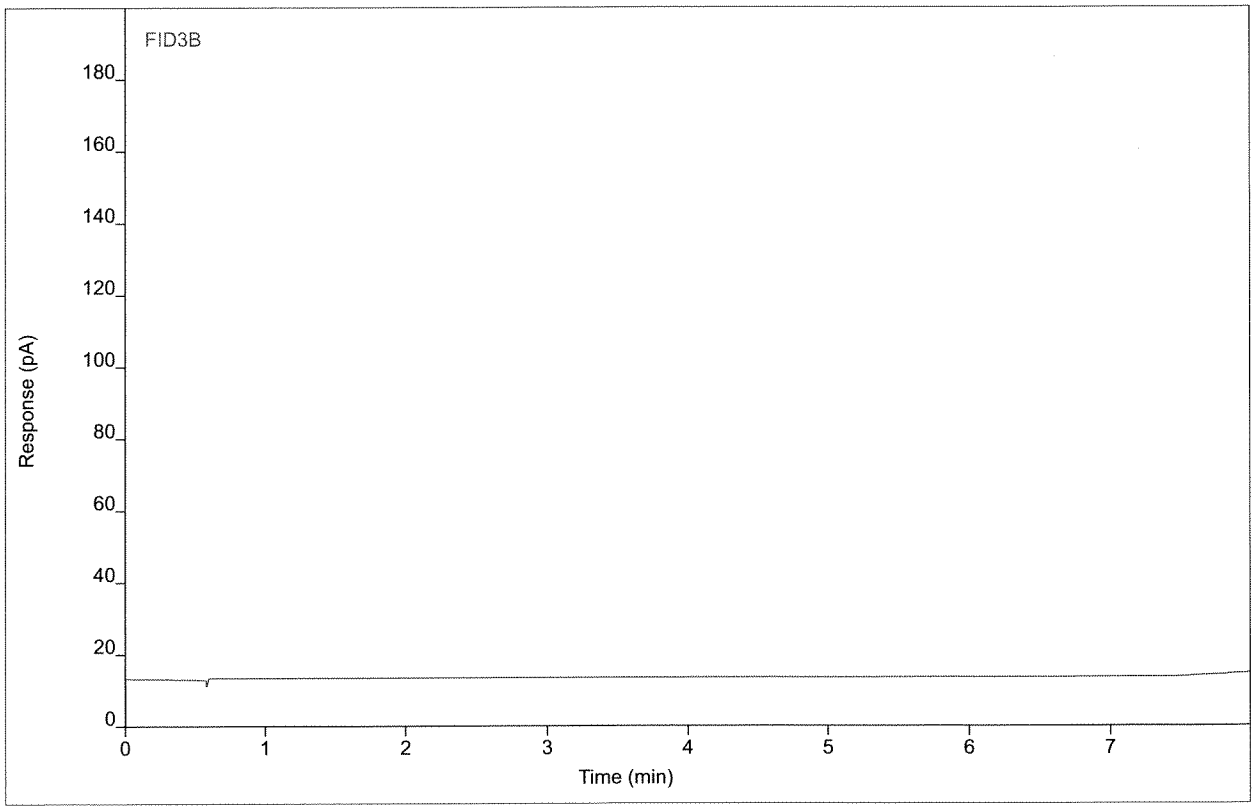
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Propylene		(4.91)				1		
?	BB	8.51	1.61669	1.71680		1		

Chromatogram Report

Enthalpy Analytical

Sample Name	Zero Air Blank #LB
Sequence Name	EDITHP766 ver.4
Data File	032B1502.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:02 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 32
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/20/2016 11:24 AM
Printed	10/24/2016 9:41 AM



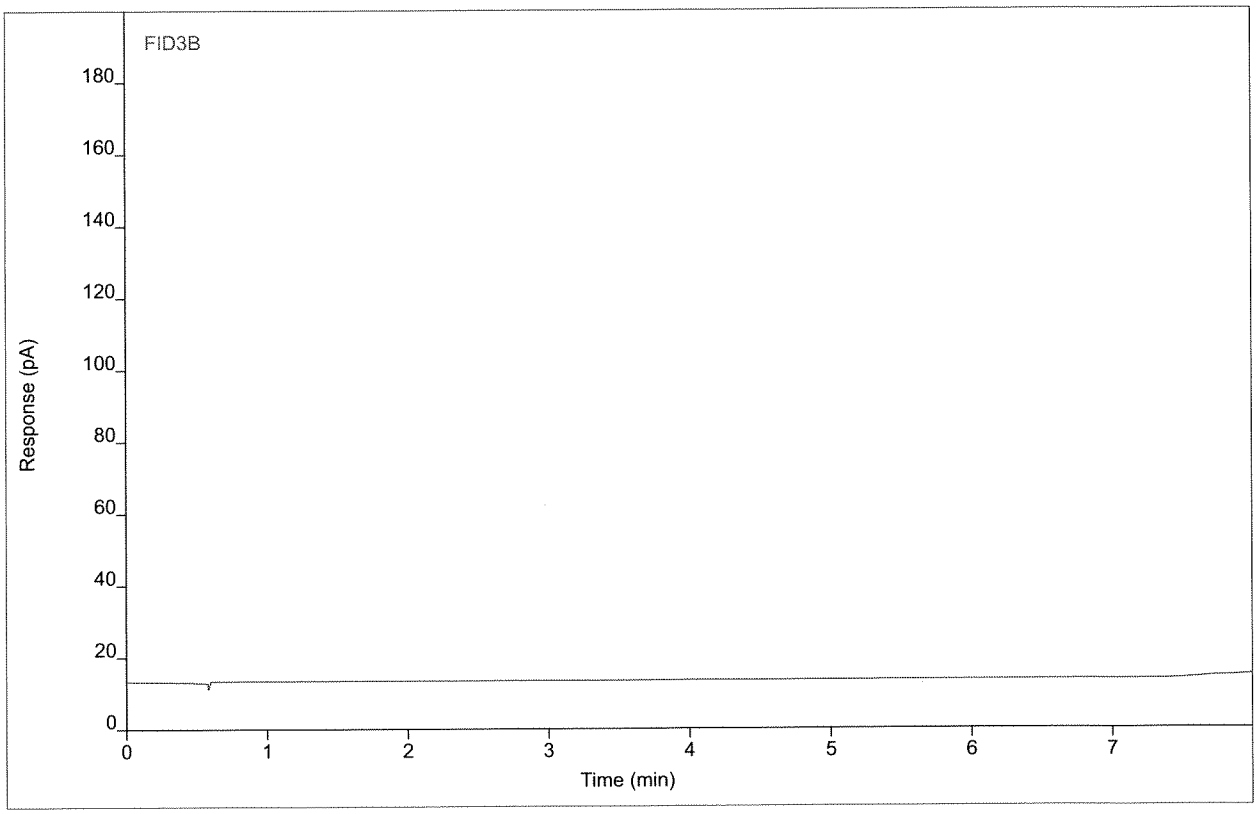
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Propylene		(4.91)				1		
?	BB	8.54	1.64033	1.72005		1		

Chromatogram Report

Sample Name	Zero Air Blank #LB
Sequence Name	EDITHP766 ver.4
Data File	032B1503.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:23 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 32
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/20/2016 11:24 AM
Printed	10/24/2016 9:41 AM



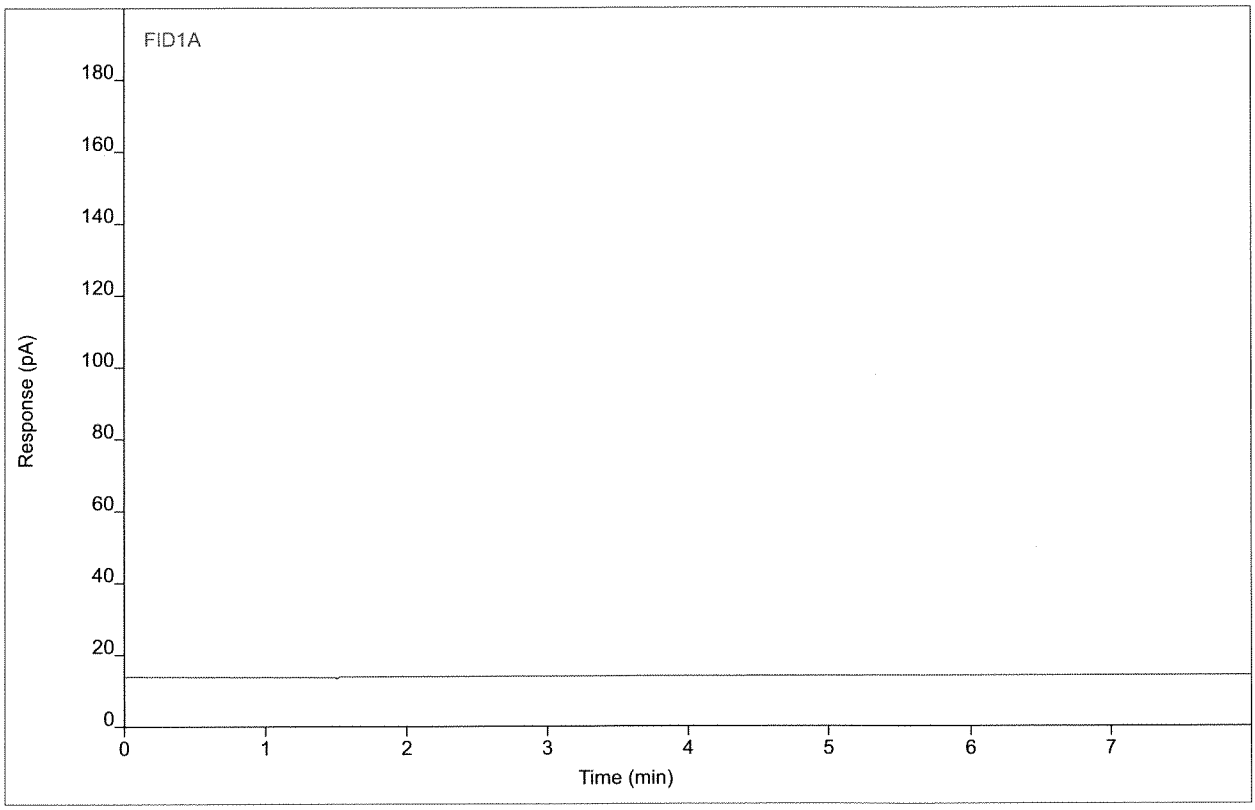
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Propylene		(4.91)				1		
?	BB	8.55	1.43680	1.55956		1		

Chromatogram Report

Enthalpy Analytical

Sample Name	Zero Air Blank #LB
Sequence Name	EDITHP766 ver.4
Data File	016F1501.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 7:40 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 16
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BTEX.M
Method Modified	10/14/2016 2:09 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane		(1.53)				1		
Ethane		(1.67)				1		
Propane		(1.99)				1		
Butane		(2.91)				1		
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

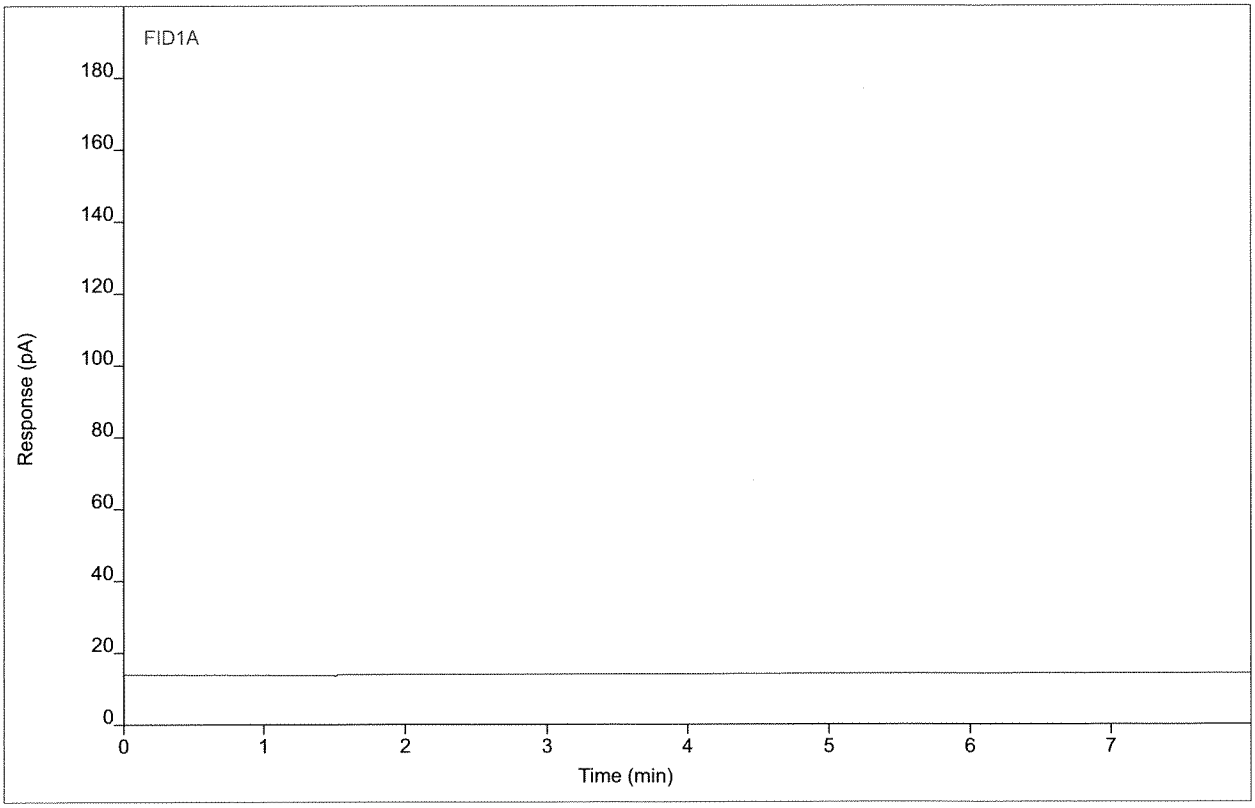
21:03:33 10/19/16 Trevor Lott II

Chromatogram Report

Enthalpy Analytical

Sample Name	Zero Air Blank #LB
Sequence Name	EDITHP766 ver.4
Data File	016F1502.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:02 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 16
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BTEX.M
Method Modified	10/14/2016 2:09 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane		(1.53)				1		
Ethane		(1.67)				1		
Propane		(1.99)				1		
Butane		(2.91)				1		
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

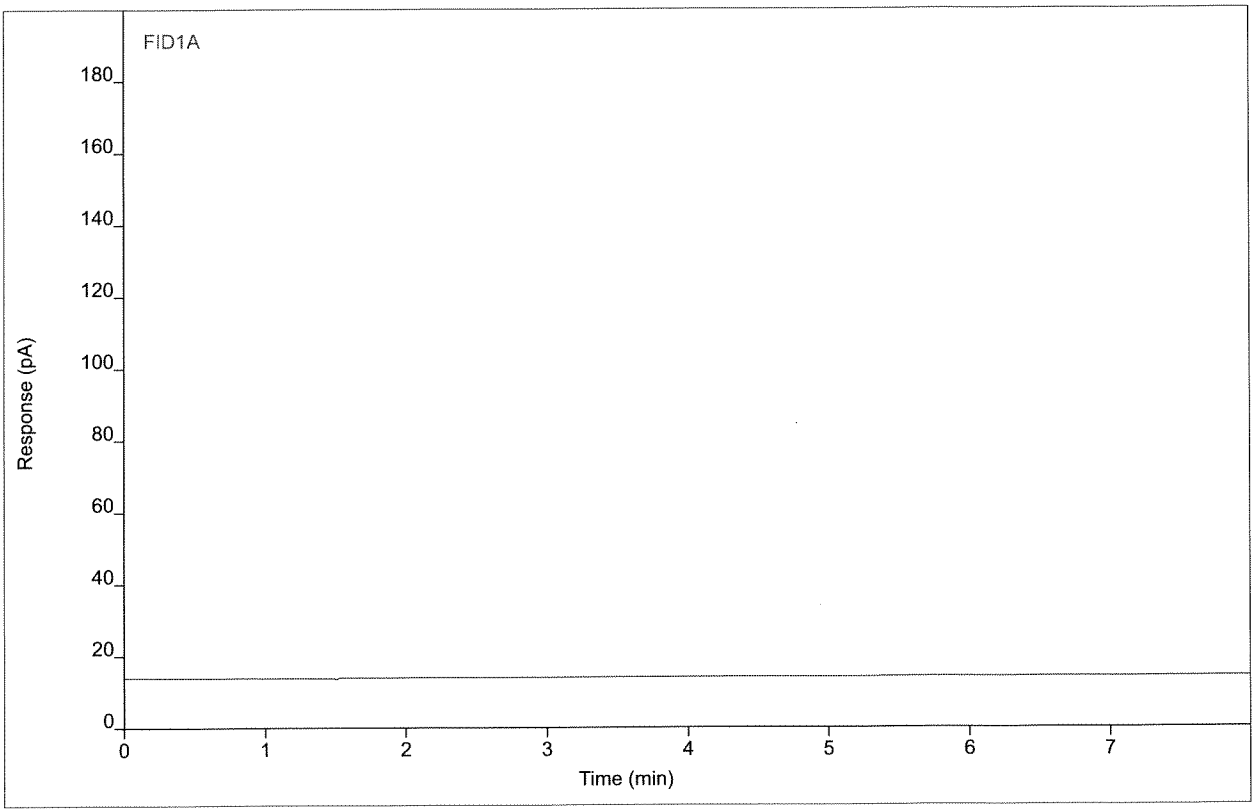
21:03:37 10/19/16 Trevor Lott II

Chromatogram Report

Enthalpy Analytical

Sample Name	Zero Air Blank #LB
Sequence Name	EDITHP766 ver.4
Data File	016F1503.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 8:23 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 16
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BTEX.M
Method Modified	10/14/2016 2:09 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane		(1.53)				1		
Ethane		(1.67)				1		
Propane		(1.99)				1		
Butane		(2.91)				1		
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

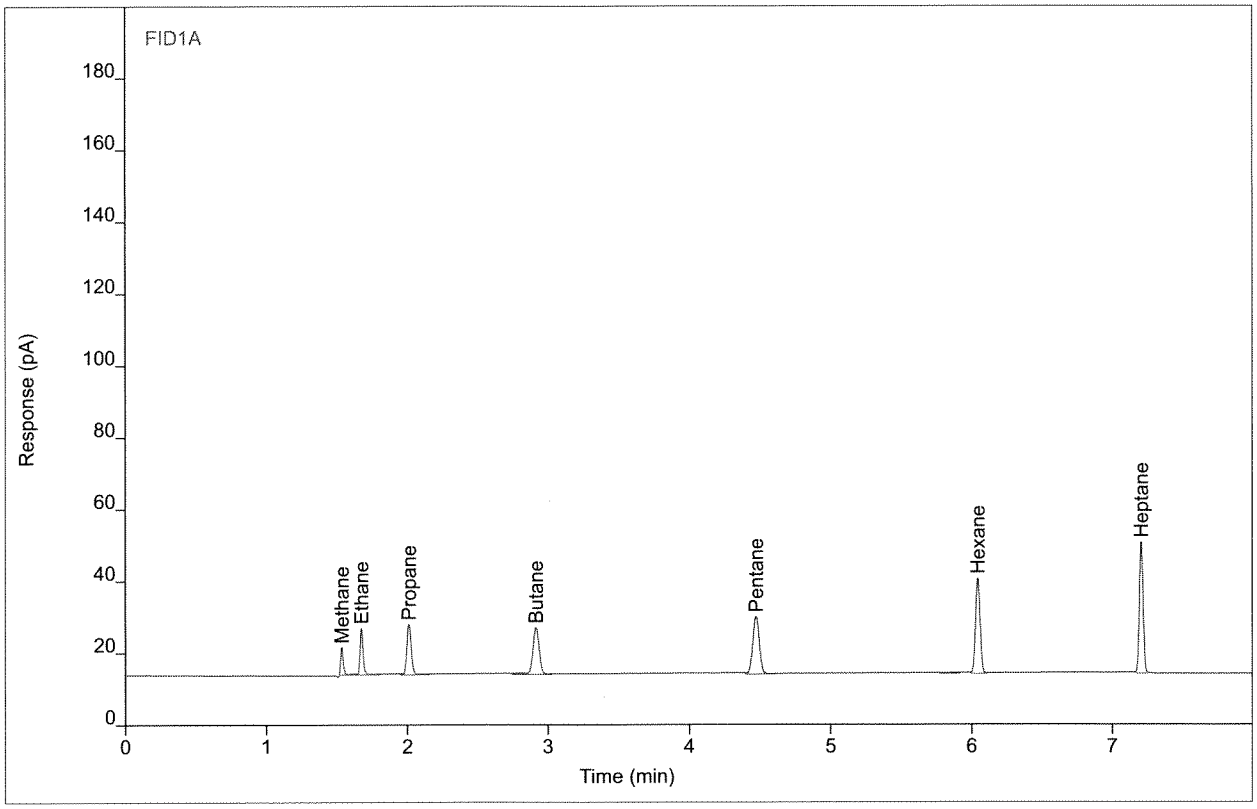
Analyst Peak Integration Comments

21:03:42 10/19/16 Trevor Lott II

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)	Sample Type	Calibration
Sequence Name	EDITHP766 ver.4	Vial Number	Vial 2
Data File	002F1701.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	1 of 3
Injection Date	10/19/2016 9:03 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/20/2016 11:37 AM	Analysis Method	EDITHP730F_C1-C7.M
Instrument		Method Modified	9/27/2016 9:43 AM
Operator	Trevor Lott	Printed	10/24/2016 9:40 AM



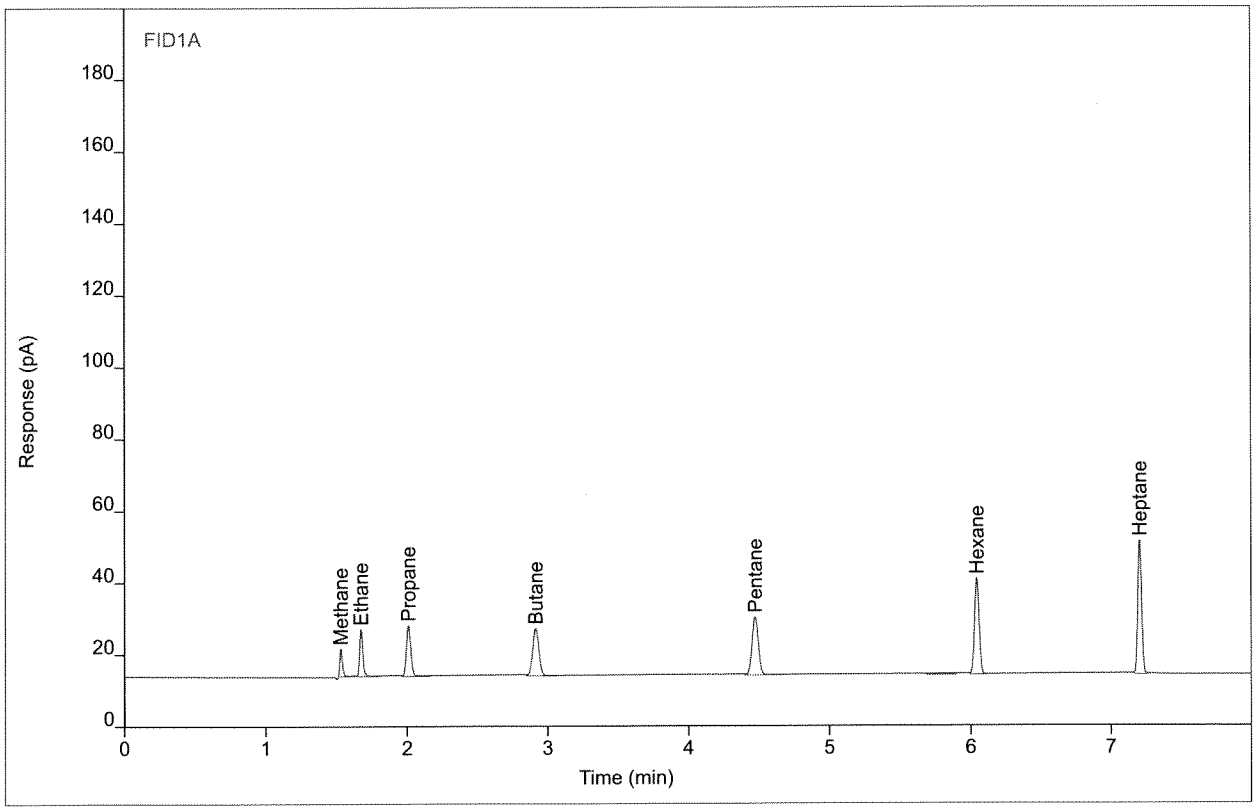
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.2845	7.61622	39.0144	1	39.0144	ppm
Ethane	PB	1.67	20.4364	13.0048	39.6188	1	39.6188	ppm
Propane	BB	2.01	30.6233	14.0577	39.5731	1	39.5731	ppm
Butane	BB	2.92	40.3247	13.0770	39.2264	1	39.2264	ppm
Pentane	BB	4.47	52.2242	16.0813	40.5991	1	40.5991	ppm
?	BB	5.83	0.49315	0.17516	0.63045	1	0.63045	ppm
Hexane	BB	6.04	61.3518	26.5375	40.0500	1	40.0500	ppm
Heptane	BB	7.21	70.2983	36.5975	39.4541	1	39.4541	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP766 ver.4
Data File	002F1702.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 9:18 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Trevor Lott

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:43 AM
Printed	10/24/2016 9:40 AM



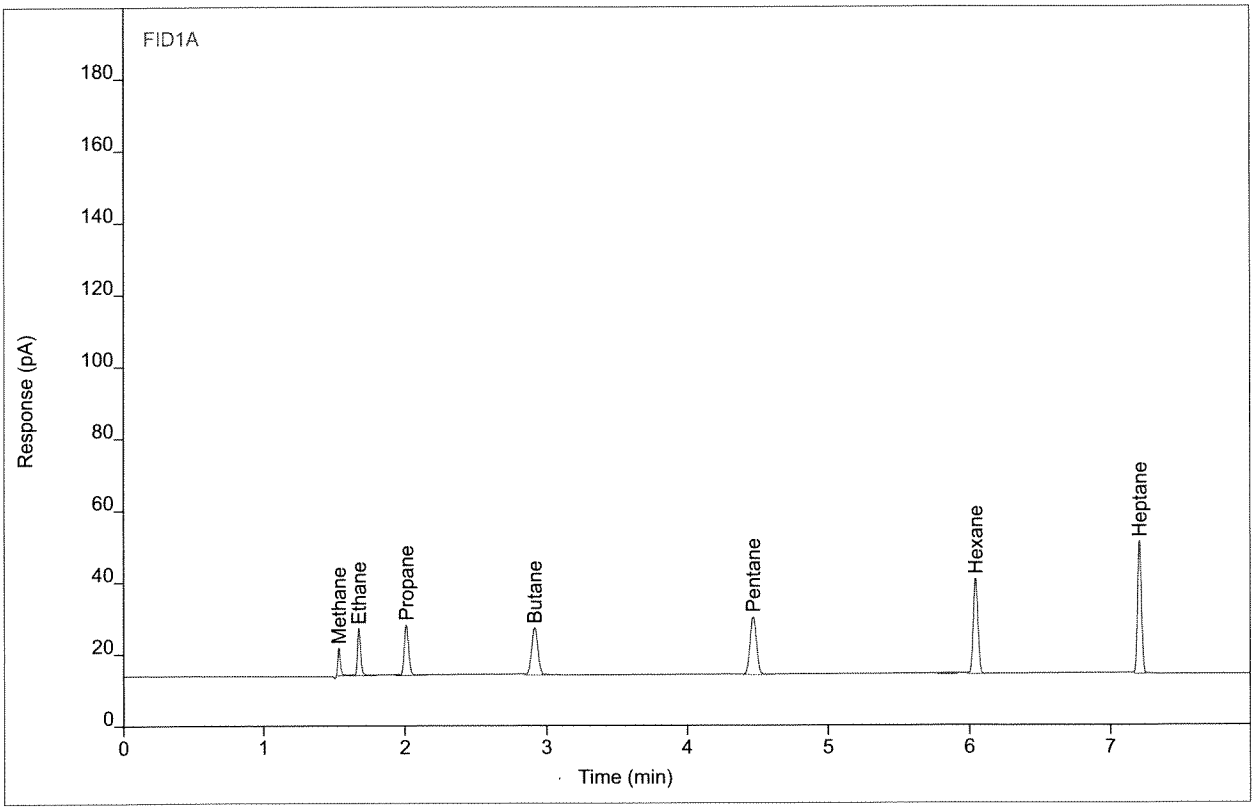
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3878	7.66295	39.4026	1	39.4026	ppm
Ethane	BB	1.67	20.4800	13.0882	39.7033	1	39.7033	ppm
Propane	BB	2.01	30.8428	14.1462	39.8572	1	39.8572	ppm
Butane	BB	2.92	40.7530	13.2149	39.6441	1	39.6441	ppm
Pentane	BB	4.47	52.4461	16.2445	40.7725	1	40.7725	ppm
?	BB	5.83	0.49593	0.17443	0.63400	1	0.63400	ppm
Hexane	BB	6.04	61.7017	26.7260	40.2792	1	40.2792	ppm
Heptane	BB	7.21	70.7289	37.1593	39.6962	1	39.6962	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP766 ver.4
Data File	002F1703.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 9:32 PM
File Modified	10/20/2016 11:37 AM
Instrument	
Operator	Trevor Lott

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:43 AM
Printed	10/24/2016 9:40 AM



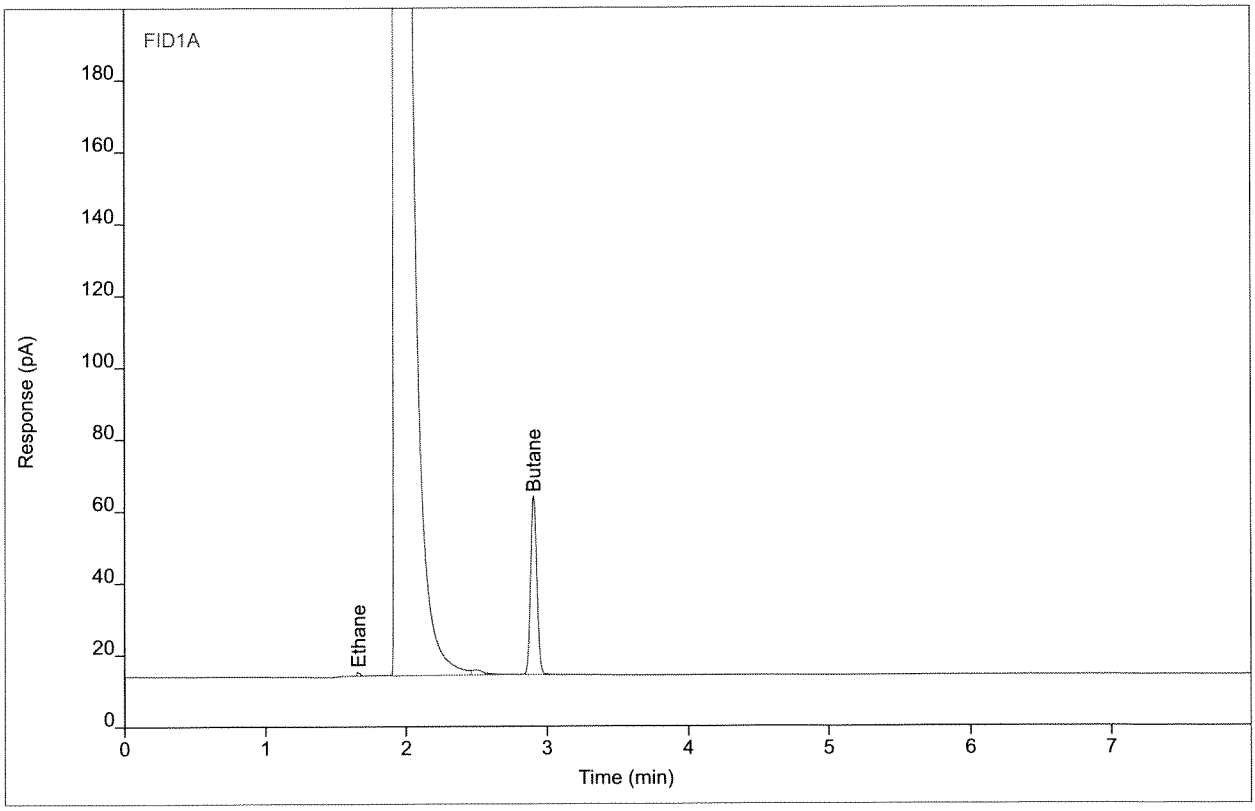
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3993	7.66890	39.4458	1	39.4458	ppm
Ethane	PB	1.67	20.7113	13.0990	40.1519	1	40.1519	ppm
Propane	PB	2.01	30.8149	14.1534	39.8212	1	39.8212	ppm
Butane	BB	2.92	40.6584	13.2075	39.5518	1	39.5518	ppm
Pentane	BV	4.47	52.6868	16.2240	40.9605	1	40.9605	ppm
?	BB	5.83	0.49948	0.18073	0.63853	1	0.63853	ppm
Hexane	BB	6.04	61.5887	26.6231	40.2052	1	40.2052	ppm
Heptane	BB	7.21	70.6359	36.8160	39.6439	1	39.6439	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.Can
Sequence Name	EDITHP766 ver.4
Data File	009F2501.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 4:54 AM
File Modified	10/22/2016 12:49 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



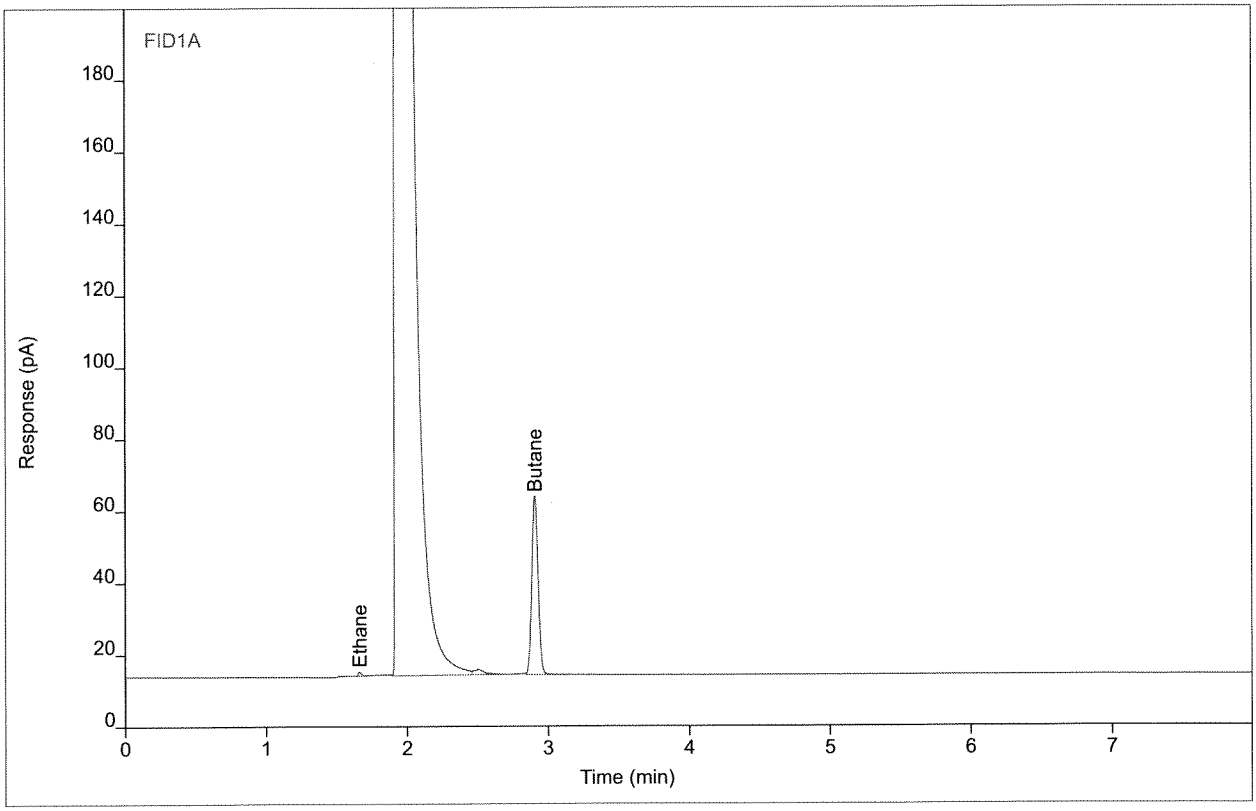
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					7.84777	1	7.84777	
Methane		(1.53)				1		
Ethane	PB	1.66	1.96459	1.28547	3.79931	1	3.79931	ppm
?	BV	1.94	86239.4	36421.5	111618	1	111618	ppm
Propane		(1.99)				1		
?	VB	2.51	8.29186	1.52618	10.6699	1	10.6699	ppm
Butane	BB	2.91	154.399	49.7319	150.474	1	150.474	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.Can
Sequence Name	EDITHP766 ver.4
Data File	009F2502.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 5:15 AM
File Modified	10/22/2016 12:49 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



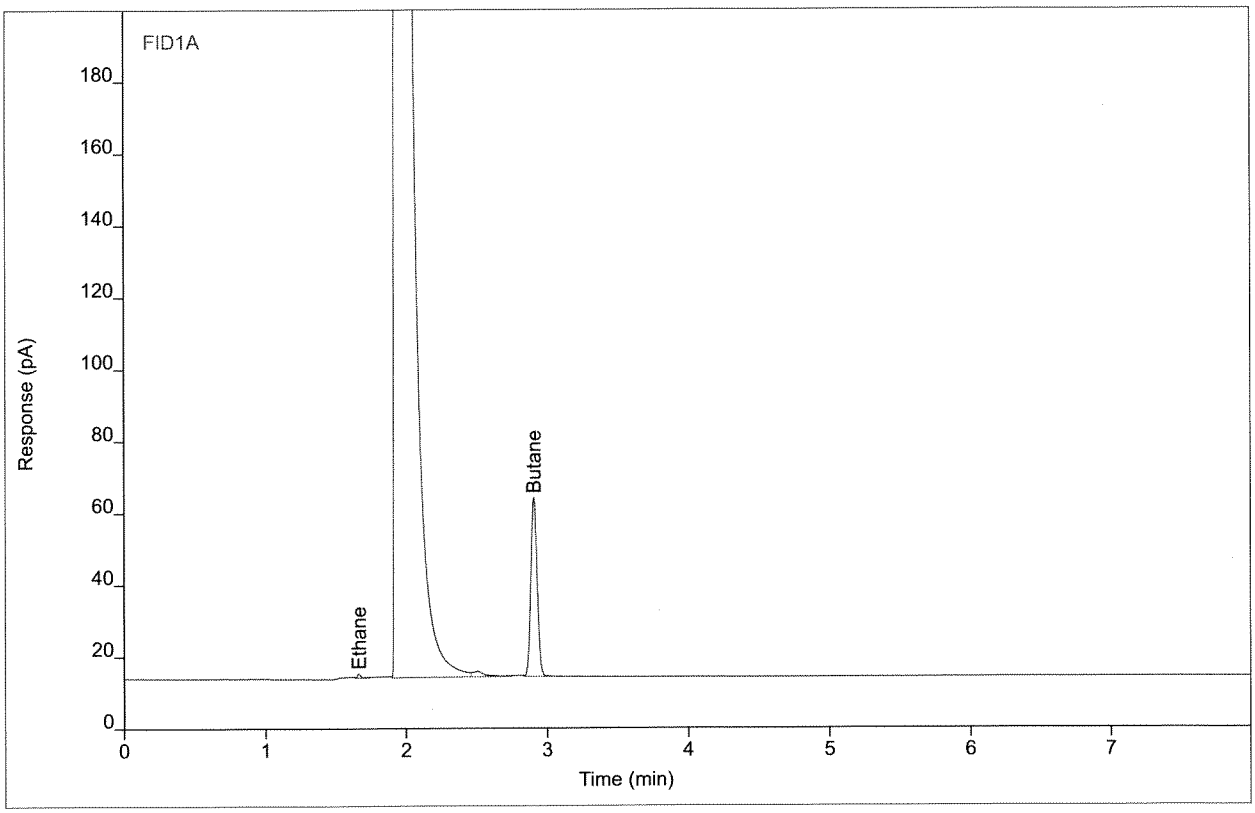
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					7.84653	1	7.84653	
Methane		(1.53)				1		
Ethane	PB	1.66	1.96090	1.29609	3.79216	1	3.79216	ppm
?	BV	1.94	86154.3	36441.3	111508	1	111508	ppm
Propane		(1.99)				1		
?	VB	2.51	8.29055	1.52872	10.6682	1	10.6682	ppm
Butane	BB	2.91	154.323	49.7324	150.400	1	150.400	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.Can
Sequence Name	EDITHP766 ver.4
Data File	009F2503.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 5:37 AM
File Modified	10/22/2016 1:34 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					8.24569	1	8.24569	
Methane		(1.53)				1		
Ethane	BB	1.66	1.92174	1.29225	3.71643	1	3.71643	ppm
?	MF	1.94	86232.8	36800.6	111610	1	111610	ppm
Propane		(2.00)				1		
?	FM	2.50	8.71230	1.57601	11.2141	1	11.2141	ppm
Butane	MM	2.91	154.380	49.8888	150.456	1	150.456	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

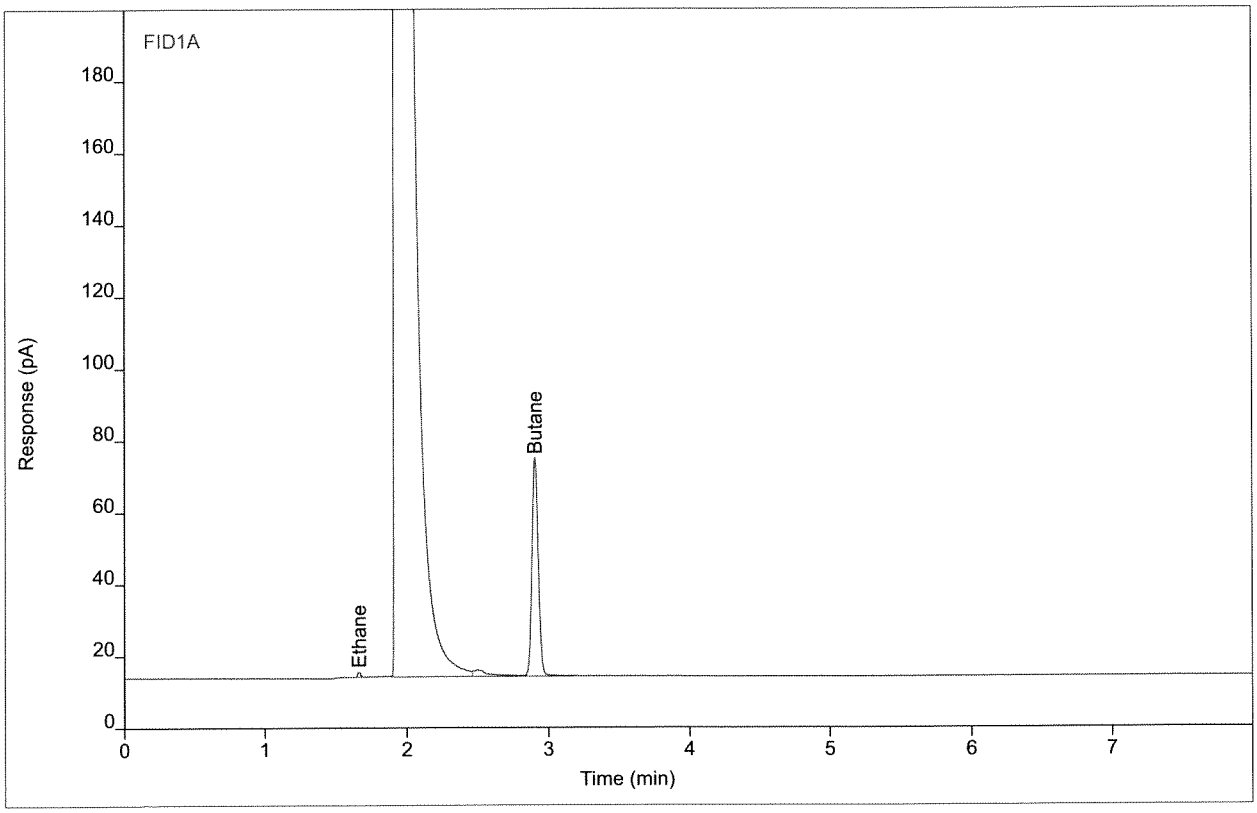
13:34:14 10/22/16 Nicholas Traversa II-BL
13:34:19 10/22/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	EDITHP766 ver.4
Data File	010F2601.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 5:58 AM
File Modified	10/22/2016 12:49 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



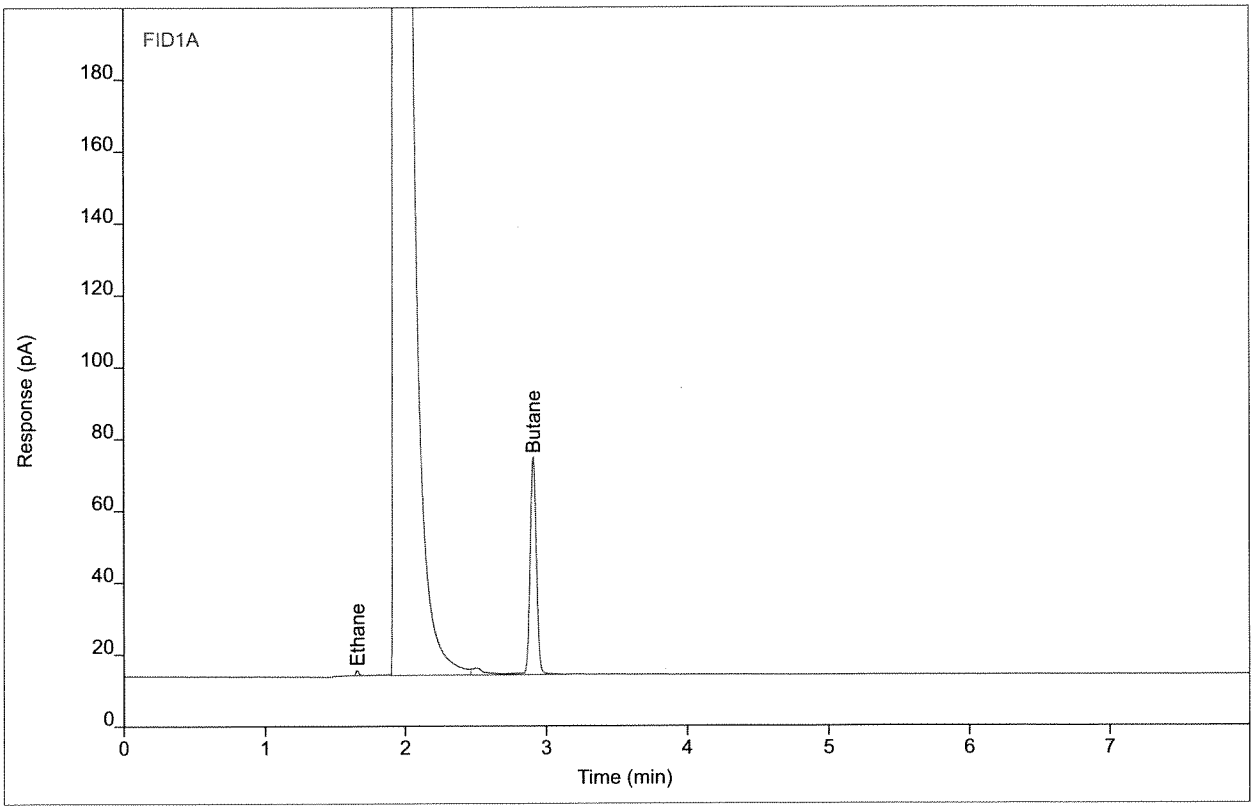
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					14.2153	1	14.2153	
Methane		(1.53)				1		
Ethane	PB	1.66	2.27634	1.49793	4.40219	1	4.40219	ppm
?	BV	1.94	101722	41500.4	131657	1	131657	ppm
Propane		(1.99)				1		
?	VV	2.51	13.7676	2.02622	17.7571	1	17.7571	ppm
?	VV	2.78	1.25214	0.29939	1.60073	1	1.60073	ppm
Butane	VB	2.91	190.415	60.7050	185.598	1	185.598	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	EDITHP766 ver.4
Data File	010F2602.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 6:19 AM
File Modified	10/22/2016 12:49 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



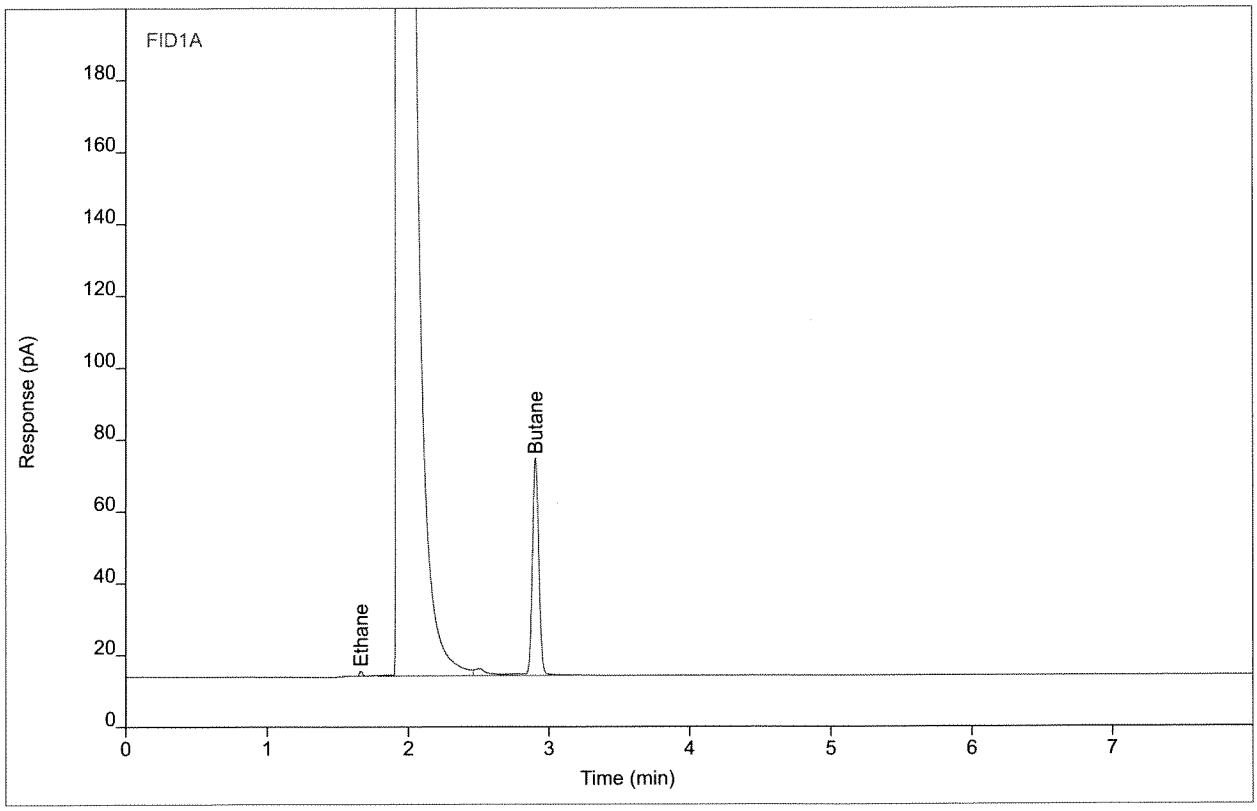
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					13.9450	1	13.9450	
Methane		(1.53)				1		
Ethane	PB	1.66	2.28773	1.50519	4.42423	1	4.42423	ppm
?	BV	1.94	101458	41334.1	131316	1	131316	ppm
Propane		(1.99)				1		
?	VV	2.51	13.4827	2.02265	17.3883	1	17.3883	ppm
?	VV	2.77	1.25141	0.29299	1.59980	1	1.59980	ppm
Butane	VB	2.91	189.772	60.5340	184.971	1	184.971	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	EDITHP766 ver.4
Data File	010F2603.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 6:40 AM
File Modified	10/22/2016 12:49 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



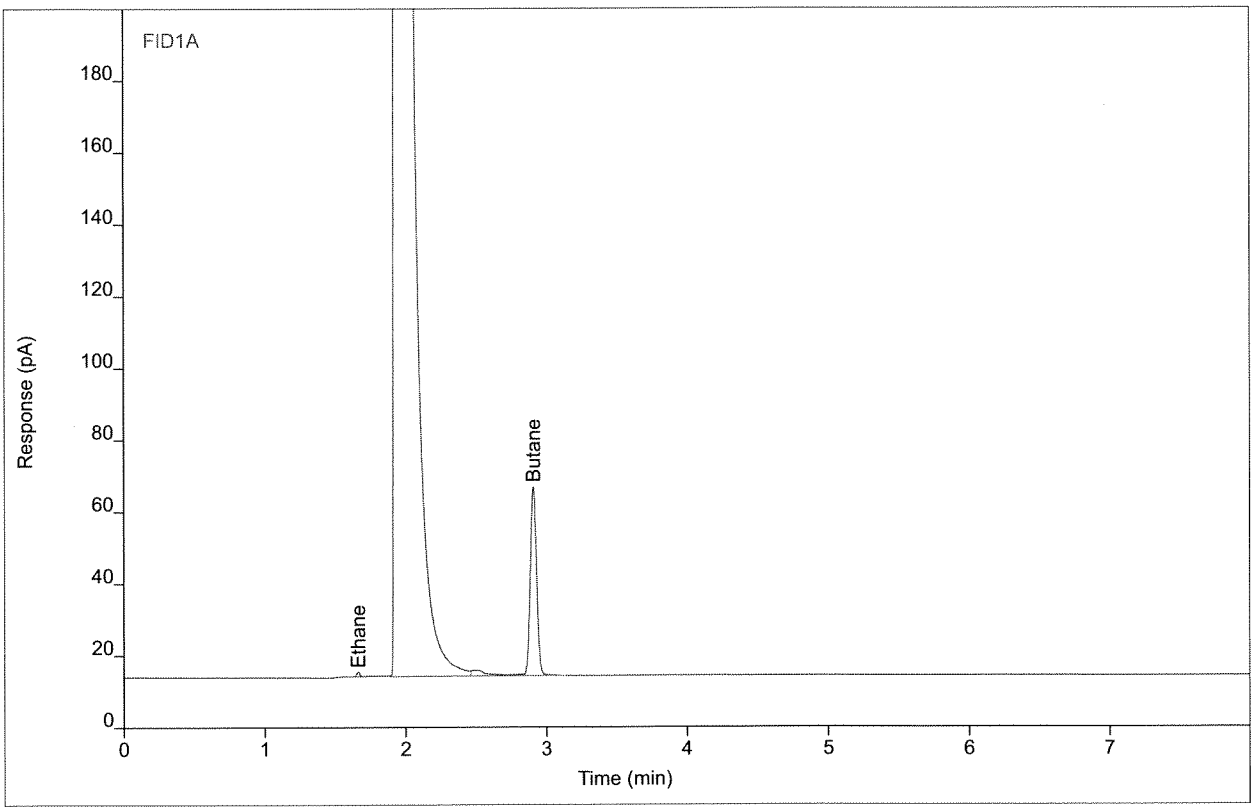
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					13.7925	1	13.7925	
Methane		(1.53)				1		
Ethane	PB	1.66	2.18128	1.48931	4.21836	1	4.21836	ppm
?	BV	1.94	101388	41369.4	131225	1	131225	ppm
Propane		(1.99)				1		
?	VV	2.51	13.4366	2.01273	17.3286	1	17.3286	ppm
?	VV	2.78	1.13638	0.29603	1.45275	1	1.45275	ppm
Butane	VB	2.91	189.643	60.5293	184.845	1	184.845	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	EDITHP766 ver.4
Data File	011F2701.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 7:02 AM
File Modified	10/22/2016 1:34 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 11
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					12.8334	1	12.8334	
Methane		(1.53)				1		
Ethane	PB	1.66	1.96719	1.32949	3.80434	1	3.80434	ppm
?	MF	1.94	97436.4	40512.6	126110	1	126110	ppm
Propane		(2.00)				1		
?	MF	2.51	13.5596	1.84826	17.4879	1	17.4879	ppm
Butane	FM	2.91	164.712	52.7831	160.532	1	160.532	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

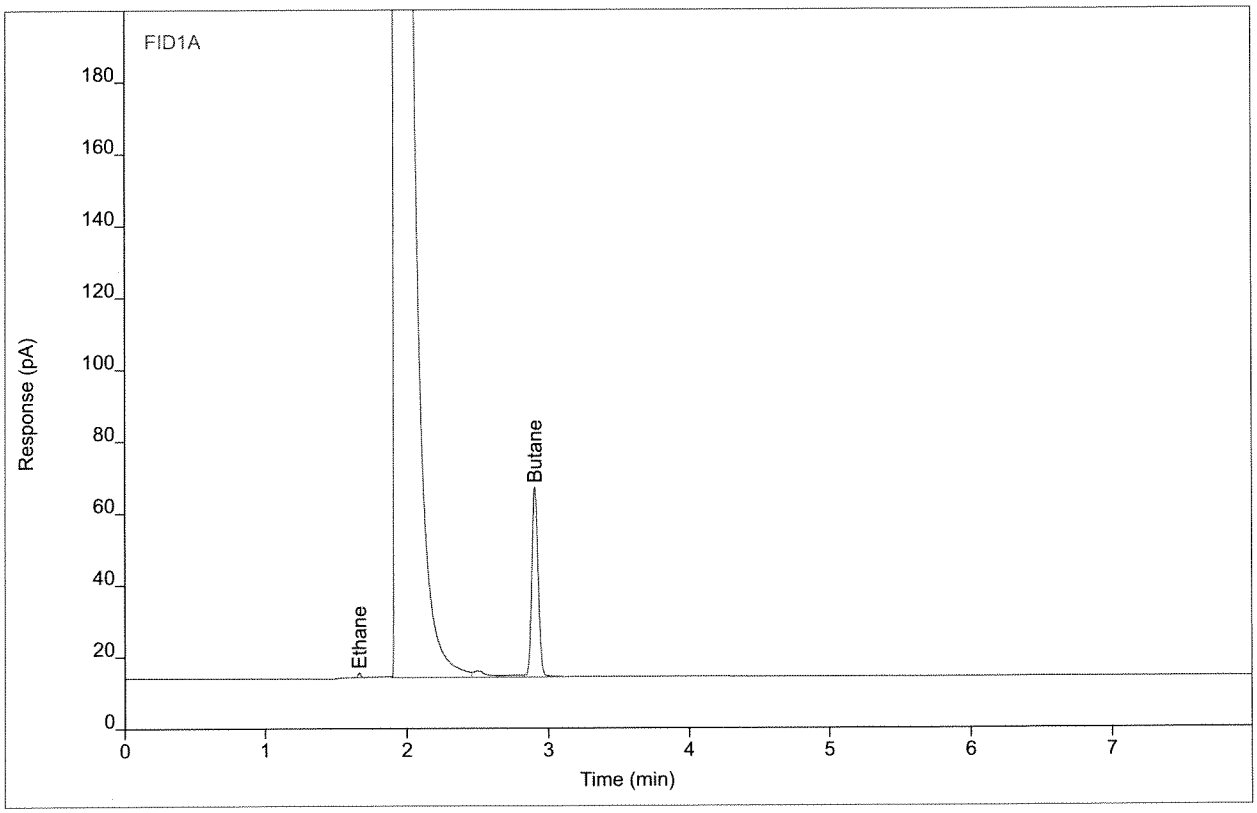
13:34:50 10/22/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	EDITHP766 ver.4
Data File	011F2702.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 7:23 AM
File Modified	10/22/2016 1:35 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 11
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					13.5855	1	13.5855	
Methane		(1.53)				1		
Ethane	PB	1.66	1.94182	1.32647	3.75527	1	3.75527	ppm
?	MF	1.94	97579.3	40338.8	126295	1	126295	ppm
Propane		(2.00)				1		
?	MF	2.51	14.3542	1.89040	18.5163	1	18.5163	ppm
Butane	FM	2.91	165.520	52.9377	161.319	1	161.319	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

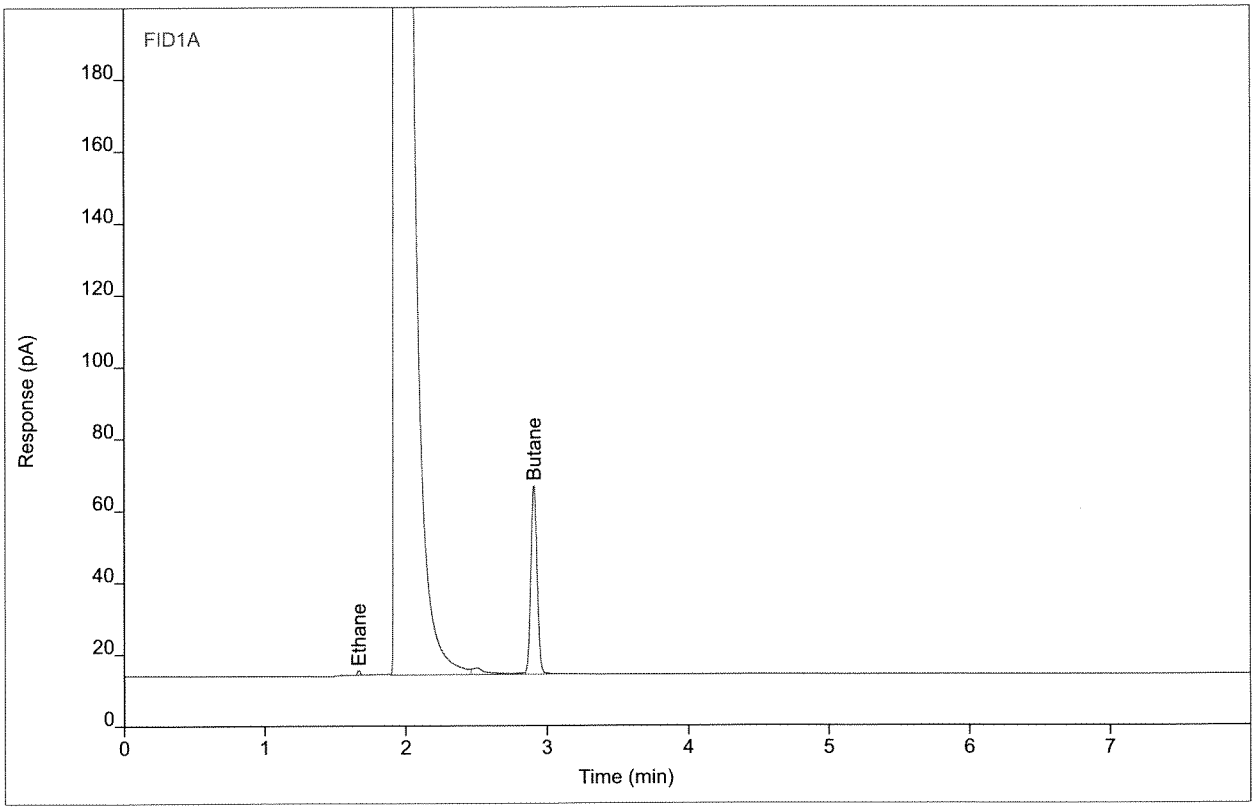
13:35:04 10/22/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	EDITHP766 ver.4
Data File	011F2703.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 7:44 AM
File Modified	10/22/2016 1:35 PM
Instrument	
Operator	Trevor Lott

Sample Type	Sample
Vial Number	Vial 11
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 12:20 PM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					12.6661	1	12.6661	
Methane		(1.53)				1		
Ethane	PB	1.66	1.98403	1.33472	3.83689	1	3.83689	ppm
?	MF	1.94	97403.0	40327.8	126067	1	126067	ppm
Propane		(2.00)				1		
?	MF	2.51	13.3829	1.86337	17.2591	1	17.2591	ppm
Butane	FM	2.91	164.648	52.7828	160.469	1	160.469	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

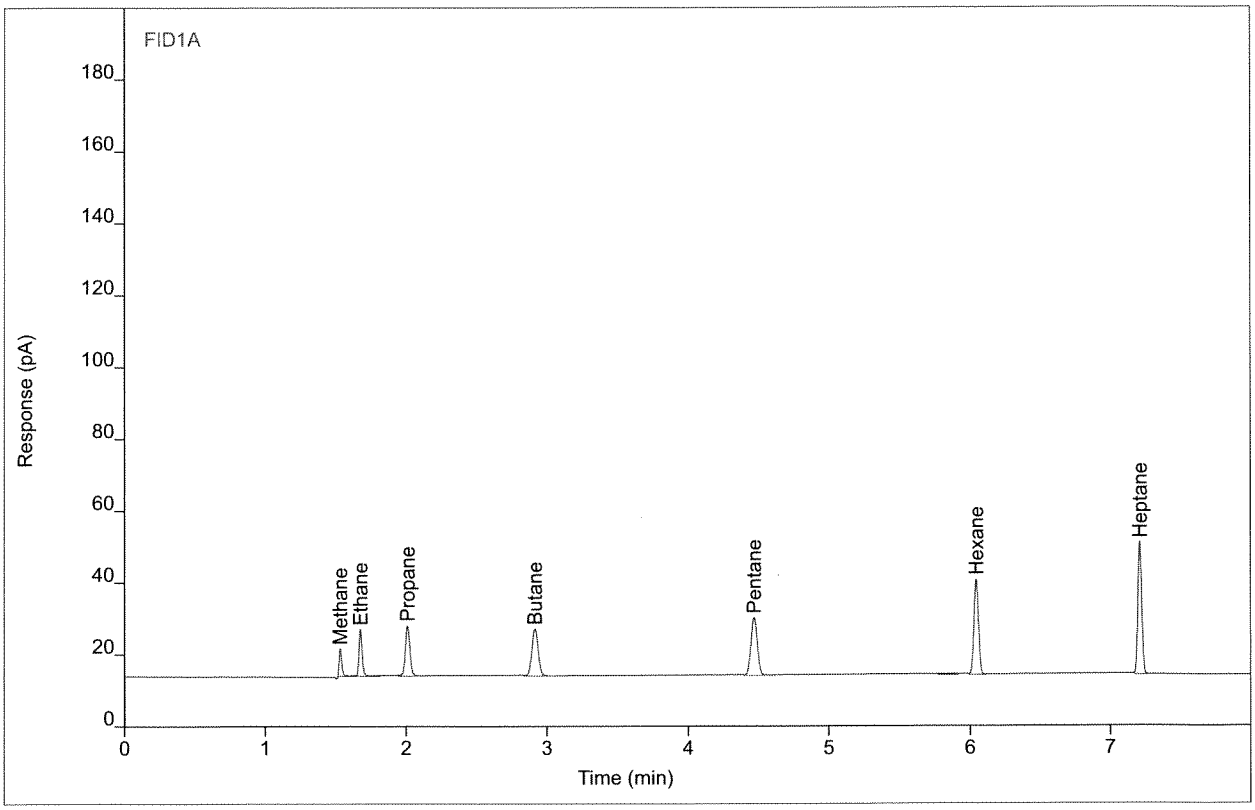
Analyst Peak Integration Comments

13:35:15 10/22/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)	Sample Type	Calibration
Sequence Name	EDITHP766 ver.4	Vial Number	Vial 2
Data File	002F2901.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	1 of 3
Injection Date	10/20/2016 9:05 AM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/20/2016 11:38 AM	Analysis Method	EDITHP730F_C1-C7.M
Instrument		Method Modified	9/27/2016 9:43 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	10.4090	7.62214	39.4823	1	39.4823	ppm
Ethane	VB	1.68	20.4702	13.0241	39.6843	1	39.6843	ppm
Propane	BB	2.01	31.5570	14.0960	40.7816	1	40.7816	ppm
Butane	BB	2.92	40.6557	13.1540	39.5492	1	39.5492	ppm
Pentane	BB	4.47	52.3565	16.1605	40.7025	1	40.7025	ppm
?	BB	5.83	0.49387	0.17181	0.63136	1	0.63136	ppm
Hexane	BB	6.05	61.4123	26.5994	40.0896	1	40.0896	ppm
Heptane	BB	7.21	70.4749	36.7111	39.5534	1	39.5534	ppm

Analyst Peak Integration Comments

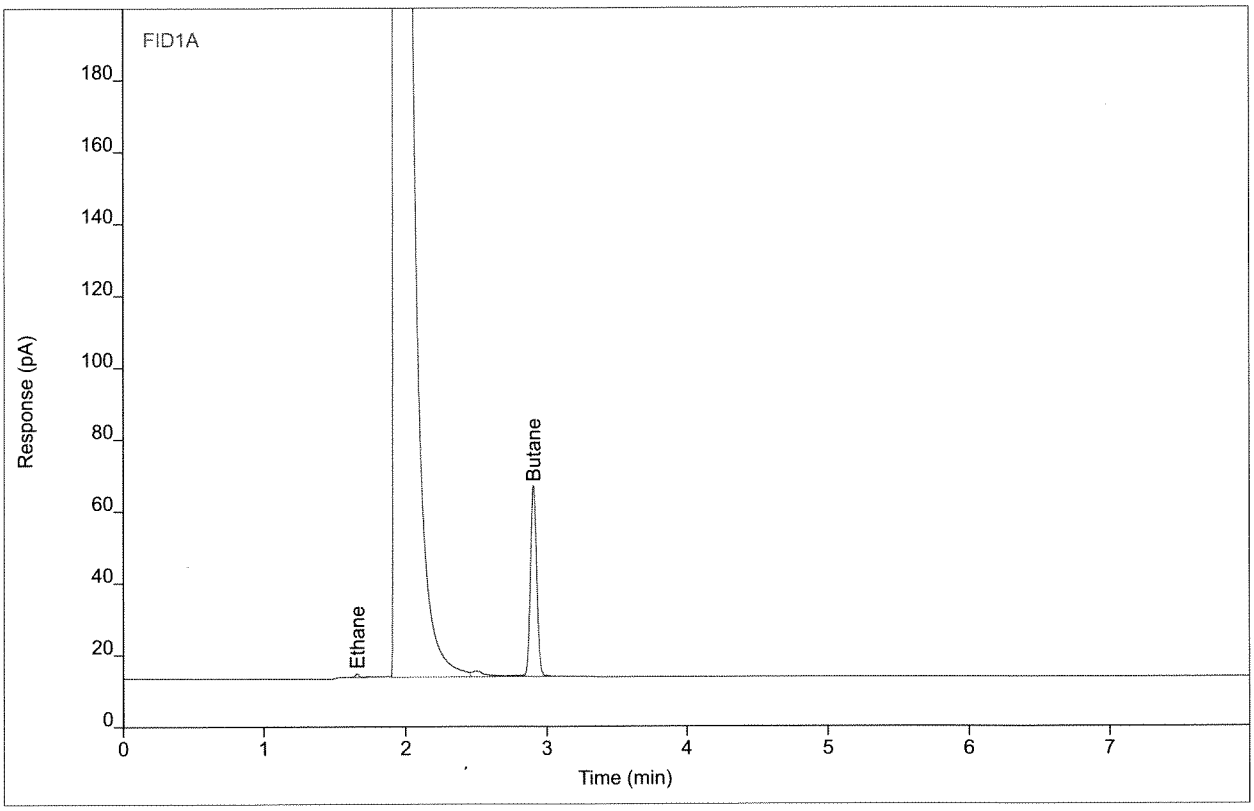
10:17:51 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	EDITHP770 ver.7
Data File	003F0101.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 11:00 PM
File Modified	10/24/2016 9:21 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 1:09 PM
Printed	10/24/2016 9:41 AM



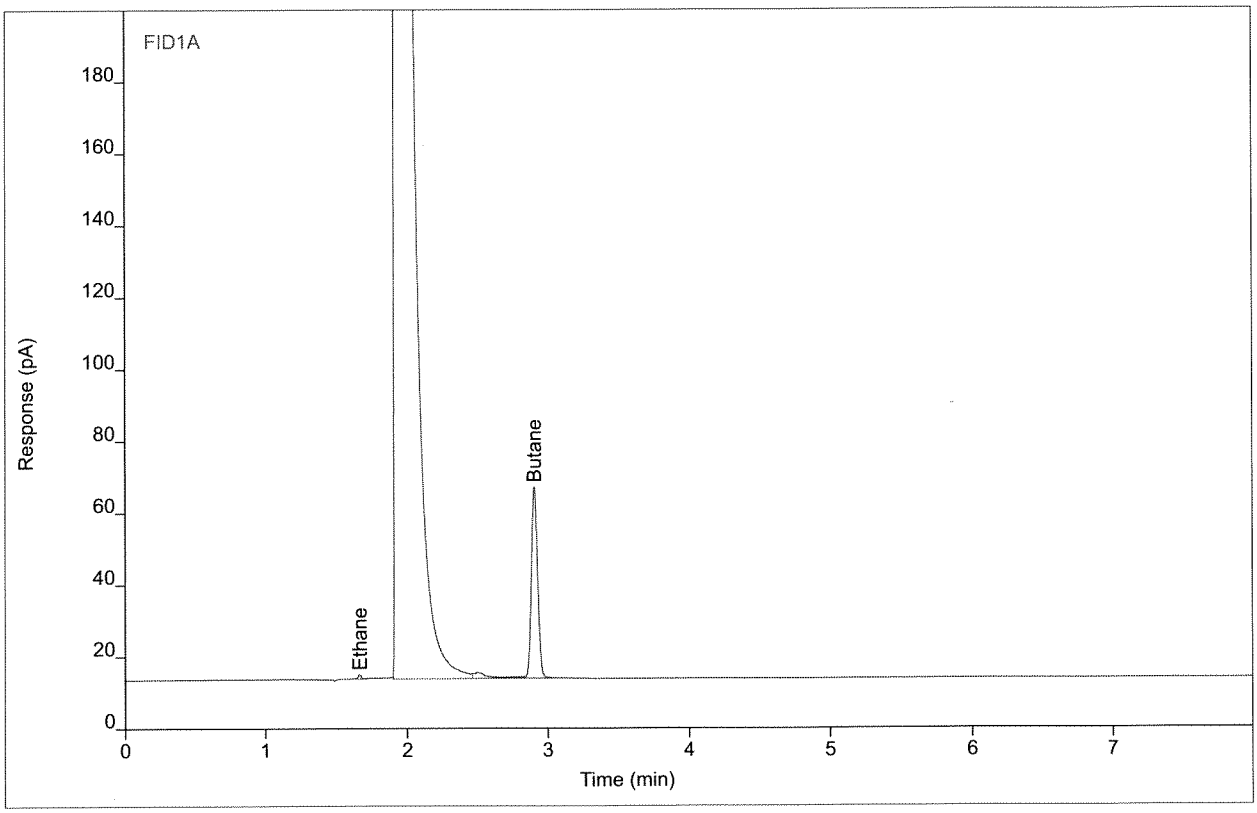
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					11.4115	1	11.4115	
Methane		(1.53)				1		
Ethane	PB	1.66	1.93526	1.28899	3.74257	1	3.74257	ppm
?	MF	1.93	94145.6	39480.1	121851	1	121851	ppm
Propane		(2.00)				1		
?	MF	2.51	12.0572	1.78500	15.5433	1	15.5433	ppm
Butane	FM	2.91	164.496	53.1967	160.321	1	160.321	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	EDITHP770 ver.7
Data File	003F0102.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 11:22 PM
File Modified	10/24/2016 9:21 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 1:09 PM
Printed	10/24/2016 9:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					11.1970	1	11.1970	
Methane		(1.53)				1		
Ethane	PB	1.66	1.94031	1.30024	3.75236	1	3.75236	ppm
?	MF	1.94	94711.3	39731.9	122583	1	122583	ppm
Propane		(2.00)				1		
?	MF	2.51	11.8307	1.76502	15.2501	1	15.2501	ppm
Butane	FM	2.91	165.429	53.4062	161.231	1	161.231	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

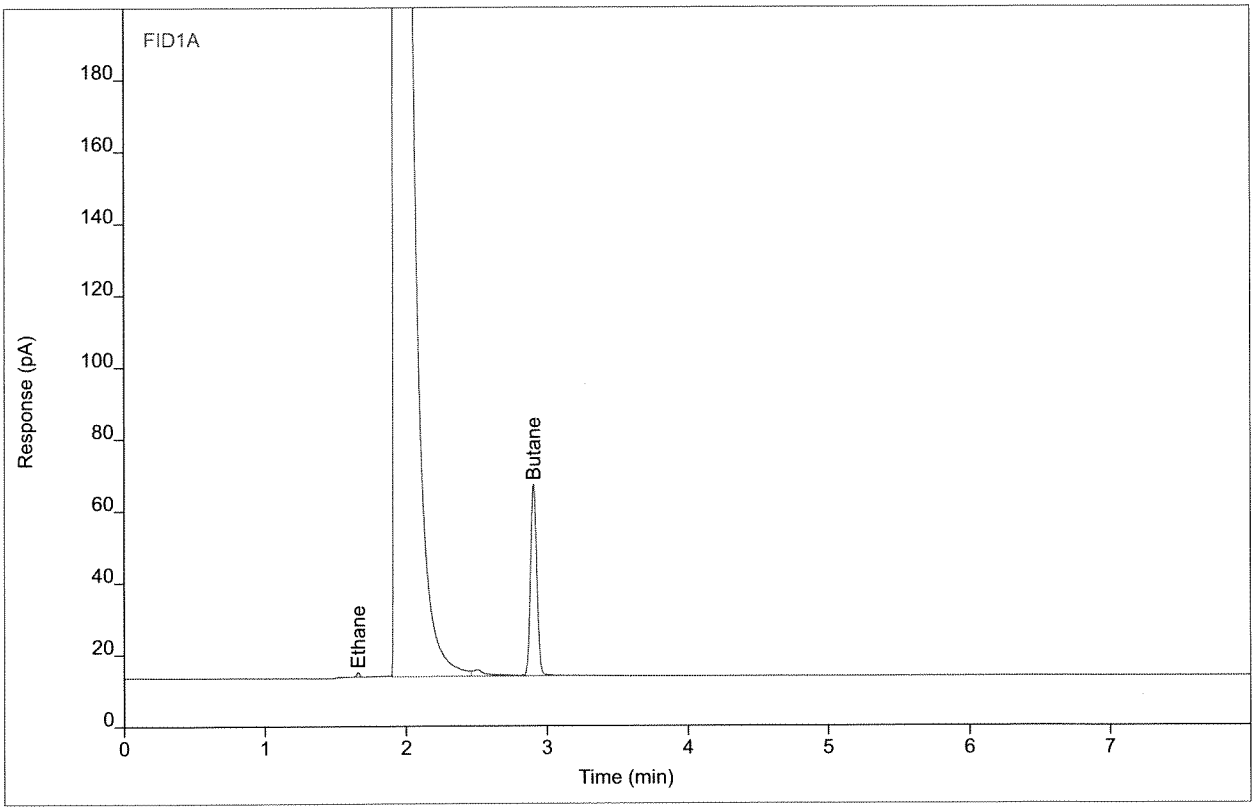
08:21:33 10/24/16 Justin Guenzler II-BL
09:10:15 10/24/16 Nicholas Traversa 0816-140.U2-C4-Primary Can1111.Can

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	EDITHP770 ver.7
Data File	003F0103.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 11:44 PM
File Modified	10/24/2016 9:21 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 3
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP274_HRVOC_XLONG.M
Analysis Method	EDITHP730F_C1-C6_BENZENE.M
Method Modified	10/22/2016 1:09 PM
Printed	10/24/2016 9:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
as Butane					11.1375	1	11.1375	
Methane		(1.53)				1		
Ethane	PB	1.66	2.10499	1.31171	4.07083	1	4.07083	ppm
?	MF	1.94	94430.2	39433.8	122219	1	122219	ppm
Propane		(2.00)				1		
?	MF	2.50	11.7677	1.76714	15.1687	1	15.1687	ppm
Butane	FM	2.91	165.183	53.3271	160.991	1	160.991	ppm
Pentane		(4.46)				1		
Hexane		(6.04)				1		
Benzene		(6.77)				1		

Analyst Peak Integration Comments

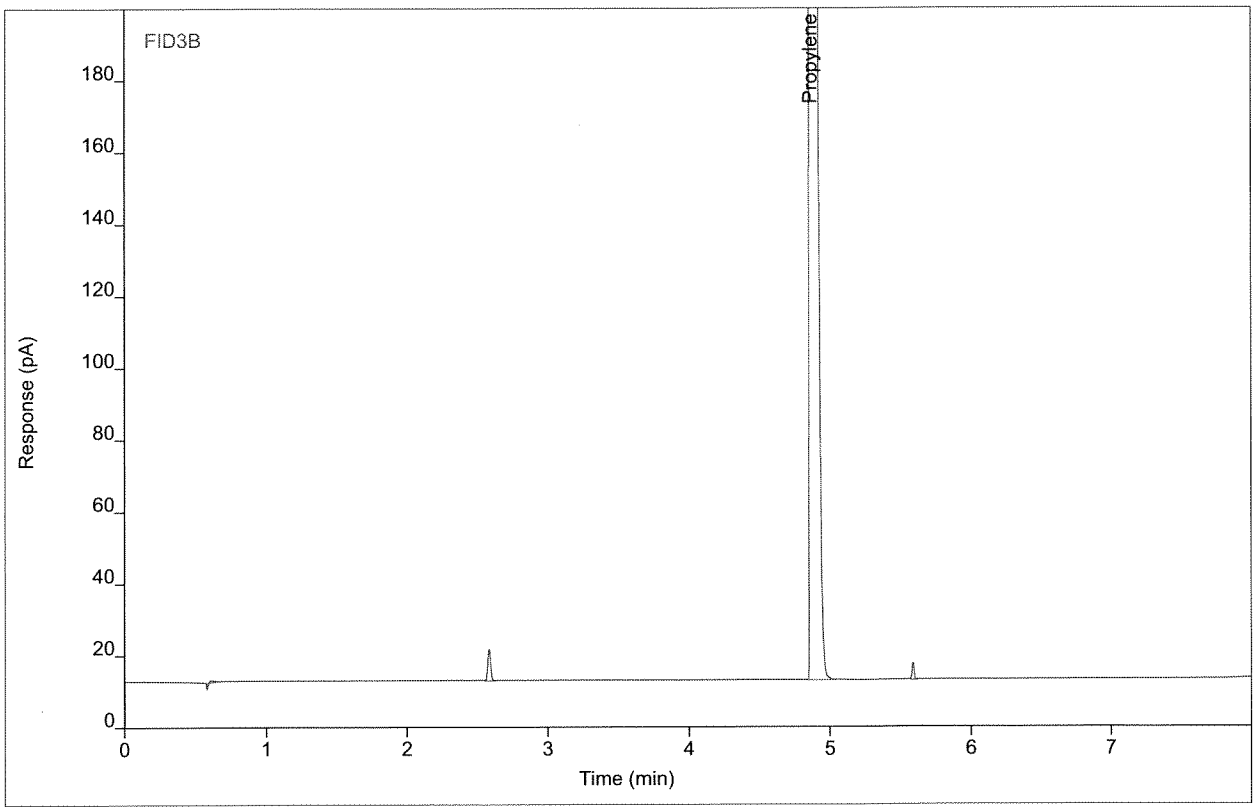
08:21:46 10/24/16 Justin Guenzler II-BL
09:10:38 10/24/16 Nicholas Traversa 0816-140.U2-C4-Primary Can1111.Can

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.CanP2
Sequence Name	EDITHP768 ver.4
Data File	025B2101.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 11:18 AM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 25
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



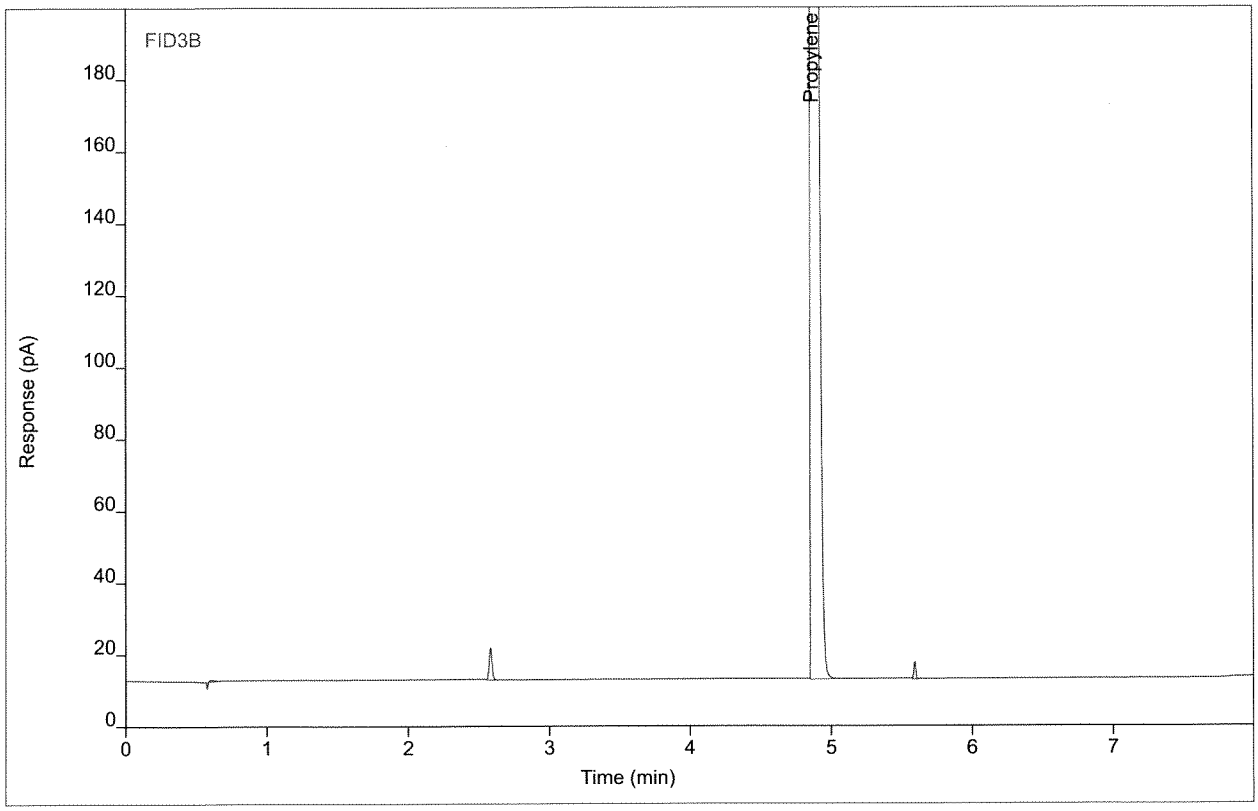
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.46166	0.73043		31		
?	BB	2.58	12.7732	8.83402		31		
Propylene	BB	4.86	2766.14	1093.40	1713.92	31	53131.6	ppm
?	BB	5.59	4.89351	4.70816		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.CanP2
Sequence Name	EDITHP768 ver.4
Data File	025B2102.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 11:31 AM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 25
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM

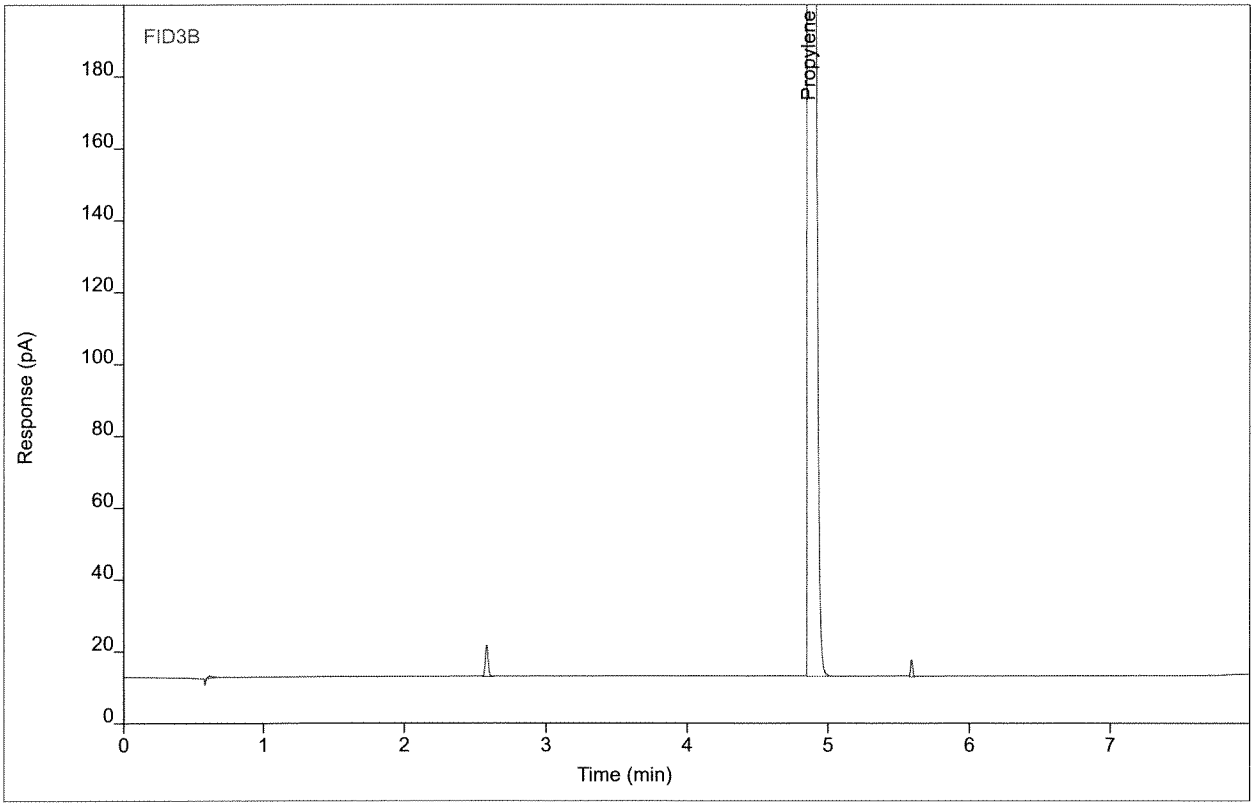


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.48442	0.73211		31		
?	BB	2.58	12.7528	8.84329		31		
Propylene	BB	4.86	2765.38	1081.63	1713.46	31	53117.2	ppm
?	BB	5.59	4.88935	4.76590		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.CanP2	Sample Type	Sample
Sequence Name	EDITHP768 ver.4	Vial Number	Vial 25
Data File	025B2103.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	3 of 3
Injection Date	10/21/2016 11:45 AM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/24/2016 8:59 AM	Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Instrument		Method Modified	10/22/2016 11:28 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:41 AM



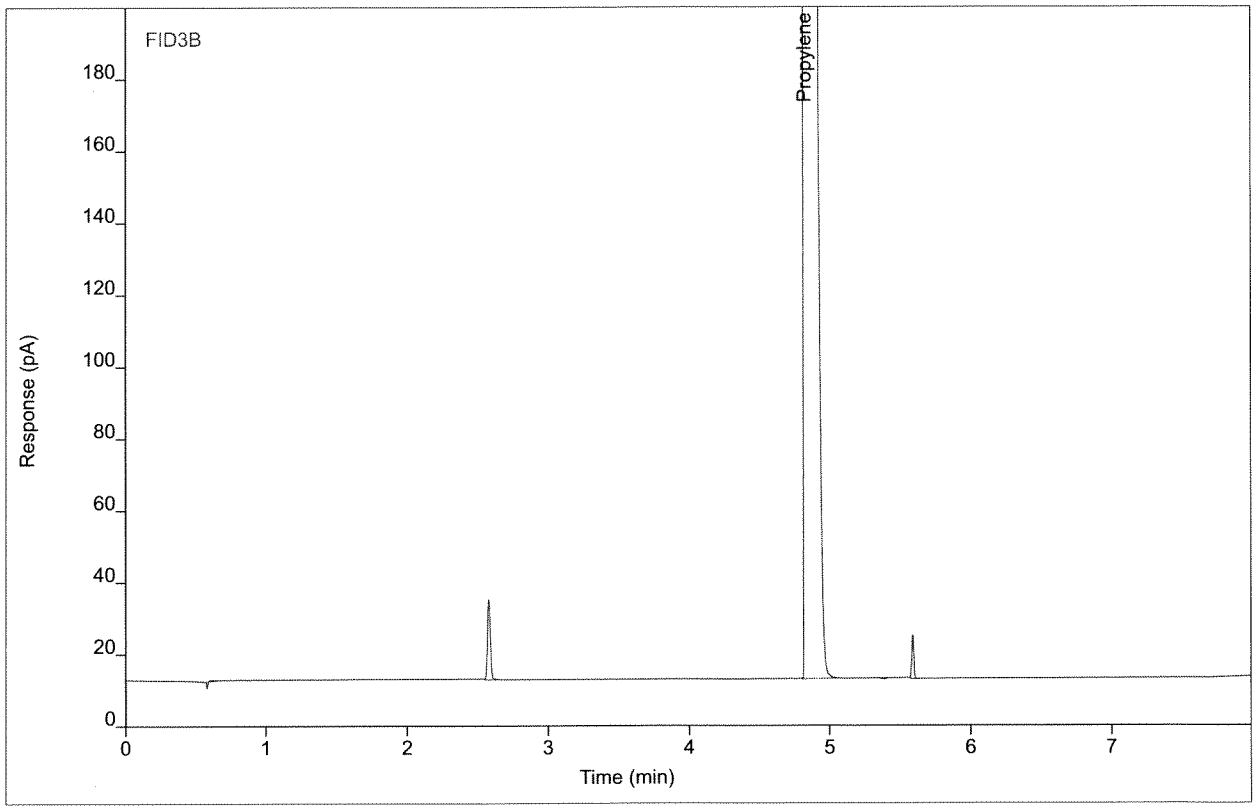
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.47494	0.73522		31		
?	BB	2.58	12.7462	8.82963		31		
Propylene	BB	4.86	2760.42	1142.48	1710.38	31	53021.8	ppm
?	BB	5.59	4.88268	4.68089		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	EDITHP768 ver.4
Data File	026B2201.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 11:59 AM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 26
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



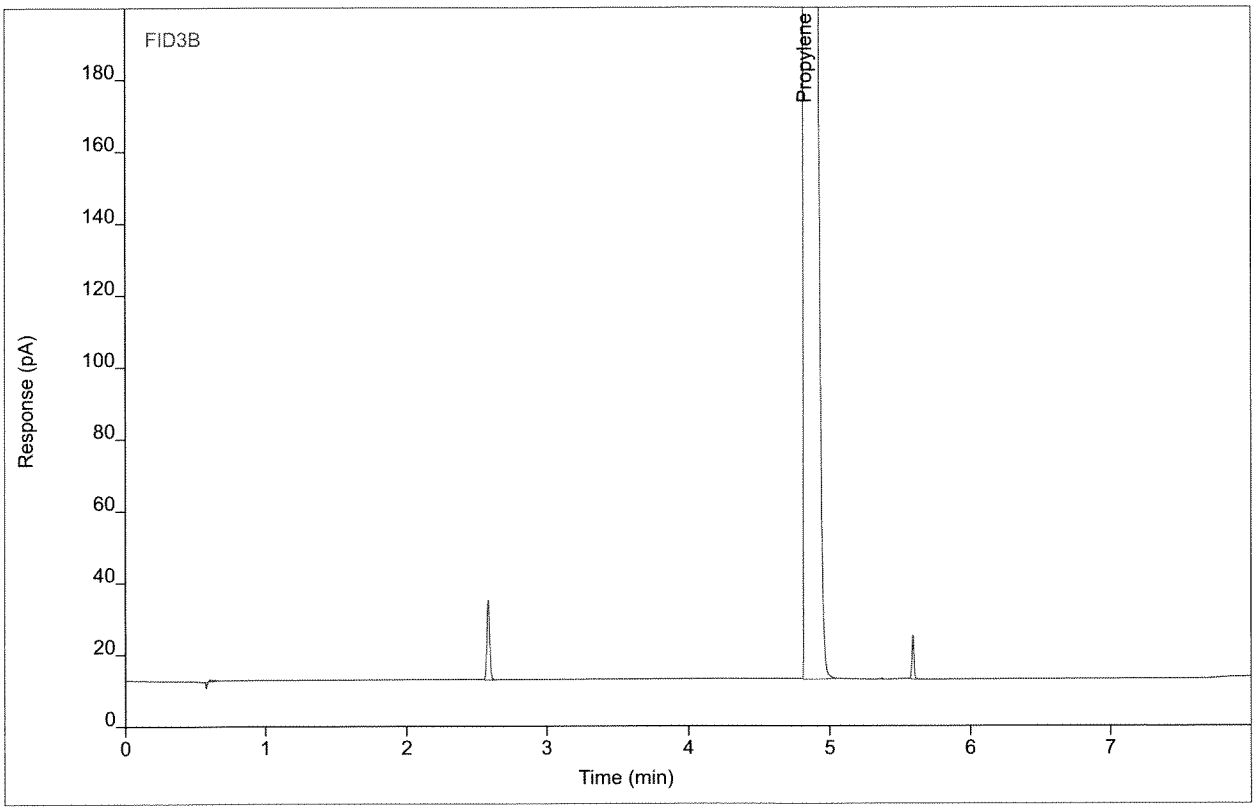
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.30135	0.52833		31		
?	BB	0.88	0.15289	0.21854		31		
?	BB	2.58	32.0713	22.2812		31		
Propylene	BB S	4.82	6932.40	2024.92	4295.41	31	133158	ppm
?	BB	5.38	0.21878	0.20603		31		
?	BB	5.59	12.6782	12.0009		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	EDITHP768 ver.4
Data File	026B2202.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 12:13 PM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 26
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



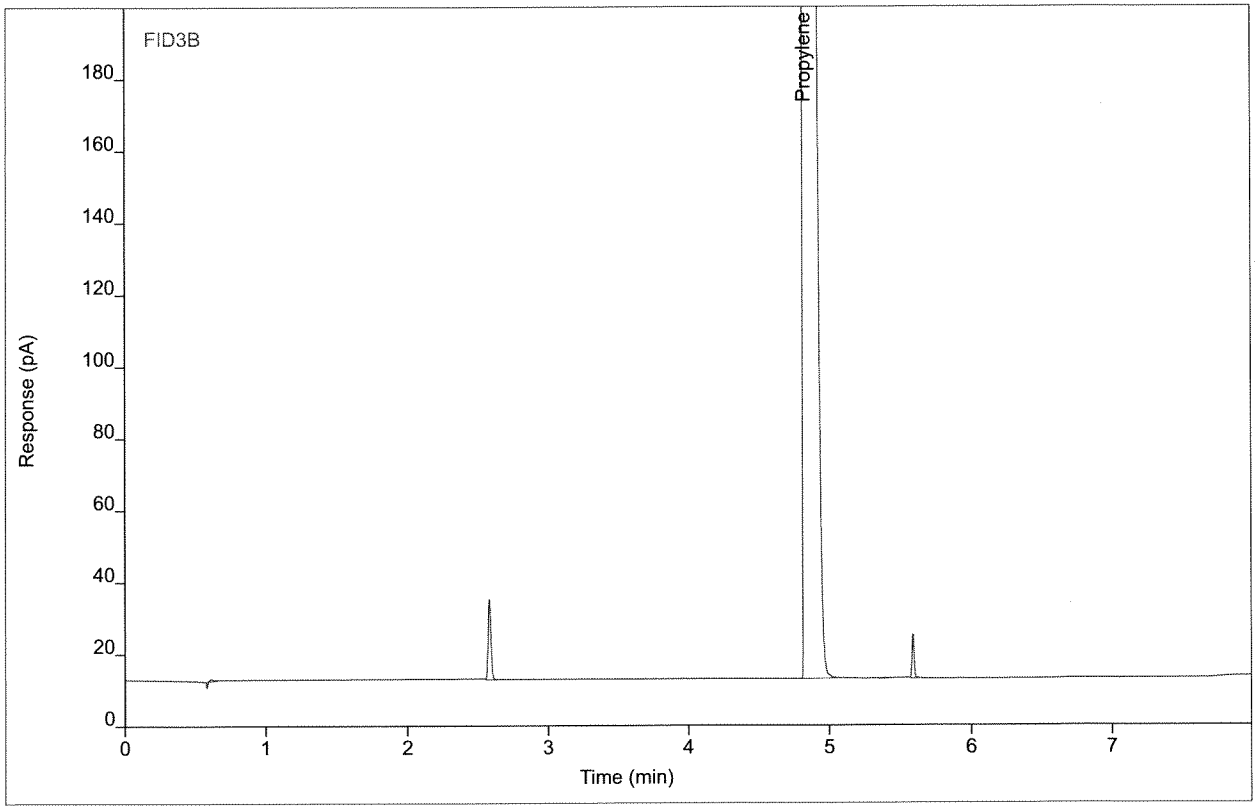
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.28929	0.51845		31		
?	BB	0.88	0.14838	0.21135		31		
?	BB	2.58	32.1058	22.1736		31		
Propylene	BB S	4.82	6936.25	1980.86	4297.79	31	133232	ppm
?	BB	5.38	0.22379	0.21224		31		
?	BB	5.59	12.6757	12.1111		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	EDITHP768 ver.4
Data File	026B2203.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 12:27 PM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 26
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM

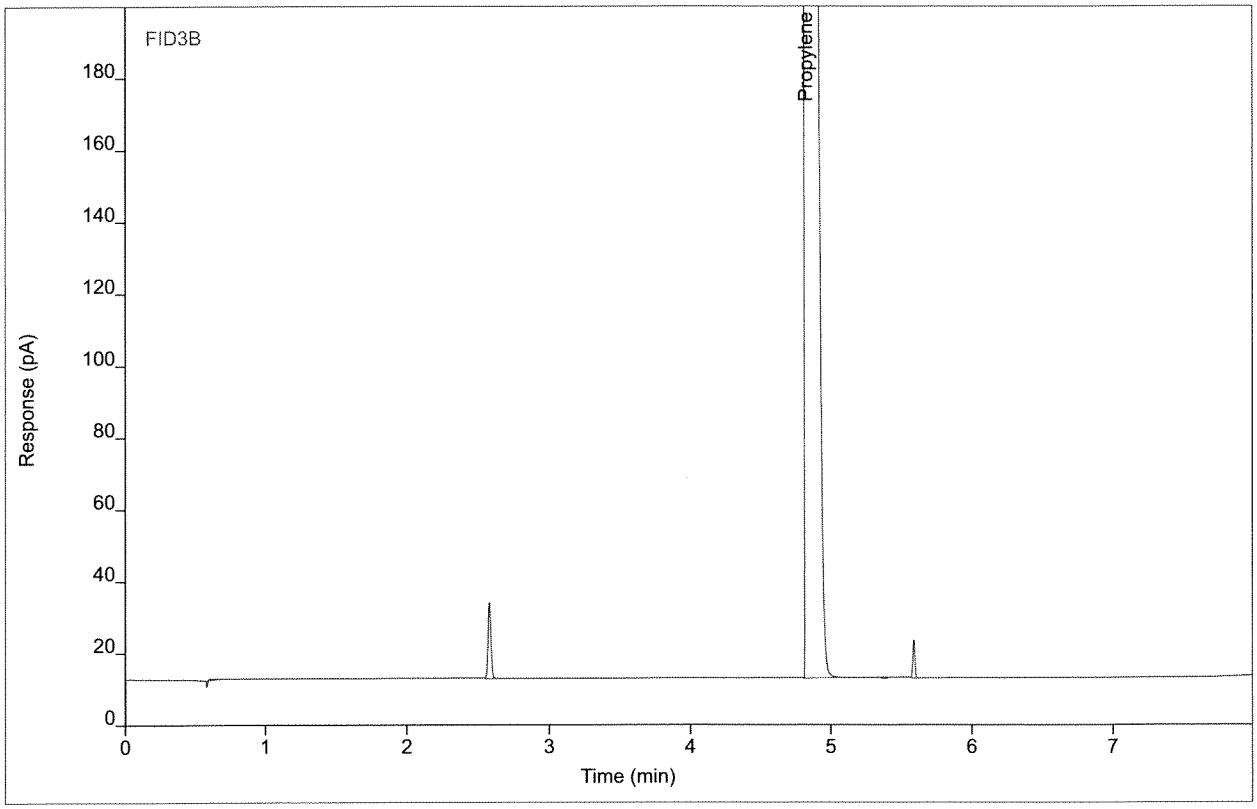


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.57459	0.59392		31		
?	BB	0.88	0.15271	0.21704		31		
?	BB	2.58	32.1268	22.2342		31		
Propylene	BB S	4.82	6938.39	1984.78	4299.12	31	133273	ppm
?	BB	5.38	0.25863	0.20918		31		
?	BB	5.59	12.6777	12.0827		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can	Sample Type	Sample
Sequence Name	EDITHP768 ver.4	Vial Number	Vial 27
Data File	027B2301.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	1 of 3
Injection Date	10/21/2016 12:41 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/24/2016 8:59 AM	Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Instrument		Method Modified	10/22/2016 11:28 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:41 AM



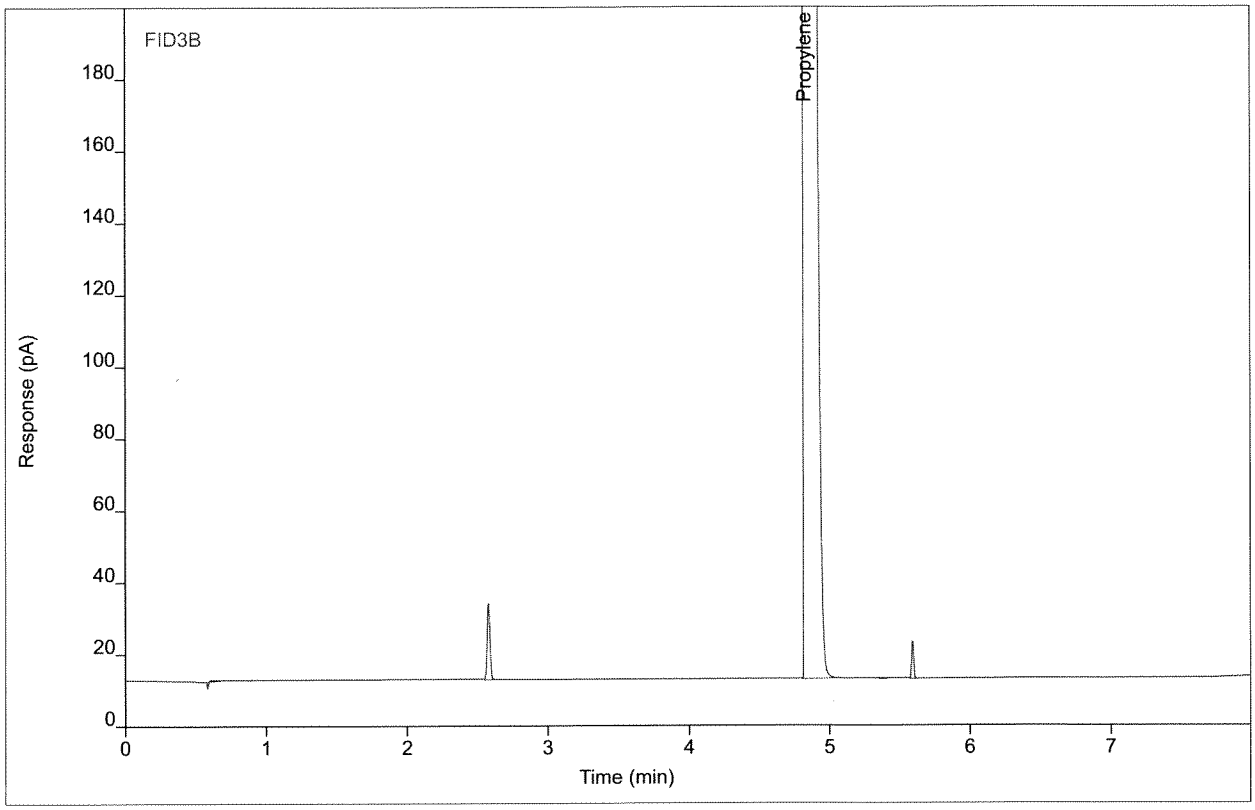
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.27981	0.48998		31		
?	BB	0.88	0.13883	0.19515		31		
?	BB	2.58	30.5570	21.1668		31		
Propylene	BB S	4.83	6578.68	1885.55	4076.24	31	126363	ppm
?	BB	5.38	0.18383	0.17731		31		
?	BB	5.59	10.9015	10.4415		31		

Chromatogram Report

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	EDITHP768 ver.4
Data File	027B2302.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 12:55 PM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 27
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



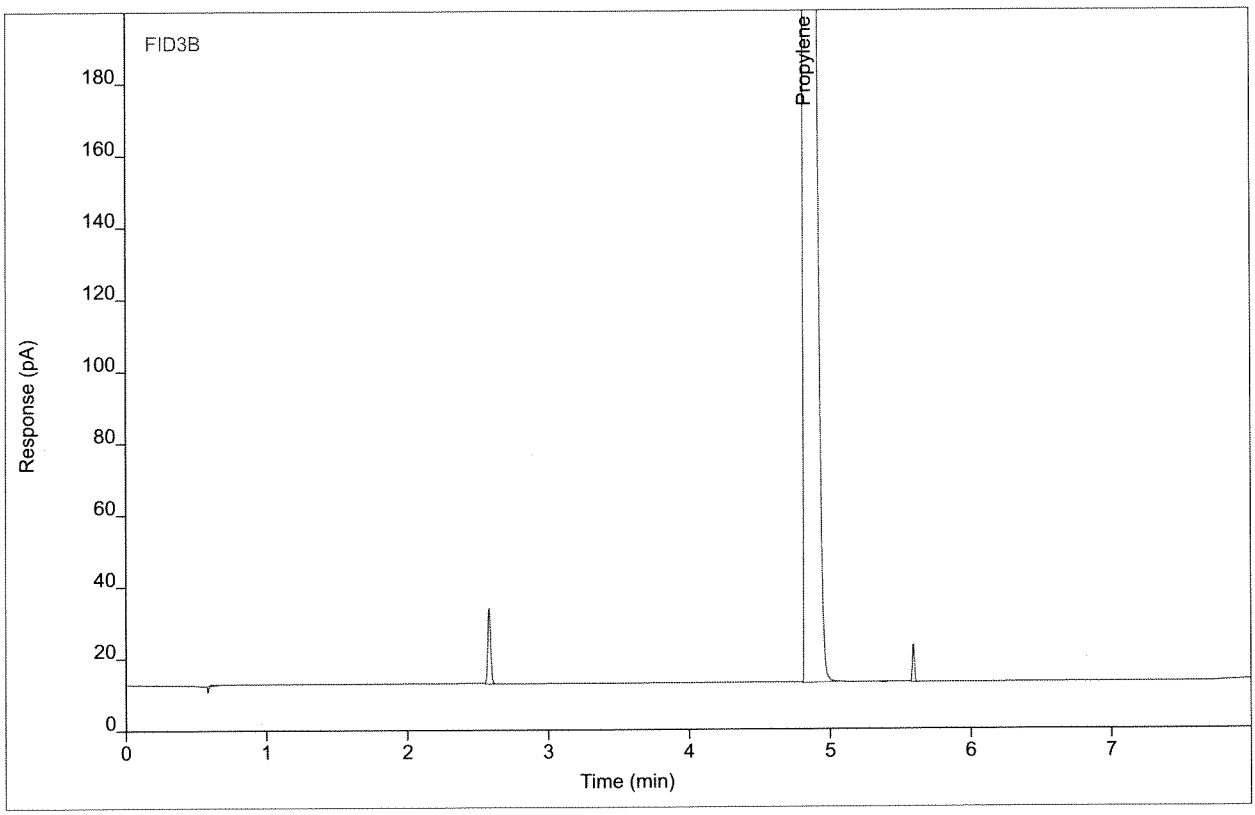
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.28399	0.49684		31		
?	BB	0.88	0.12773	0.18131		31		
?	BB	2.58	30.5151	21.1778		31		
Propylene	BB S	4.83	6573.30	1858.40	4072.90	31	126260	ppm
?	BB	5.38	0.19583	0.17956		31		
?	BB	5.59	10.9045	10.3819		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	EDITHP768 ver.4
Data File	027B2303.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 1:08 PM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 27
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



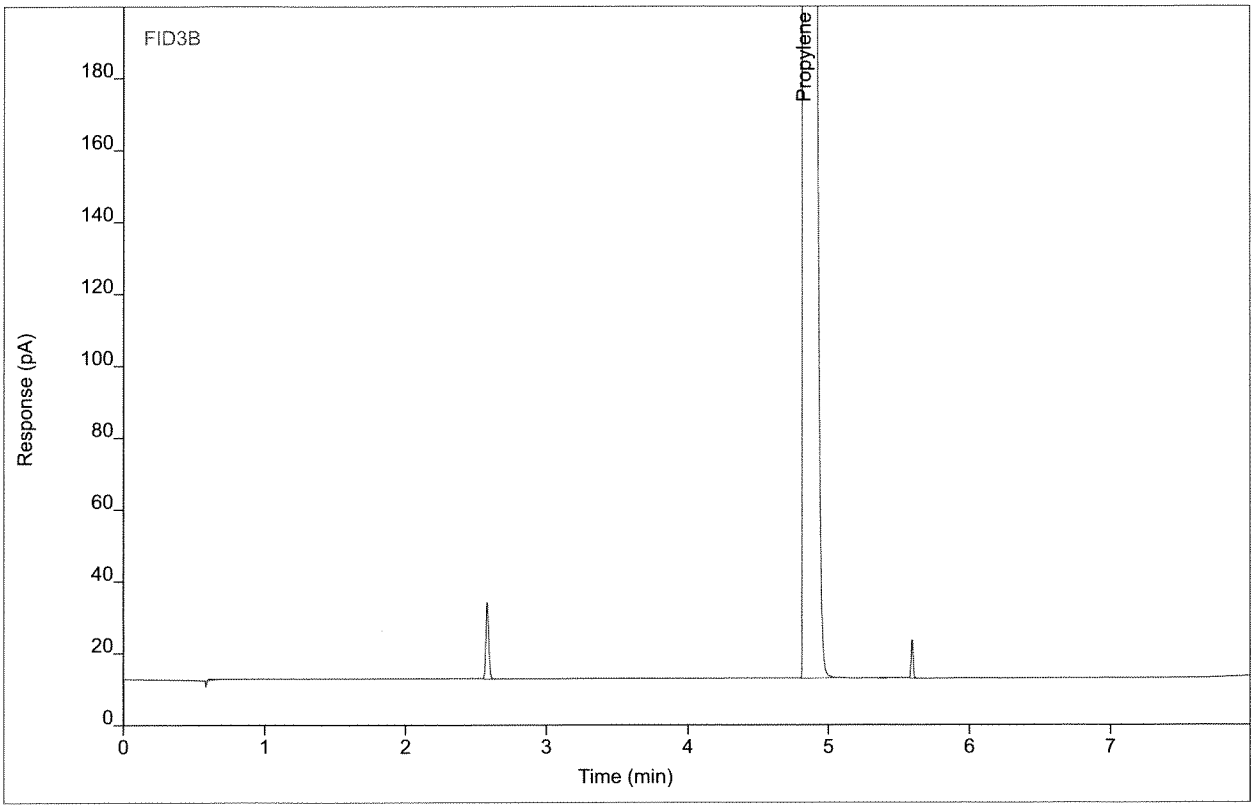
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.25793	0.48930		31		
?	BB	0.88	0.14404	0.19495		31		
?	BB	2.58	30.5175	21.1037		31		
Propylene	BB S	4.83	6587.44	1840.77	4081.66	31	126532	ppm
?	BB	5.38	0.19605	0.17820		31		
?	BB	5.59	10.9297	10.3515		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	EDITHP768 ver.4
Data File	028B2401.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 1:22 PM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 28
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



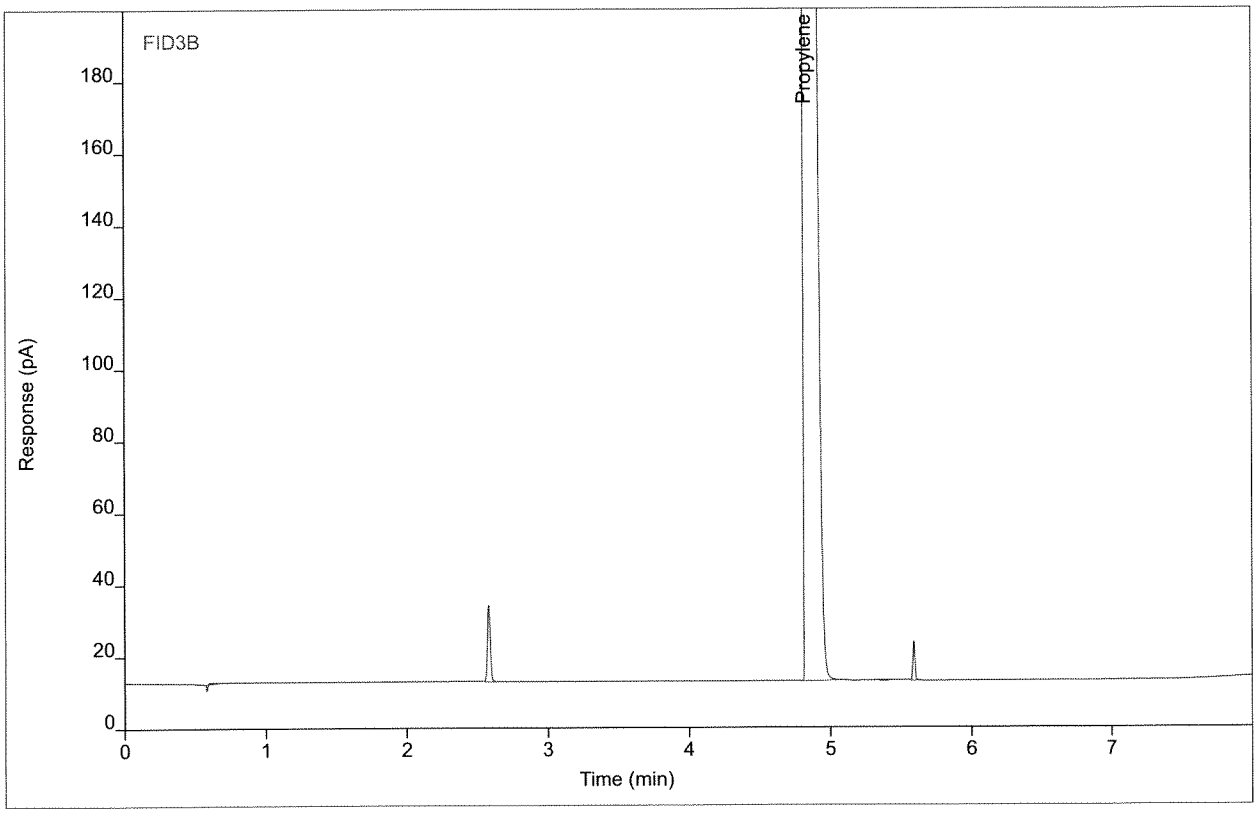
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.26826	0.48994		31		
?	BB	0.88	0.15762	0.21365		31		
?	BB	2.58	30.7214	21.2514		31		
Propylene	BB S	4.82	6612.14	1857.18	4096.97	31	127006	ppm
?	BB	5.38	0.20736	0.18472		31		
?	BB	5.59	11.4379	10.8859		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	EDITHP768 ver.4
Data File	028B2402.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 1:36 PM
File Modified	10/24/2016 8:59 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 28
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM

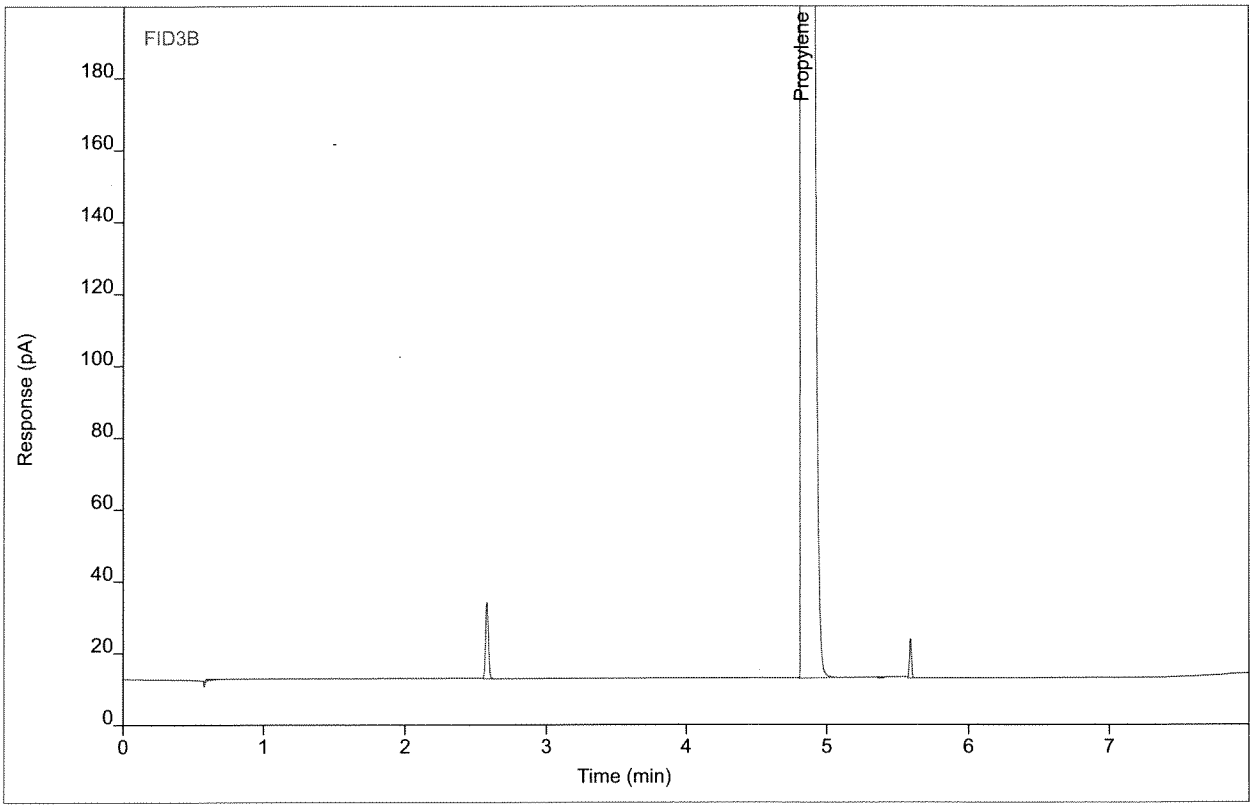


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.53293	0.55198		31		
?	BB	0.88	0.14738	0.20471		31		
?	BB	2.58	30.7486	21.3181		31		
Propylene	BB S	4.82	6610.66	1870.81	4096.05	31	126978	ppm
?	BB	5.38	0.21637	0.19371		31		
?	BB	5.59	11.4347	10.8938		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C4-Primary Can1111.Can	Sample Type	Sample
Sequence Name	EDITHP768 ver.4	Vial Number	Vial 28
Data File	028B2403.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	3 of 3
Injection Date	10/21/2016 1:50 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/24/2016 8:59 AM	Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Instrument		Method Modified	10/22/2016 11:28 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:41 AM



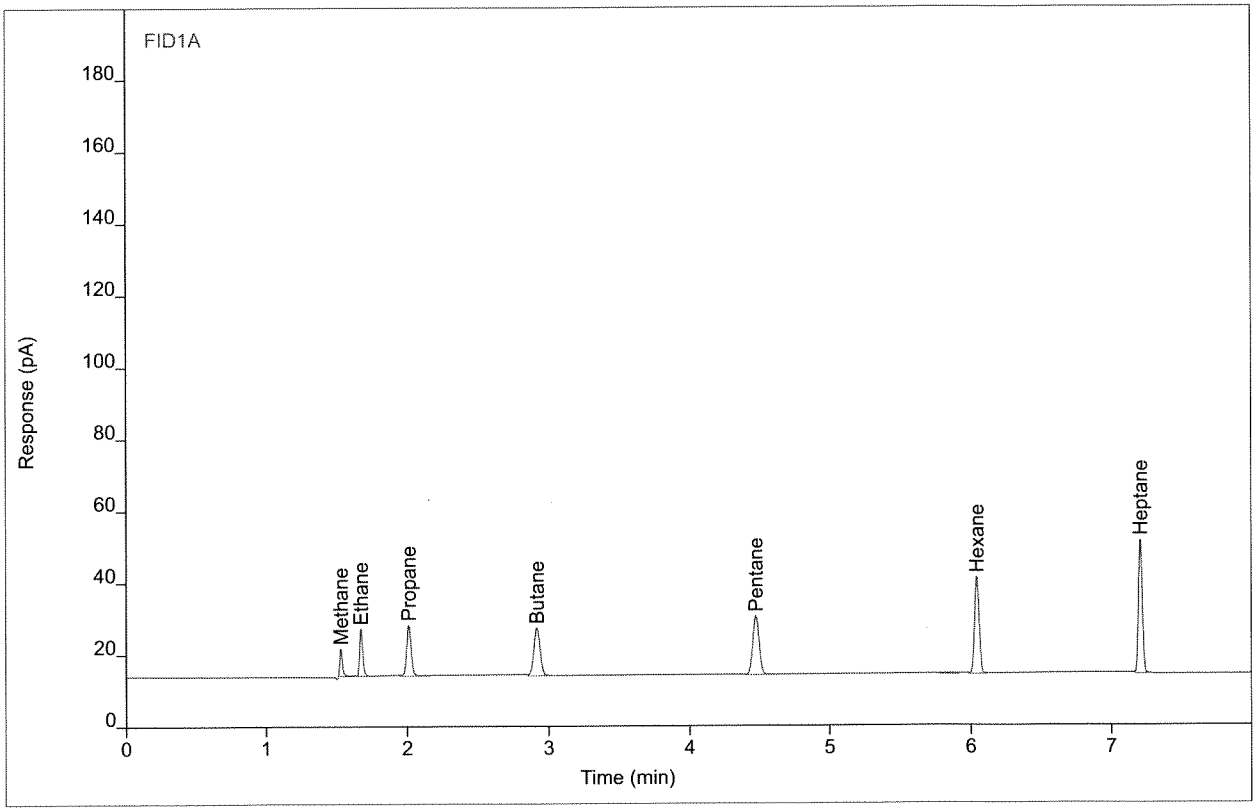
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.61	0.53484	0.55462		31		
?	BB	0.88	0.15182	0.20103		31		
?	BB	2.58	30.7093	21.2835		31		
Propylene	BB S	4.82	6606.73	1855.34	4093.61	31	126902	ppm
?	BB	5.38	0.21785	0.19071		31		
?	BB	5.59	11.4007	10.7938		31		

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP766 ver.4
Data File	002F2902.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 9:20 AM
File Modified	10/20/2016 11:38 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:43 AM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.4972	7.70970	39.8140	1	39.8140	ppm
Ethane	BB	1.68	20.5964	13.1802	39.9290	1	39.9290	ppm
Propane	BB	2.01	31.6798	14.2432	40.9405	1	40.9405	ppm
Butane	BB	2.92	40.9976	13.2993	39.8826	1	39.8826	ppm
Pentane	BB	4.47	53.0072	16.3496	41.2108	1	41.2108	ppm
?	BB	5.83	0.52836	0.18555	0.67545	1	0.67545	ppm
Hexane	BB	6.04	62.1309	26.9254	40.5603	1	40.5603	ppm
Heptane	BB	7.21	71.2792	37.2176	40.0056	1	40.0056	ppm

Analyst Peak Integration Comments

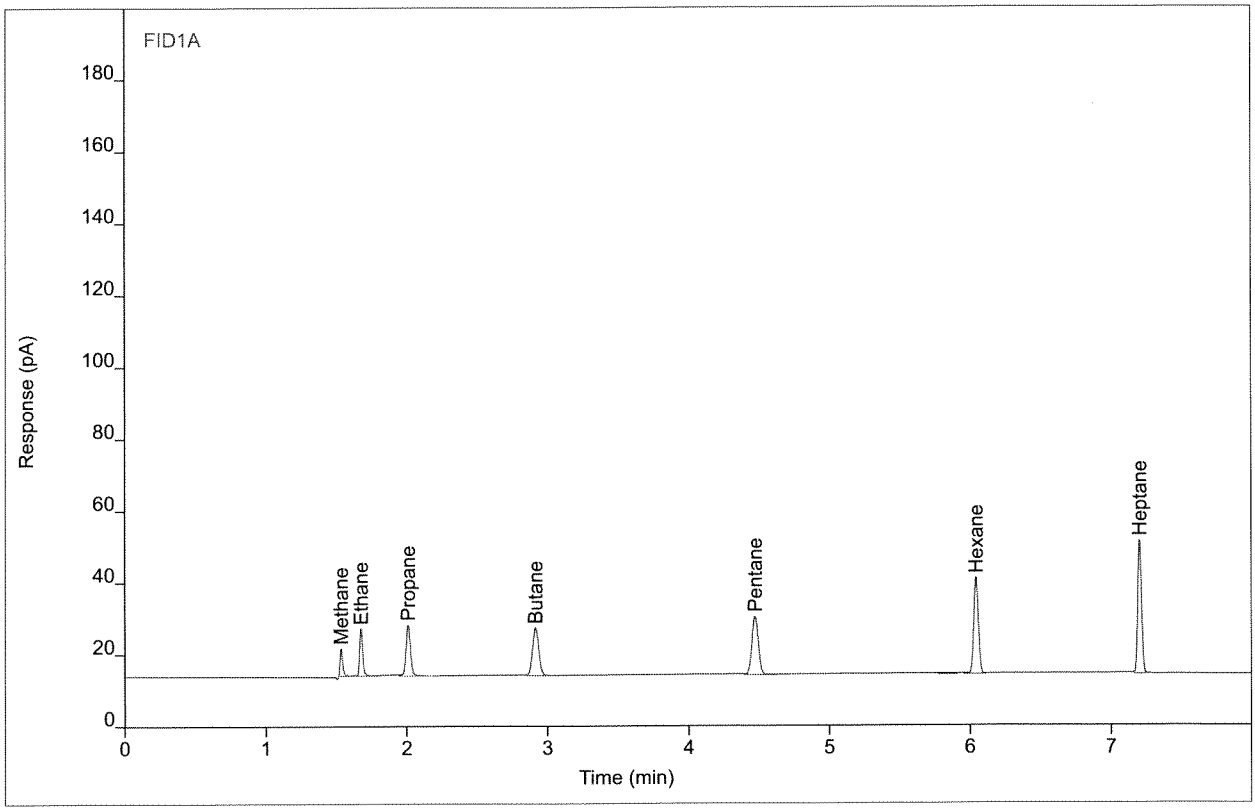
10:17:59 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP766 ver.4
Data File	002F2903.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 9:35 AM
File Modified	10/20/2016 11:38 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:43 AM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.4136	7.71152	39.4997	1	39.4997	ppm
Ethane	PB	1.68	20.6528	13.1779	40.0384	1	40.0384	ppm
Propane	BB	2.01	31.6994	14.2249	40.9658	1	40.9658	ppm
Butane	BB	2.92	40.9580	13.2793	39.8440	1	39.8440	ppm
Pentane	BB	4.47	52.9006	16.3560	41.1275	1	41.1275	ppm
?	BB	5.83	0.50278	0.18028	0.64275	1	0.64275	ppm
Hexane	BB	6.04	61.9974	26.7712	40.4728	1	40.4728	ppm
Heptane	BB	7.21	71.0921	37.1068	39.9004	1	39.9004	ppm

Analyst Peak Integration Comments

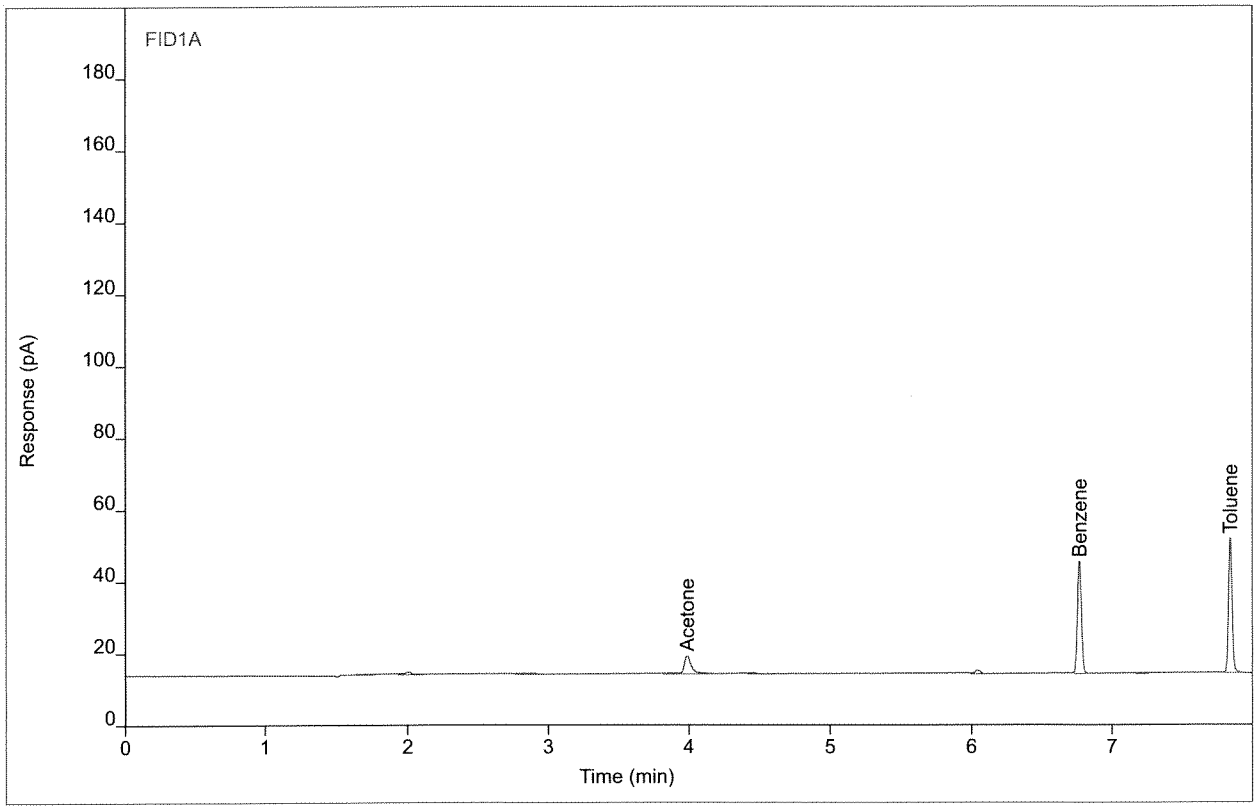
10:18:12 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP766 ver.4
Data File	002F3001.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 9:49 AM
File Modified	10/20/2016 11:38 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:40 AM



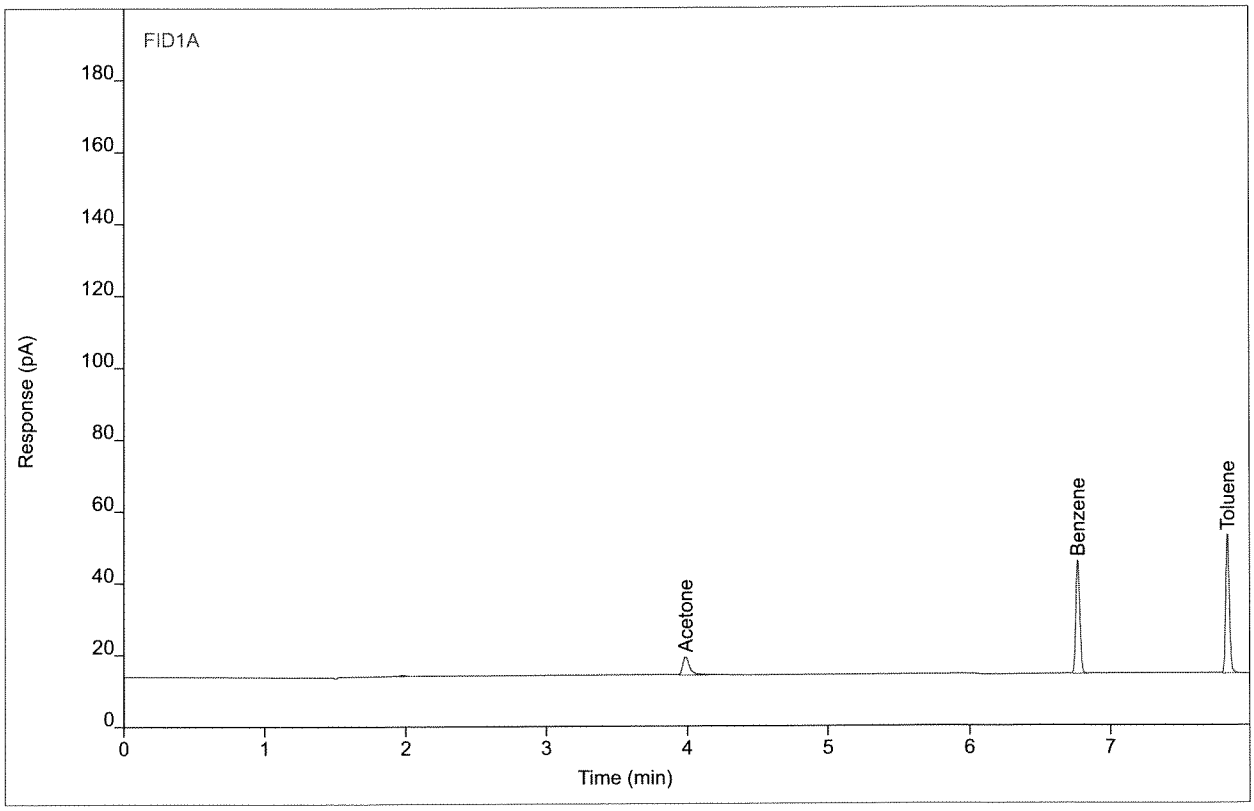
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.67	0.61118	0.24010		1		
?	BB	2.01	2.68153	0.96195		1		
?	BB	2.92	1.15101	0.37084		1		
Acetone	BB	3.99	18.0066	5.17081	39.8861	1	39.8861	ppm
?	BB	4.47	1.49003	0.45035		1		
?	BB	6.04	2.55421	1.09942		1		
Benzene	BB	6.77	61.7958	31.3059	40.6523	1	40.6523	ppm
?	BB	7.21	0.61089	0.31611		1		
Toluene	BB	7.84	67.6594	37.5816	40.0545	1	40.0545	ppm
Ethylbenzene	BV	8.64	71.2983	37.7278	39.2883	1	39.2883	ppm
m-p-Xylenes	VB	8.71	69.7783	32.6748	38.5517	1	38.5517	ppm
o-Xylene	BB	8.93	68.3234	33.6729	38.8503	1	38.8503	ppm

Chromatogram Report

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP766 ver.4
Data File	002F3002.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 10:04 AM
File Modified	10/20/2016 11:38 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:40 AM



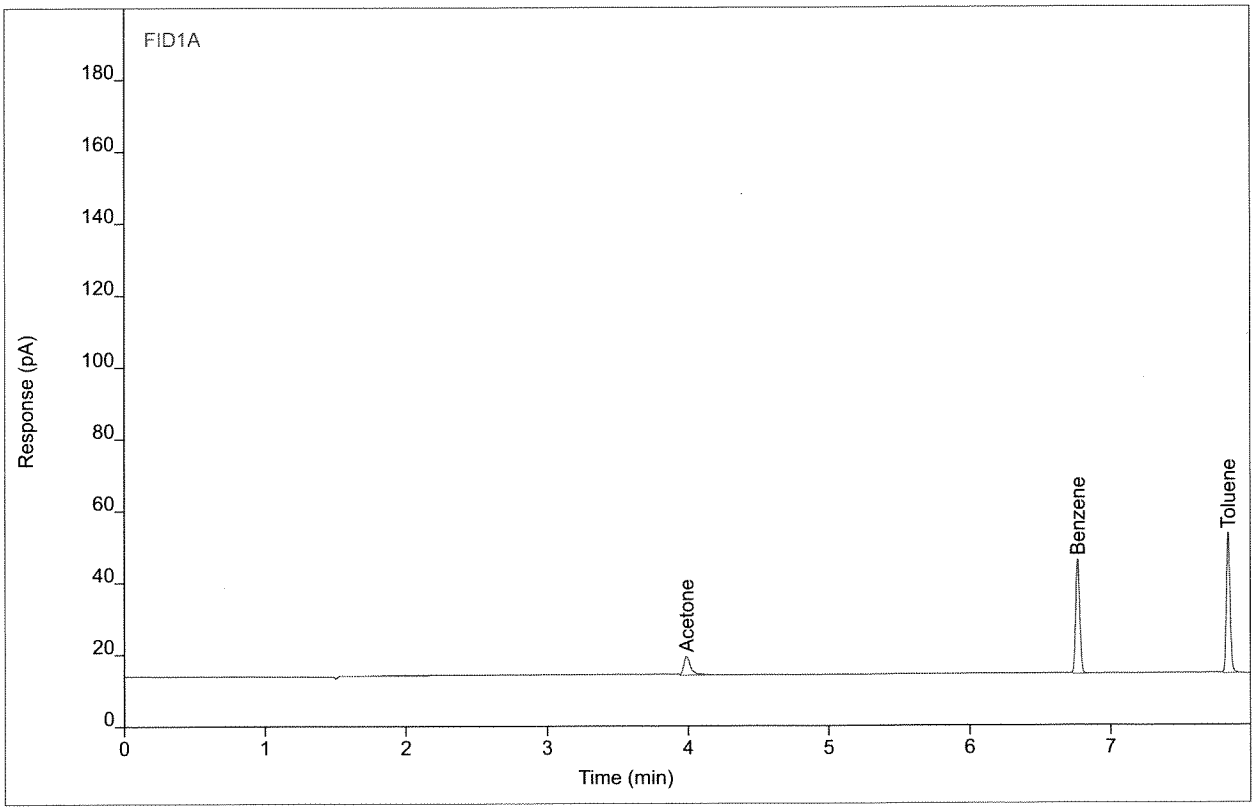
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	1.97	1.07554	0.32942		1		
Acetone	BB	3.99	17.9040	5.21564	39.6599	1	39.6599	ppm
?	BB	4.48	0.43200	0.11993		1		
Benzene	BB	6.77	62.5817	31.5097	41.1681	1	41.1681	ppm
Toluene	BB	7.84	69.5764	38.5854	41.1832	1	41.1832	ppm
Ethylbenzene	BV	8.64	74.6196	39.2343	41.1041	1	41.1041	ppm
m-p-Xylenes	VB	8.71	74.0739	34.7946	40.8997	1	40.8997	ppm
o-Xylene	BB	8.93	72.0491	35.5859	40.9491	1	40.9491	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP766 ver.4
Data File	002F3003.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 10:19 AM
File Modified	10/20/2016 11:38 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:40 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.97	1.58237	0.29764		1		
Acetone	BB	3.99	18.1939	5.26178	40.2987	1	40.2987	ppm
Benzene	BB	6.77	63.0180	31.7365	41.4545	1	41.4545	ppm
Toluene	BB	7.84	70.3591	38.9916	41.6440	1	41.6440	ppm
Ethylbenzene	BV	8.64	75.8758	40.0834	41.7908	1	41.7908	ppm
m-p-Xylenes	VB	8.71	75.6193	35.6435	41.7444	1	41.7444	ppm
o-Xylene	BB	8.93	73.3851	36.2711	41.7017	1	41.7017	ppm

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	%dif conc	Avg Conc (ppm)	Standard Tag	% Tag
Methane -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	NA	NA
Edithp623 #C3 ENV(1=600,2=400)	002F1701.D	002F1702.D	002F1703.D	EDITHP730F_C1-C7.M	1.53	1.53	1.53	0.0	39.0	39.4	39.4	0.7	39.3	40.0	98.2
Edithp623 #C3 ENV(1=600,2=400)	002F2901.D	002F2902.D	002F2903.D	EDITHP730F_C1-C7.M	1.53	1.53	1.53	0.0	39.5	39.8	39.5	0.5	39.6	40.0	99.0
Edithp623 #C3 ENV(1=600,2=400)	002F1101.D	002F1102.D	002F1103.D	EDITHP730F_C1-C7.M	1.53	1.53	1.53	0.0	39.3	39.1	39.4	0.5	39.2	40.0	98.1
Edithp623 #C3 ENV(1=600,2=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP730F_C1-C7.M	1.53	1.53	1.53	0.0	39.4	39.2	38.8	0.8	39.1	40.0	97.8
Ethane -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	NA	NA
Edithp623 #C3 ENV(1=600,2=400)	002F1701.D	002F1702.D	002F1703.D	EDITHP730F_C1-C7.M	1.67	1.67	1.67	0.0	39.6	39.7	40.2	0.8	39.8	40.0	99.6
Edithp623 #C3 ENV(1=600,2=400)	002F2901.D	002F2902.D	002F2903.D	EDITHP730F_C1-C7.M	1.68	1.68	1.68	0.0	39.7	39.9	40.0	0.5	39.9	40.0	99.7
Edithp623 #C3 ENV(1=600,2=400)	002F1101.D	002F1102.D	002F1103.D	EDITHP730F_C1-C7.M	1.67	1.67	1.67	0.0	39.2	39.0	39.3	0.5	39.2	40.0	97.9
Edithp623 #C3 ENV(1=600,2=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP730F_C1-C7.M	1.67	1.67	1.67	0.0	39.3	39.3	38.7	1.1	39.1	40.0	97.7
Propane -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	NA	NA
Edithp623 #C3 ENV(1=600,2=400)	002F1701.D	002F1702.D	002F1703.D	EDITHP730F_C1-C7.M	2.01	2.01	2.01	0.0	39.6	39.9	39.8	0.4	39.8	40.0	99.4
Edithp623 #C3 ENV(1=600,2=400)	002F2901.D	002F2902.D	002F2903.D	EDITHP730F_C1-C7.M	2.01	2.01	2.01	0.0	40.8	40.9	41.0	0.3	40.9	40.0	102
Edithp623 #C3 ENV(1=600,2=400)	002F1101.D	002F1102.D	002F1103.D	EDITHP730F_C1-C7.M	2.01	2.01	2.01	0.0	41.0	41.0	40.7	0.5	40.9	40.0	102
Edithp623 #C3 ENV(1=600,2=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP730F_C1-C7.M	2.01	2.01	2.01	0.0	39.6	39.4	39.0	0.8	39.3	40.0	98.4
Butane -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.500	0.500	0.500	0.0	0.500	NA	NA
Edithp623 #C3 ENV(1=600,2=400)	002F1701.D	002F1702.D	002F1703.D	EDITHP730F_C1-C7.M	2.92	2.92	2.92	0.0	39.2	39.6	39.6	0.6	39.5	40.0	98.7
Edithp623 #C3 ENV(1=600,2=400)	002F2901.D	002F2902.D	002F2903.D	EDITHP730F_C1-C7.M	2.92	2.92	2.92	0.0	39.5	39.9	39.8	0.5	39.8	40.0	99.4
Edithp623 #C3 ENV(1=600,2=400)	002F1101.D	002F1102.D	002F1103.D	EDITHP730F_C1-C7.M	2.92	2.92	2.92	0.0	39.2	39.3	39.1	0.3	39.2	40.0	98.1
Edithp623 #C3 ENV(1=600,2=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP730F_C1-C7.M	2.92	2.91	2.91	0.0	39.3	39.1	38.9	0.6	39.1	40.0	97.7

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Filename #3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	%dif conc	Avg Conc (ppm)	Standard Tag	% Tag
Pentane -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.515	0.515	0.515	0.0	0.515	NA	NA
Edithp623 #C3 ENV(1=600,2=400)	002F1701.D	002F1702.D	002F1703.D	EDITHP730F_C1-C7.M	4.47	4.47	4.47	0.0	40.6	40.8	41.0	0.4	40.8	41.2	99.0
Edithp623 #C3 ENV(1=600,2=400)	002F2901.D	002F2902.D	002F2903.D	EDITHP730F_C1-C7.M	4.47	4.47	4.47	0.0	40.7	41.2	41.1	0.8	41.0	41.2	99.5
Edithp623 #C3 ENV(1=600,2=400)	002F1101.D	002F1102.D	002F1103.D	EDITHP730F_C1-C7.M	4.47	4.47	4.47	0.0	39.3	39.4	39.3	0.2	39.3	41.2	95.5
Edithp623 #C3 ENV(1=600,2=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP730F_C1-C7.M	4.47	4.47	4.47	0.0	39.5	39.2	39.0	0.6	39.2	41.2	95.2
Hexane -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.505	0.505	0.505	0.0	0.505	NA	NA
Edithp623 #C3 ENV(1=600,2=400)	002F1701.D	002F1702.D	002F1703.D	EDITHP730F_C1-C7.M	6.04	6.04	6.04	0.0	40.1	40.3	40.2	0.3	40.2	40.4	99.5
Edithp623 #C3 ENV(1=600,2=400)	002F2901.D	002F2902.D	002F2903.D	EDITHP730F_C1-C7.M	6.05	6.04	6.04	0.0	40.1	40.6	40.5	0.7	40.4	40.4	99.9
Edithp623 #C3 ENV(1=600,2=400)	002F1101.D	002F1102.D	002F1103.D	EDITHP730F_C1-C7.M	6.04	6.04	6.04	0.0	39.4	39.5	39.5	0.1	39.5	40.4	97.7
Edithp623 #C3 ENV(1=600,2=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP730F_C1-C7.M	6.04	6.04	6.04	0.0	39.7	39.4	39.2	0.6	39.4	40.4	97.6
Benzene -- Calibration Standards, Laboratory Blanks and Controls															
Edithp723 #B4 ENV(1=600,3=400)	002F1202.D	002F1203.D	002F1204.D	EDITHP723F_BTEX.M	6.77	6.77	6.77	0.0	42.2	41.8	41.7	0.7	41.9	41.2	102
Zero Air Blank #LB	016F1501.D	016F1502.D	016F1503.D	EDITHP730F_C1-C6_BTEX.M	NA	NA	NA	NA	0.198	0.198	0.198	0.0	0.198	NA	NA
Edithp723 #B4 ENV(1=600,3=400)	002F3001.D	002F3002.D	002F3003.D	EDITHP723F_BTEX.M	6.77	6.77	6.77	0.0	40.7	41.2	41.5	1.1	41.1	41.2	99.7
Edithp723 #B4 ENV(1=600,3=400)	002F1201.D	002F1202.D	002F1203.D	EDITHP723F_BTEX.M	6.77	6.77	6.77	0.0	40.6	41.1	41.2	0.9	41.0	41.2	99.5
Edithp723 #B4 ENV(1=600,3=400)	002F1301.D	002F1302.D	002F1303.D	EDITHP723F_BTEX.M	6.77	6.77	6.77	0.0	40.2	40.6	40.5	0.5	40.4	41.2	98.2
Propylene -- Calibration Standards, Laboratory Blanks and Controls															
Zero Air Blank #LB	032B1501.D	032B1502.D	032B1503.D	EDITHP636R_HRVOC_ACETYLENE.M	NA	NA	NA	NA	0.0788	0.0788	0.0788	0.0	0.0788	NA	NA
Edithp727 #HR4 ENV(1=600,4=400)	018B1801.D	018B1802.D	018B1803.D	EDITHP636R_HRVOC_ACETYLENE.M	4.96	4.96	4.96	0.0	41.6	41.6	41.6	0.1	41.6	42.0	99.1
Edithp727 #HR4 ENV(1=600,4=400)	018B2701.D	018B2702.D	018B2703.D	EDITHP636R_HRVOC_ACETYLENE.M	4.92	4.92	4.92	0.0	40.9	41.2	41.4	0.6	41.2	42.0	98.1
Edithp727 #HR4 ENV(1=600,4=400)	018B3401.D	018B3402.D	018B3403.D	EDITHP636R_HRVOC_ACETYLENE.M	4.93	4.93	4.93	0.0	41.4	41.4	41.4	0.1	41.4	42.0	98.6

Calibration Table

Calib. Data Modified : 6/20/2016 7:28:40 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Signal 2: FID3 B, Back Signal

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.539	2	61	7.88000e-1	8.54612e-1	9.22055e-1			Ethylene
		62	5.25000	5.68590	9.23337e-1			
		63	21.00000	23.10237	9.08998e-1			
		64	42.00000	46.61499	9.00998e-1			
		65	105.00000	116.96540	8.97701e-1			
		67	510.00000	564.24729	9.03859e-1			
		68	4080.00000	4554.87760	8.95743e-1			
		69	1.02000e4	1.20389e4	8.47255e-1			
4.998	2	61	7.88000e-1	1.31290	6.00199e-1			Propylene
		62	5.25000	8.19000	6.41026e-1			
		63	21.00000	33.00812	6.36207e-1			
		64	42.00000	66.38949	6.32630e-1			
		65	105.00000	165.51262	6.34393e-1			
		67	500.00000	814.33539	6.13998e-1			
		68	4000.00000	6564.97168	6.09294e-1			
		69	1.00000e4	1.73583e4	5.76094e-1			
5.720	2	51	2.50000	4.28081	5.84001e-1			Acetylene
		52	14.70000	20.47756	7.17859e-1			
		53	100.00000	140.85605	7.09945e-1			
6.622	2	61	7.88000e-1	2.15195	3.66179e-1			trans-2-Butene
		62	5.25000	11.71628	4.48094e-1			
		63	21.00000	46.43503	4.52245e-1			
		64	42.00000	92.73360	4.52910e-1			
		65	105.00000	230.82888	4.54882e-1			
		67	510.00000	1121.07910	4.54919e-1			
		68	4080.00000	9036.69857	4.51492e-1			
		69	1.02000e4	2.38373e4	4.27900e-1			

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
6.708	2	61	7.88000e-1	1.91162	4.12216e-1		1-Butene
		62	5.25000	11.77451	4.45878e-1		
		63	21.00000	47.22719	4.44659e-1		
		64	42.00000	94.88745	4.42630e-1		
		65	105.00000	236.50710	4.43961e-1		
		67	505.00000	1105.78699	4.56688e-1		
		68	4040.00000	8907.43783	4.53554e-1		
		69	1.01000e4	2.35305e4	4.29229e-1		
6.835	2	61	7.88000e-1	1.88521	4.17990e-1		Isobutylene
		62	5.25000	11.68515	4.49288e-1		
		63	21.00000	46.94934	4.47291e-1		
		64	42.00000	94.34099	4.45194e-1		
		65	105.00000	235.20055	4.46428e-1		
		67	505.00000	1096.11715	4.60717e-1		
		68	4040.00000	8828.43587	4.57612e-1		
		69	1.01000e4	2.33055e4	4.33375e-1		
6.926	2	61	7.88000e-1	2.06887	3.80884e-1		cis-2-Butene
		62	5.25000	12.02148	4.36718e-1		
		63	21.00000	48.01249	4.37386e-1		
		64	42.00000	96.26004	4.36318e-1		
		65	105.00000	239.90205	4.37679e-1		
		67	505.00000	1115.93323	4.52536e-1		
		68	4040.00000	9005.32194	4.48624e-1		
		69	1.01000e4	2.37938e4	4.24481e-1		
7.455	2	61	7.88000e-1	2.06016	3.82494e-1		1,3-Butadiene
		62	5.25000	11.43376	4.59167e-1		
		63	21.00000	45.59754	4.60551e-1		
		64	42.00000	91.28308	4.60107e-1		
		65	105.00000	227.57570	4.61385e-1		
		67	510.00000	1099.31571	4.63925e-1		
		68	4080.00000	8874.92741	4.59722e-1		
		69	1.02000e4	2.34517e4	4.34936e-1		

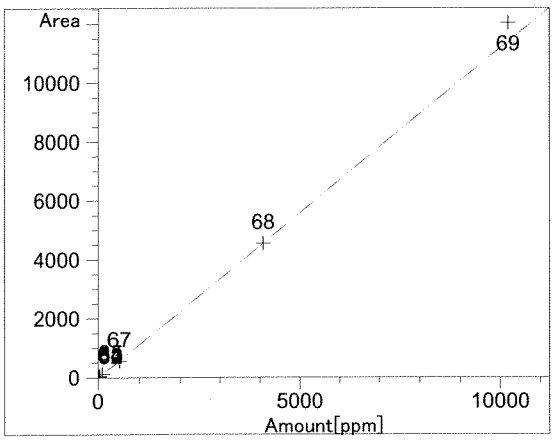
1 Warnings or Errors :

Warning : Cal. table open and changed while report was generated.

Peak Sum Table

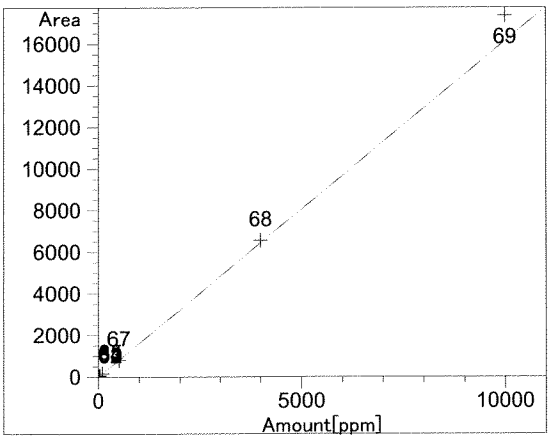
No Entries in table

Calibration Curves

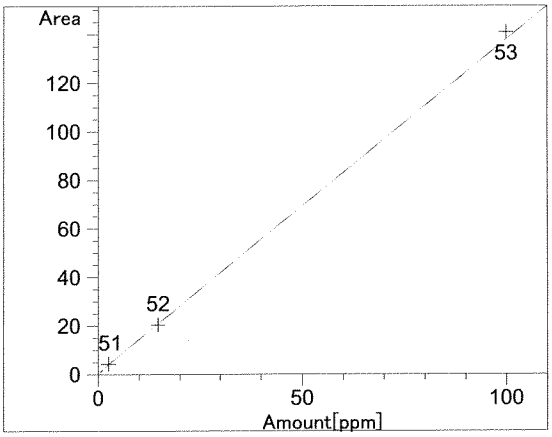


Ethylene at exp. RT: 1.539
FID3 B, Back Signal
Correlation: 0.99968
Residual Std. Dev.: 260.95056
Formula: y = mx + b
m: 1.11762
b: -3.00977e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.38733e-006

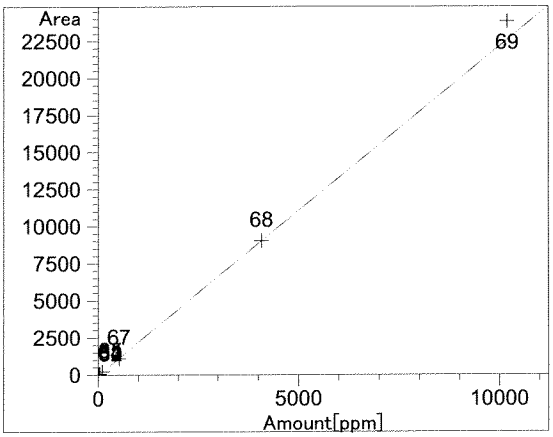
Level 68 : 3.7302e-008
Level 69 : 5.96832e-009



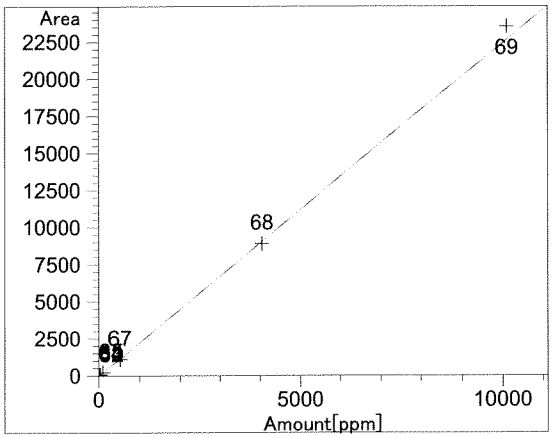
Propylene at exp. RT: 4.998
FID3 B, Back Signal
Correlation: 0.99930
Residual Std. Dev.: 499.75049
Formula: y = mx + b
m: 1.61390
b: 3.20598e-2
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.48378e-006
Level 68 : 3.8809e-008
Level 69 : 6.20944e-009



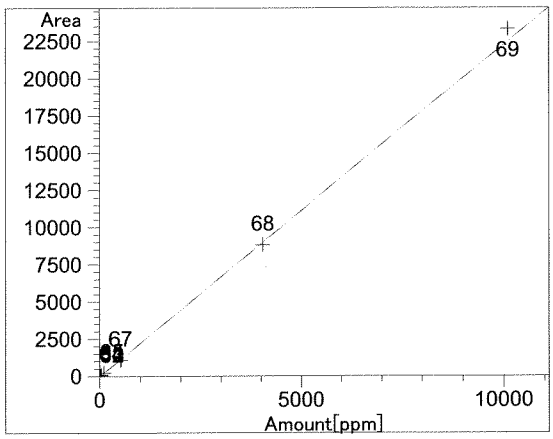
Acetylene at exp. RT: 5.720
FID3 B, Back Signal
Correlation: 0.99965
Residual Std. Dev.: 3.00314
Formula: y = mx + b
m: 1.37055
b: 8.41502e-1
x: Amount
y: Area
Calibration Level Weights:
Level 51 : 1
Level 52 : 0.028923
Level 53 : 0.000625



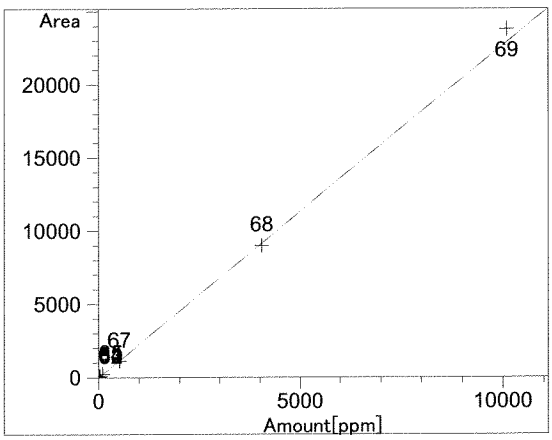
trans-2-Butene at exp. RT: 6.622
FID3 B, Back Signal
Correlation: 0.99969
Residual Std. Dev.: 510.77884
Formula: y = mx + b
m: 2.21430
b: 3.99133e-1
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.38733e-006
Level 68 : 3.7302e-008
Level 69 : 5.96832e-009



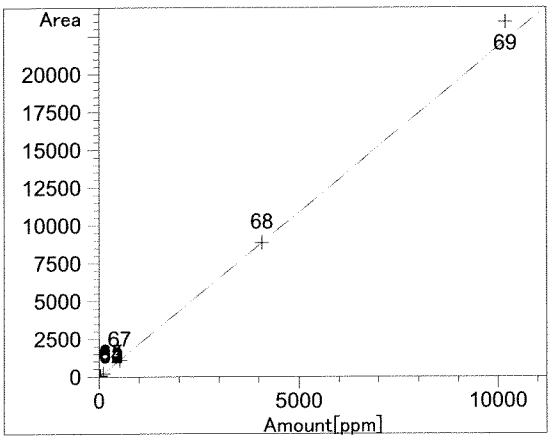
1-Butene at exp. RT: 6.708
FID3 B, Back Signal
Correlation: 0.99981
Residual Std. Dev.: 368.03641
Formula: y = mx + b
m: 2.24176
b: 1.42240e-1
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.43484e-006
Level 68 : 3.80443e-008
Level 69 : 6.08709e-009



Isobutylene at exp. RT: 6.835
FID3 B, Back Signal
Correlation: 0.99981
Residual Std. Dev.: 344.46345
Formula: y = mx + b
m: 2.22554
b: 1.28996e-1
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.43484e-006
Level 68 : 3.80443e-008
Level 69 : 6.08709e-009



cis-2-Butene at exp. RT: 6.926
FID3 B, Back Signal
Correlation: 0.99979
Residual Std. Dev.: 368.22421
Formula: y = mx + b
m: 2.26790
b: 2.78501e-1
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.43484e-006
Level 68 : 3.80443e-008
Level 69 : 6.08709e-009



1,3-Butadiene at exp. RT: 7.455
FID3 B, Back Signal
Correlation: 0.99967
Residual Std. Dev.: 509.03190
Formula: y = mx + b
m: 2.17692
b: 3.36375e-1
x: Amount
y: Area
Calibration Level Weights:
Level 61 : 1
Level 62 : 0.022529
Level 63 : 0.001408
Level 64 : 0.000352
Level 65 : 0.000056
Level 67 : 2.38733e-006
Level 68 : 3.7302e-008
Level 69 : 5.96832e-009

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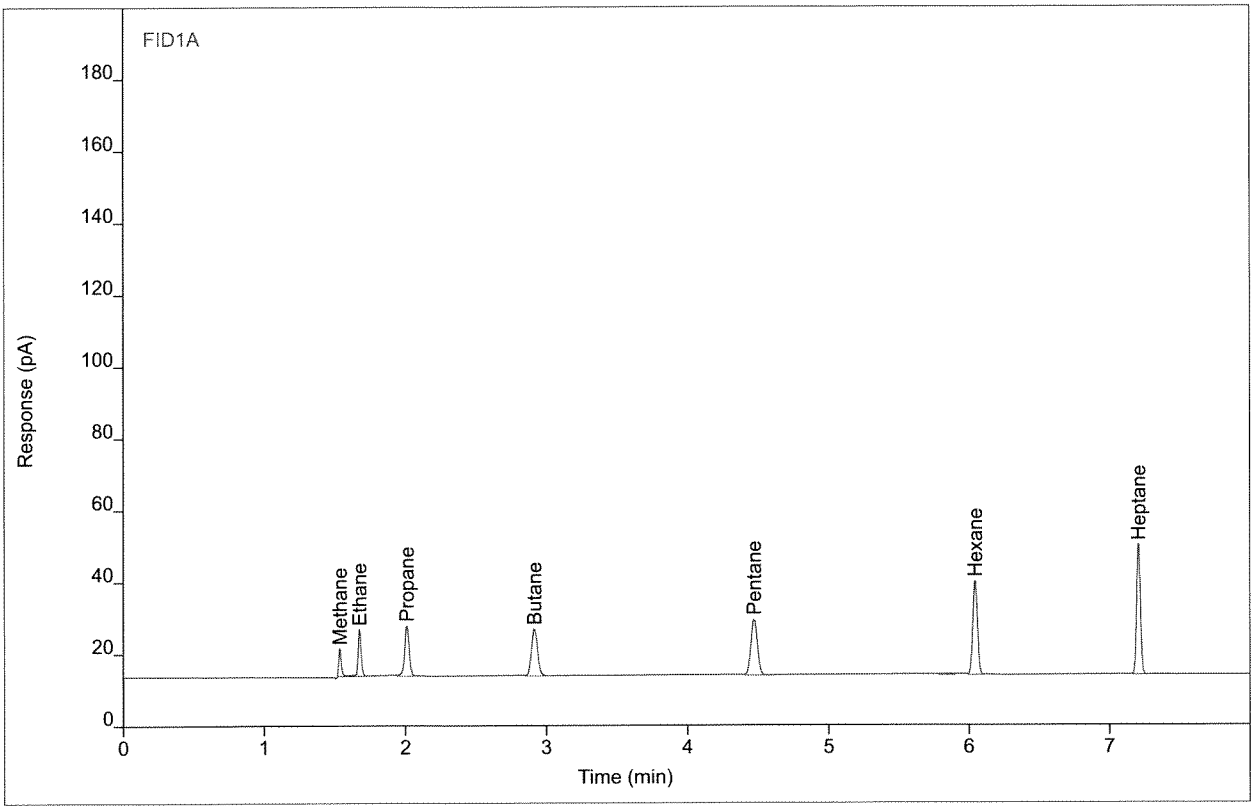
Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP768 ver.4
Data File	002F1101.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 5:30 PM
File Modified	10/24/2016 8:50 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



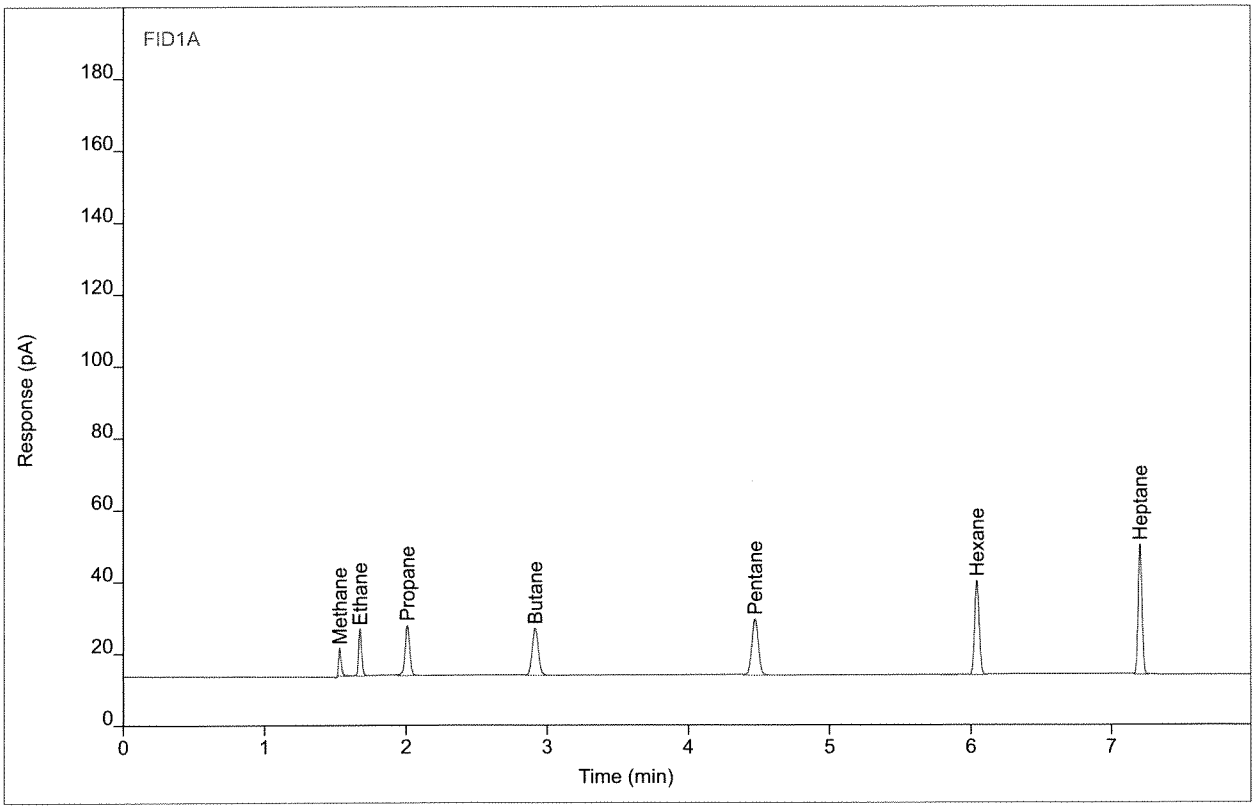
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	10.3592	7.64848	39.2951	1	39.2951	ppm
Ethane	VB	1.67	20.2086	12.9536	39.1770	1	39.1770	ppm
Propane	PB	2.01	31.7496	14.0266	41.0308	1	41.0308	ppm
Butane	BB	2.92	40.3289	13.0917	39.2305	1	39.2305	ppm
Pentane	BB	4.47	50.5257	15.6224	39.2724	1	39.2724	ppm
?	BB	5.83	0.46494	0.17746	0.59438	1	0.59438	ppm
Hexane	BB	6.04	60.4229	26.0943	39.4416	1	39.4416	ppm
Heptane	BB	7.21	69.2287	36.1012	38.8527	1	38.8527	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP768 ver.4
Data File	002F1102.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 5:45 PM
File Modified	10/24/2016 8:50 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM

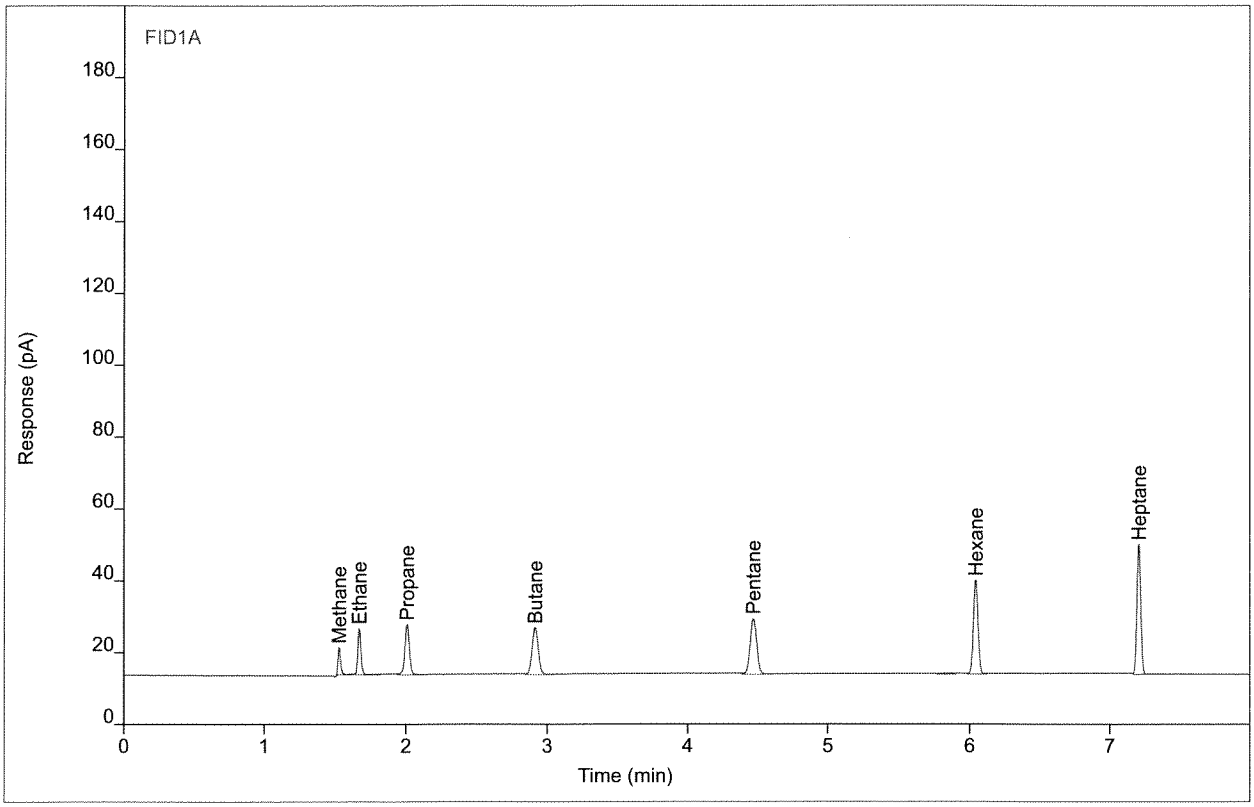


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.2983	7.66002	39.0664	1	39.0664	ppm
Ethane	BB	1.67	20.1049	12.9415	38.9759	1	38.9759	ppm
Propane	BB	2.01	31.7362	14.0591	41.0135	1	41.0135	ppm
Butane	BB	2.92	40.4468	13.1097	39.3455	1	39.3455	ppm
Pentane	BB	4.47	50.7186	15.6793	39.4230	1	39.4230	ppm
?	BB	5.83	0.45893	0.17387	0.58669	1	0.58669	ppm
Hexane	BB	6.04	60.5233	26.2064	39.5073	1	39.5073	ppm
Heptane	BB	7.21	69.4338	36.1625	38.9680	1	38.9680	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)	Sample Type	Sample
Sequence Name	EDITHP768 ver.4	Vial Number	Vial 2
Data File	002F1103.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	3 of 3
Injection Date	10/20/2016 6:00 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/24/2016 8:50 AM	Analysis Method	EDITHP730F_C1-C7.M
Instrument		Method Modified	10/20/2016 5:00 PM
Operator	Nicholas Traversa	Printed	10/24/2016 9:41 AM



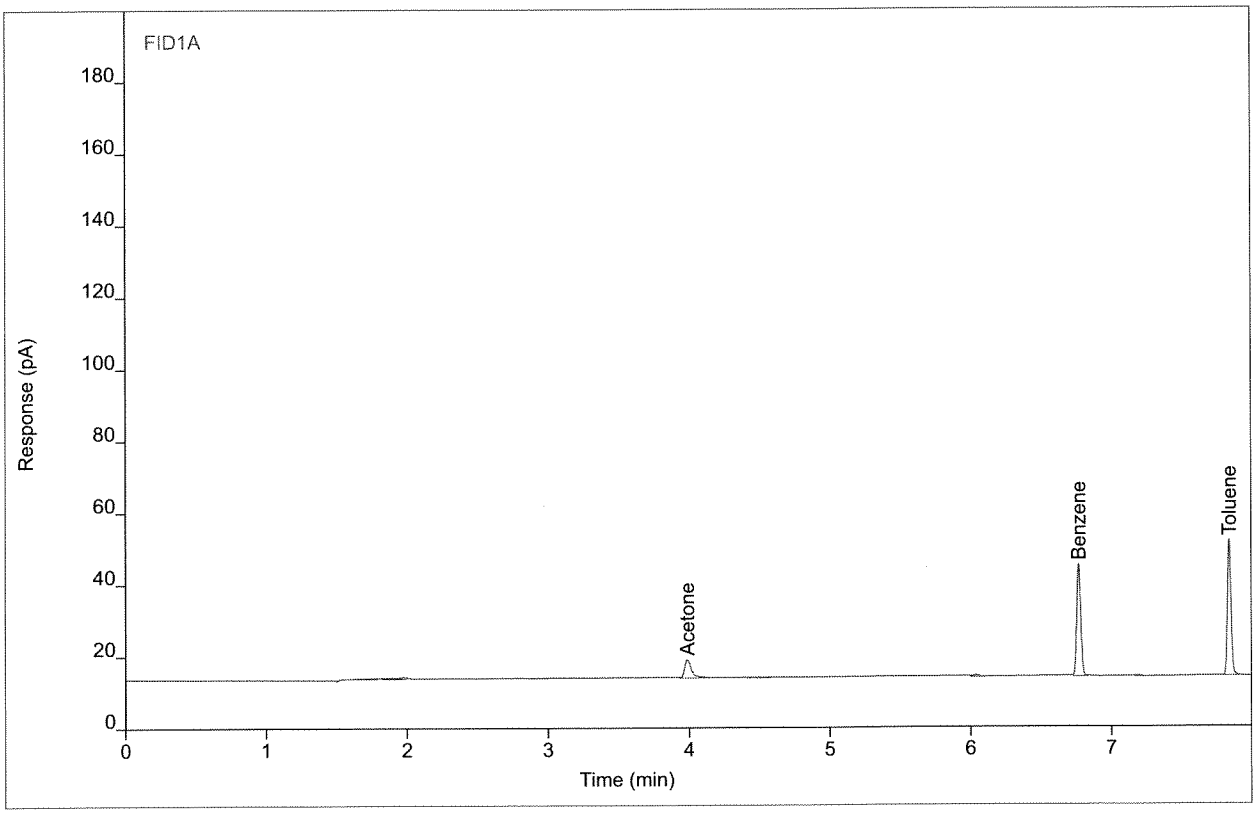
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3820	7.63475	39.3810	1	39.3810	ppm
Ethane	BB	1.67	20.2771	12.9469	39.3098	1	39.3098	ppm
Propane	BB	2.01	31.5226	14.0303	40.7370	1	40.7370	ppm
Butane	BB	2.92	40.2395	13.0693	39.1433	1	39.1433	ppm
Pentane	BB	4.47	50.5428	15.5910	39.2857	1	39.2857	ppm
?	BB	5.83	0.45695	0.17583	0.58416	1	0.58416	ppm
Hexane	BB	6.04	60.5018	26.1551	39.4933	1	39.4933	ppm
Heptane	BB	7.21	69.4123	36.1408	38.9559	1	38.9559	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP768 ver.4
Data File	002F1201.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 6:15 PM
File Modified	10/24/2016 8:51 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



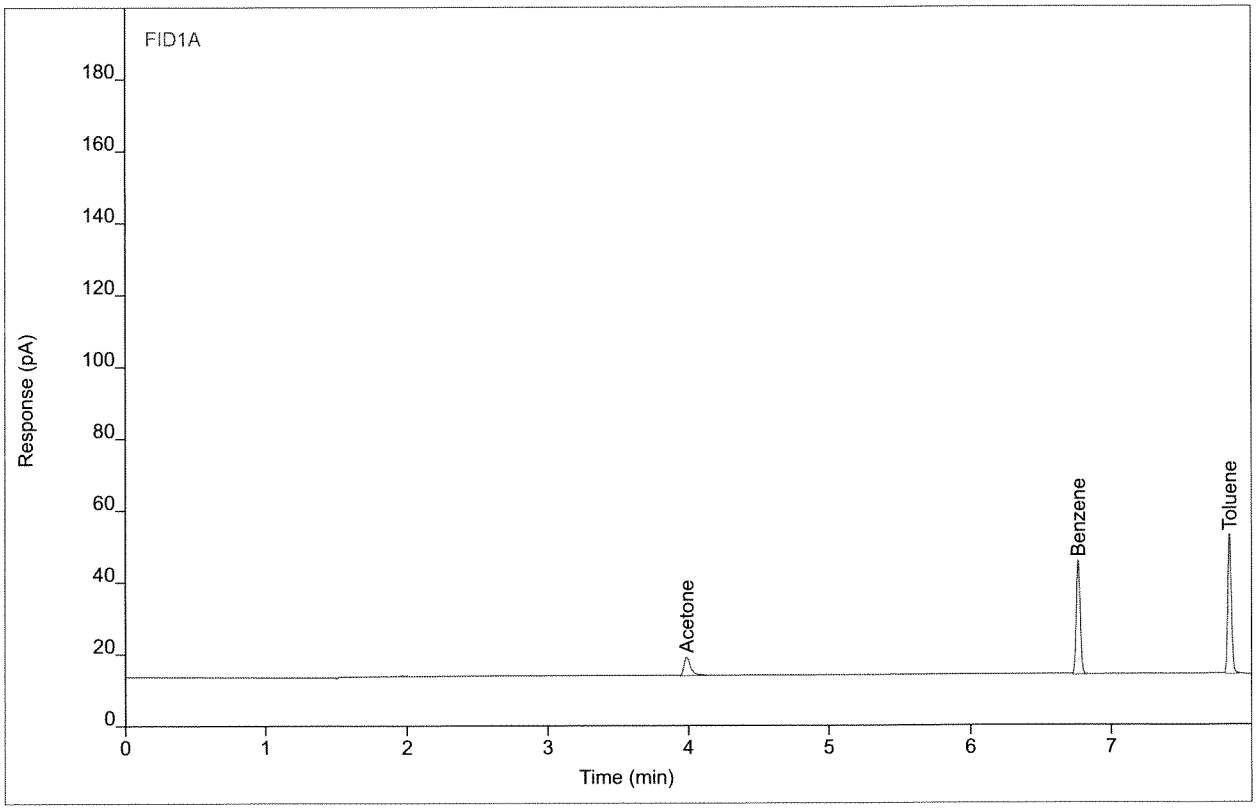
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.68	0.73962	0.15038		1		
?	BV	1.97	1.41406	0.57670		1		
?	BB	2.92	0.49035	0.16010		1		
Acetone	BB	3.99	17.7936	5.17085	39.4167	1	39.4167	ppm
?	BB	4.47	0.75757	0.22064		1		
?	BB	6.04	1.33358	0.56902		1		
Benzene	BB	6.77	61.7206	31.1082	40.6029	1	40.6029	ppm
?	BB	7.21	0.59941	0.29721		1		
Toluene	BB	7.84	68.3027	37.7225	40.4333	1	40.4333	ppm
Ethylbenzene	BV	8.64	72.9575	38.5250	40.1954	1	40.1954	ppm
m-p-Xylenes	VB	8.71	72.0973	34.0039	39.8193	1	39.8193	ppm
o-Xylene	BB	8.93	70.2793	34.5547	39.9521	1	39.9521	ppm

Chromatogram Report

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP768 ver.4
Data File	002F1202.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 6:30 PM
File Modified	10/24/2016 8:51 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



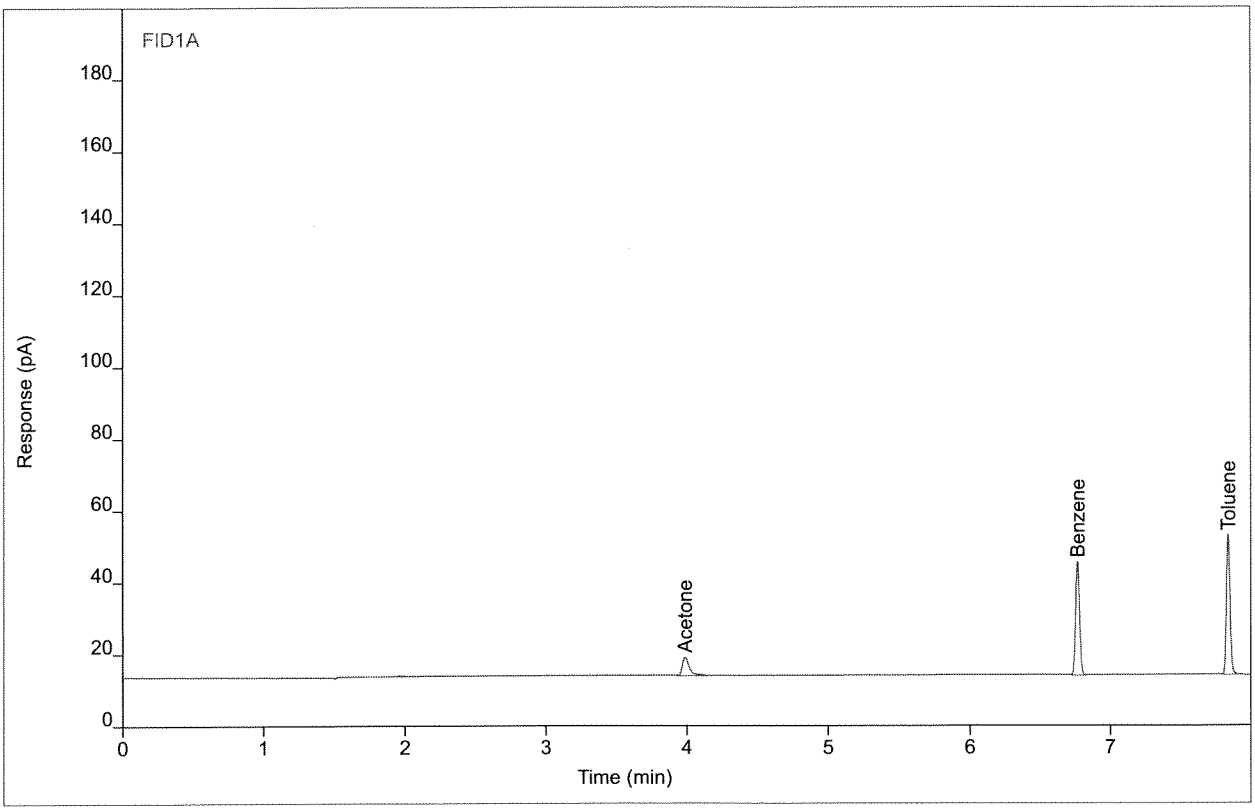
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	1.97	1.13841	0.48249		1		
Acetone	BB	3.99	18.2005	5.25864	40.3132	1	40.3132	ppm
Benzene	BB	6.77	62.4969	31.5621	41.1125	1	41.1125	ppm
Toluene	BB	7.84	69.8439	38.7358	41.3407	1	41.3407	ppm
Ethylbenzene	BV	8.64	75.1928	39.7786	41.4174	1	41.4174	ppm
m-p-Xylenes	VB	8.71	74.8178	35.3384	41.3063	1	41.3063	ppm
o-Xylene	BB	8.93	72.7345	35.9121	41.3352	1	41.3352	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP768 ver.4
Data File	002F1203.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/20/2016 6:44 PM
File Modified	10/24/2016 8:51 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



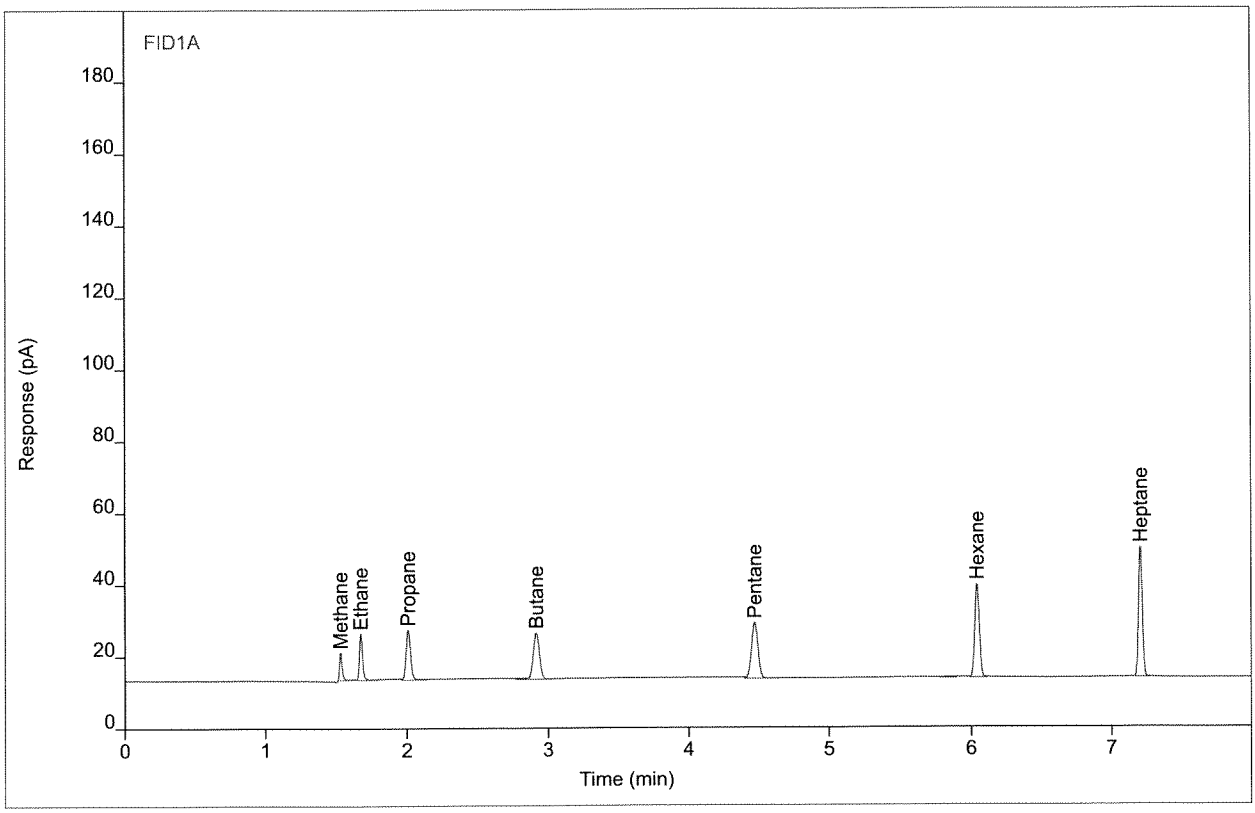
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.97	1.50713	0.45646		1		
Acetone	BB	3.99	18.2504	5.26453	40.4231	1	40.4231	ppm
Benzene	BB	6.77	62.6487	31.6385	41.2121	1	41.2121	ppm
Toluene	BB	7.84	70.0885	38.9613	41.4847	1	41.4847	ppm
Ethylbenzene	BV	8.64	75.8377	40.0288	41.7700	1	41.7700	ppm
m-p-Xylenes	VB	8.71	75.7858	35.5744	41.8355	1	41.8355	ppm
o-Xylene	BB	8.93	73.5309	36.0523	41.7839	1	41.7839	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP768 ver.4
Data File	002F3202.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 7:14 PM
File Modified	10/24/2016 8:53 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



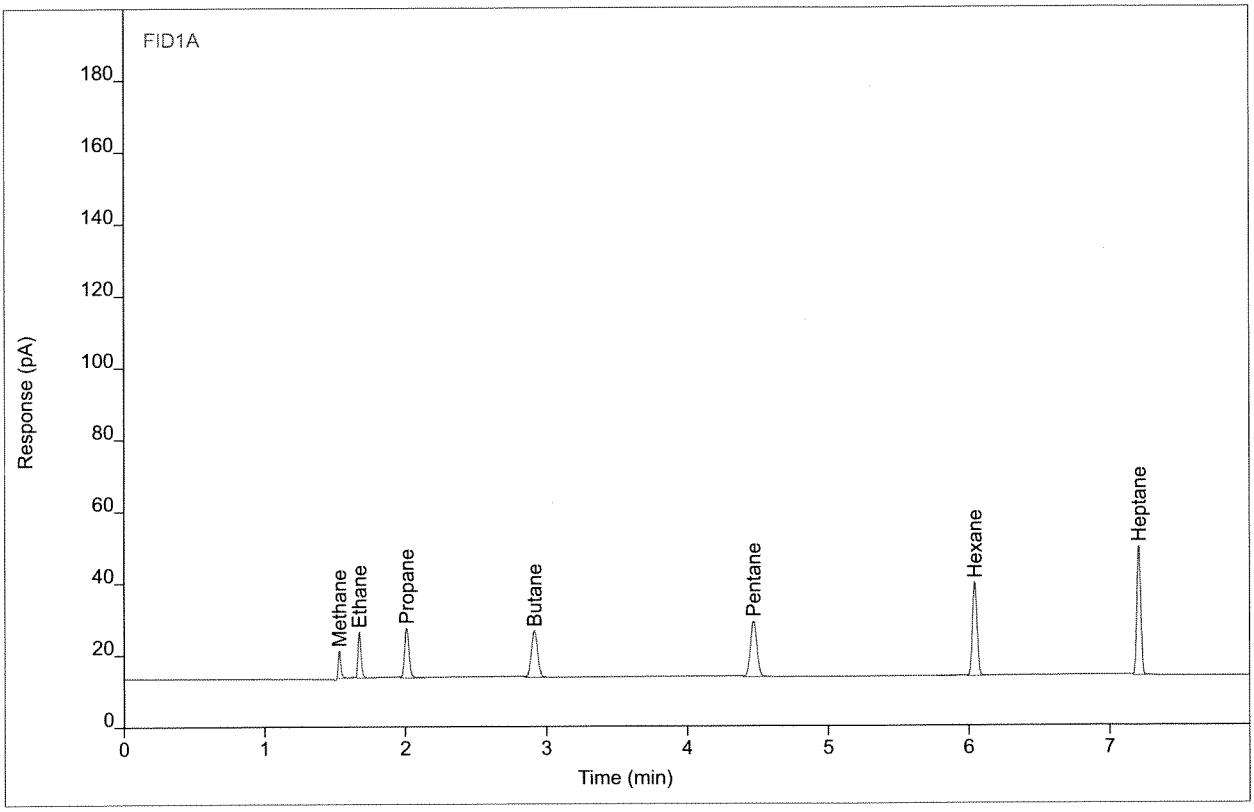
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.2351	7.60638	38.8288	1	38.8288	ppm
Ethane	BB	1.67	20.0576	12.8260	38.8841	1	38.8841	ppm
Propane	BB	2.01	30.2047	13.8749	39.0314	1	39.0314	ppm
Butane	BB	2.92	39.8764	12.9433	38.7893	1	38.7893	ppm
Pentane	BB	4.47	50.2402	15.5195	39.0493	1	39.0493	ppm
?	BB	5.83	0.47707	0.17626	0.60989	1	0.60989	ppm
Hexane	BB	6.04	60.0750	25.9653	39.2137	1	39.2137	ppm
Heptane	BB	7.21	69.0300	36.1032	38.7409	1	38.7409	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP768 ver.4
Data File	002F3203.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 7:28 PM
File Modified	10/24/2016 8:53 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



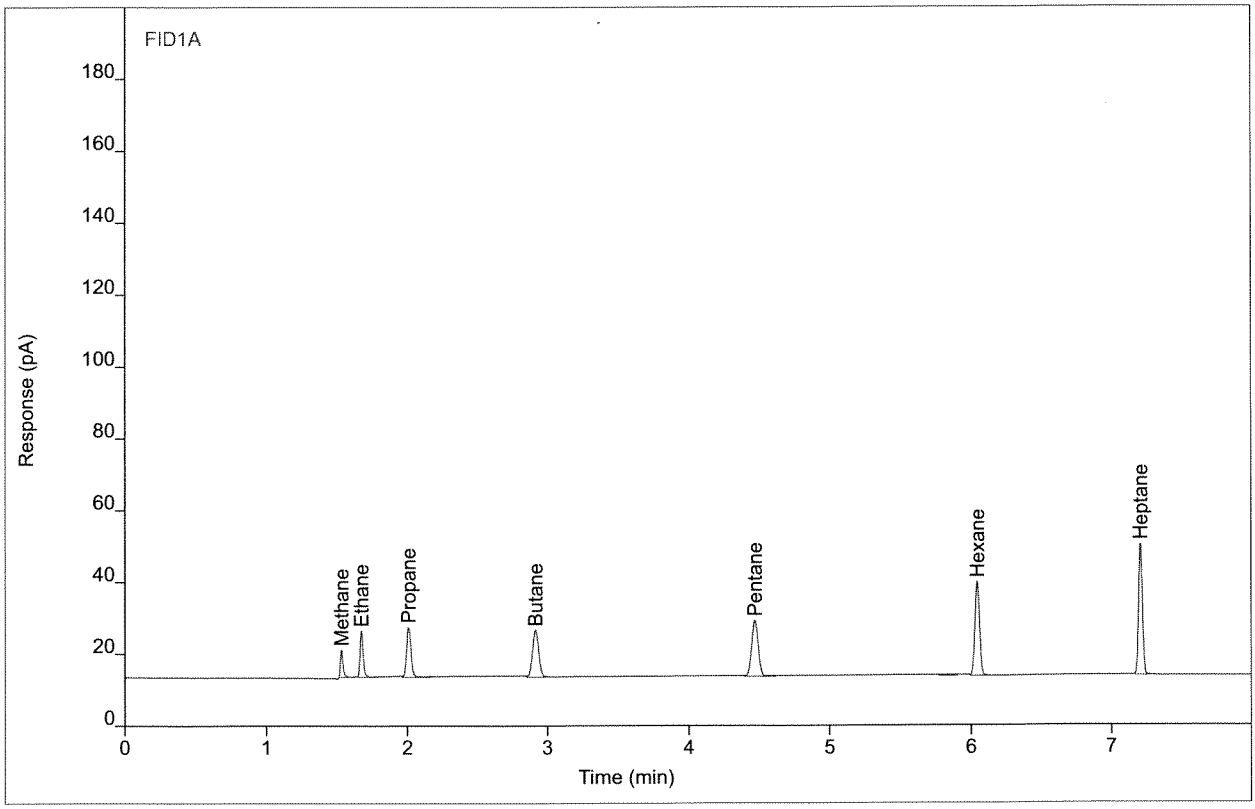
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.2372	7.58754	38.8366	1	38.8366	ppm
Ethane	BB	1.67	20.0090	12.8449	38.7899	1	38.7899	ppm
Propane	BB	2.01	30.2452	13.9072	39.0838	1	39.0838	ppm
Butane	BB	2.92	39.9947	12.9997	38.9046	1	38.9046	ppm
Pentane	BB	4.47	50.2841	15.5441	39.0837	1	39.0837	ppm
?	BB	5.83	0.45942	0.16556	0.58732	1	0.58732	ppm
Hexane	BB	6.04	60.2034	26.0364	39.2978	1	39.2978	ppm
Heptane	BB	7.21	69.1374	35.9522	38.8013	1	38.8013	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP768 ver.4
Data File	002F3204.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 7:43 PM
File Modified	10/24/2016 8:53 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



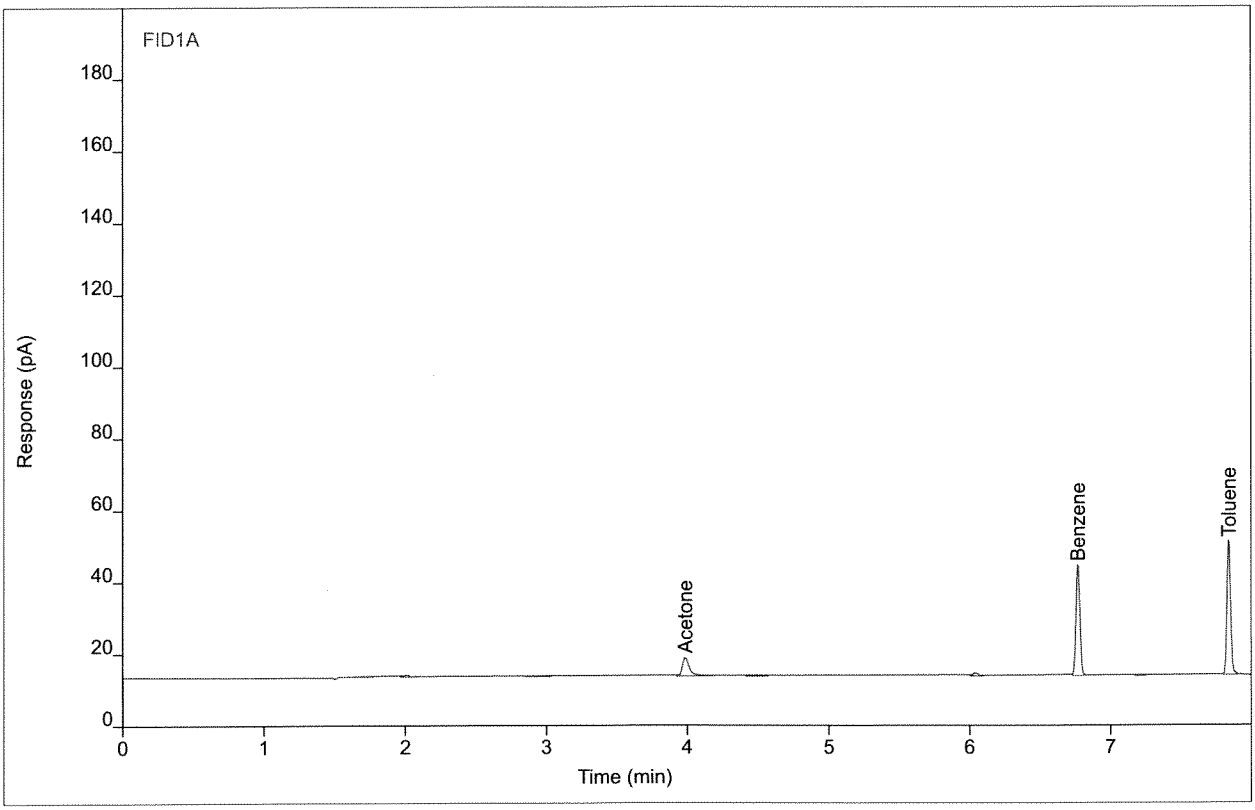
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3154	7.61303	39.1306	1	39.1306	ppm
Ethane	BB	1.67	20.0923	12.9009	38.9514	1	38.9514	ppm
Propane	PB	2.01	30.3278	13.9347	39.1907	1	39.1907	ppm
Butane	BB	2.92	40.1991	13.0258	39.1039	1	39.1039	ppm
Pentane	BB	4.47	50.4222	15.5665	39.1915	1	39.1915	ppm
?	BB	5.83	0.46833	0.16793	0.59871	1	0.59871	ppm
Hexane	BB	6.04	60.3919	26.1029	39.4213	1	39.4213	ppm
Heptane	BB	7.21	69.3190	36.4510	38.9034	1	38.9034	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP768 ver.4
Data File	002F3301.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 7:58 PM
File Modified	10/24/2016 8:53 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



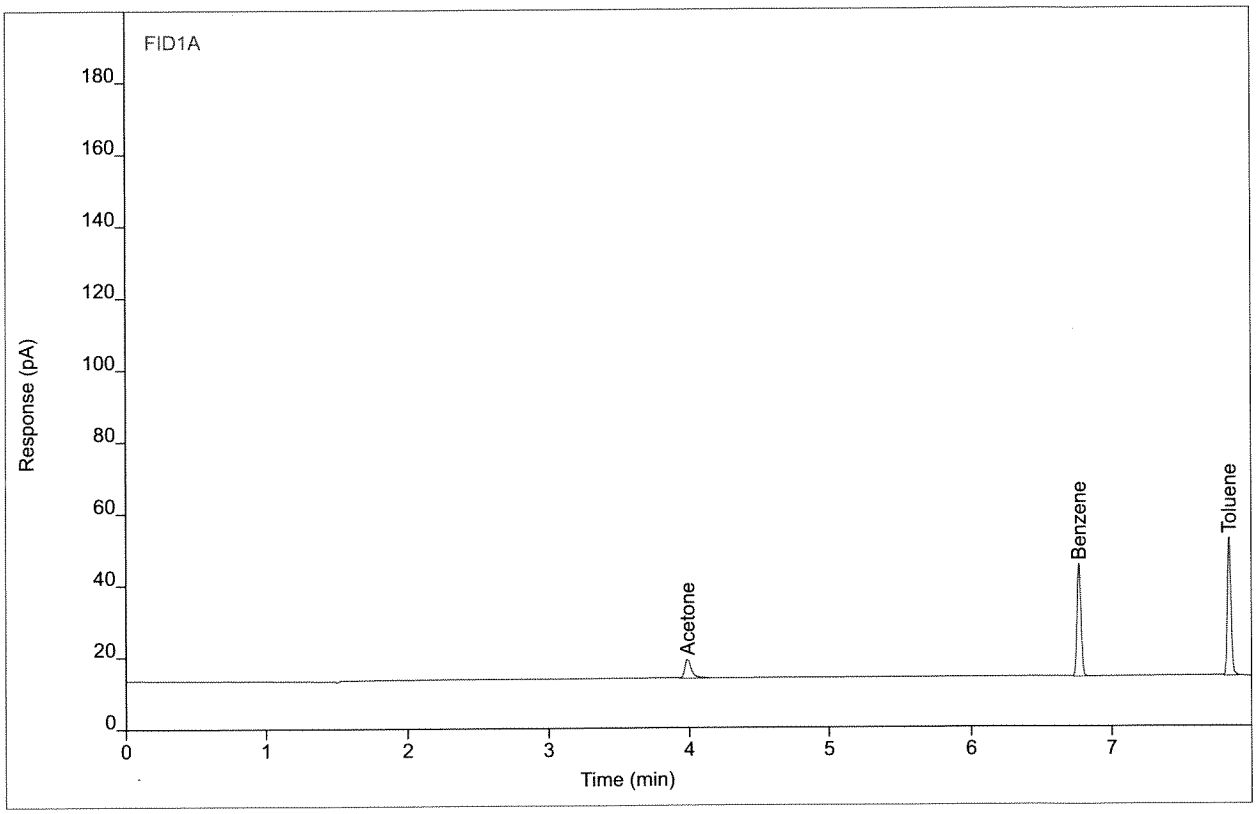
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	PB	1.67	0.52134	0.18828		1		
?	BB	2.01	1.36615	0.62318		1		
?	BB	2.92	0.85045	0.27337		1		
Acetone	BB	3.99	18.0033	5.20544	39.8787	1	39.8787	ppm
?	BB	4.47	1.20155	0.36000		1		
?	BB	6.04	2.16966	0.95284		1		
Benzene	BB	6.77	60.9767	30.7113	40.1146	1	40.1146	ppm
?	BB	7.21	0.70568	0.36354		1		
Toluene	BB	7.84	67.0148	37.1505	39.6749	1	39.6749	ppm
Ethylbenzene	BV	8.64	71.4046	37.6822	39.3463	1	39.3463	ppm
m-p-Xylenes	VB	8.71	70.2603	33.0633	38.8152	1	38.8152	ppm
o-Xylene	BB	8.93	68.9338	34.0851	39.1942	1	39.1942	ppm

Chromatogram Report

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP768 ver.4
Data File	002F3302.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 8:14 PM
File Modified	10/24/2016 8:53 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM

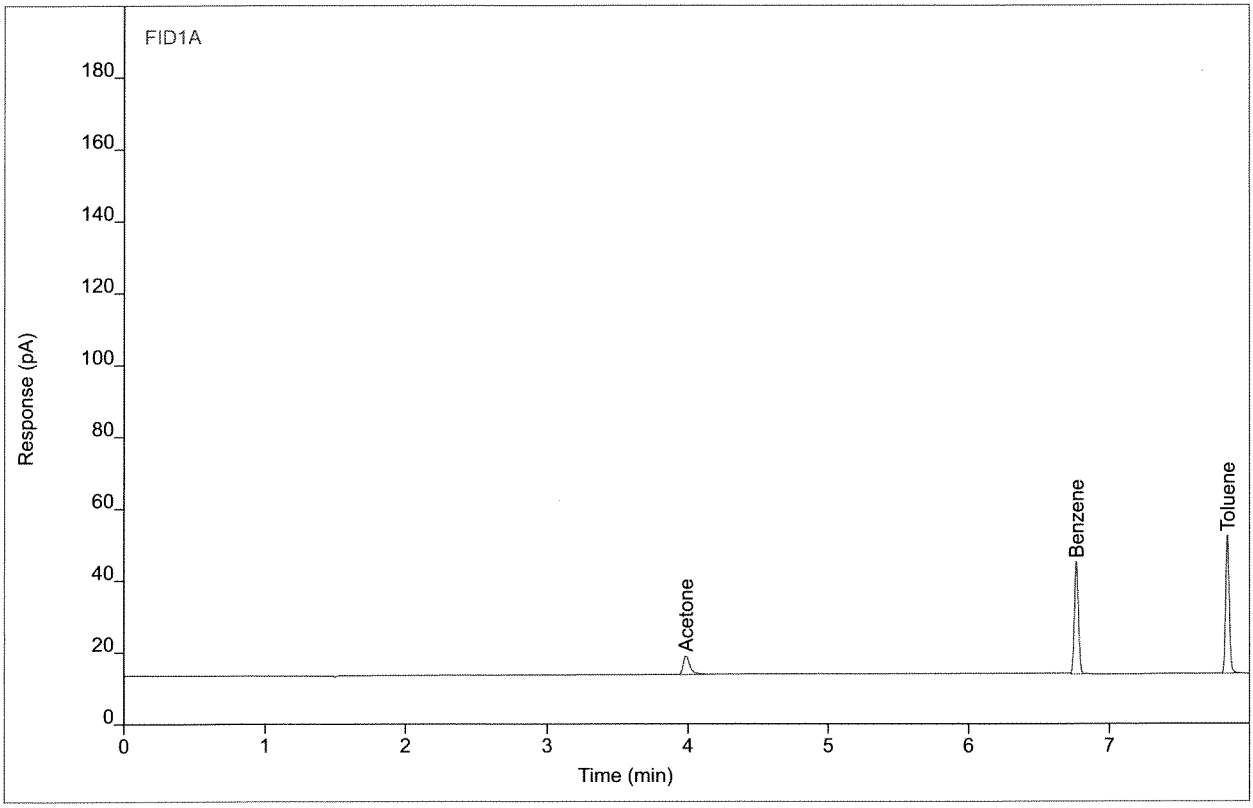


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	2.01	0.32533	0.12396		1		
Acetone	BB	3.99	18.3232	5.28356	40.5835	1	40.5835	ppm
Benzene	BB	6.77	61.9644	31.3019	40.7629	1	40.7629	ppm
Toluene	BB	7.84	68.9674	38.4231	40.8246	1	40.8246	ppm
Ethylbenzene	BV	8.64	74.7321	39.3825	41.1655	1	41.1655	ppm
m-p-Xylenes	VB	8.71	74.5191	35.1577	41.1431	1	41.1431	ppm
o-Xylene	BB	8.93	72.6541	36.1342	41.2899	1	41.2899	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)	Sample Type	Sample
Sequence Name	EDITHP768 ver.4	Vial Number	Vial 2
Data File	002F3303.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 4	Injection	3 of 3
Injection Date	10/21/2016 8:29 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	10/24/2016 8:53 AM	Analysis Method	EDITHP723F_BTEX.M
Instrument		Method Modified	9/20/2016 8:20 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:41 AM



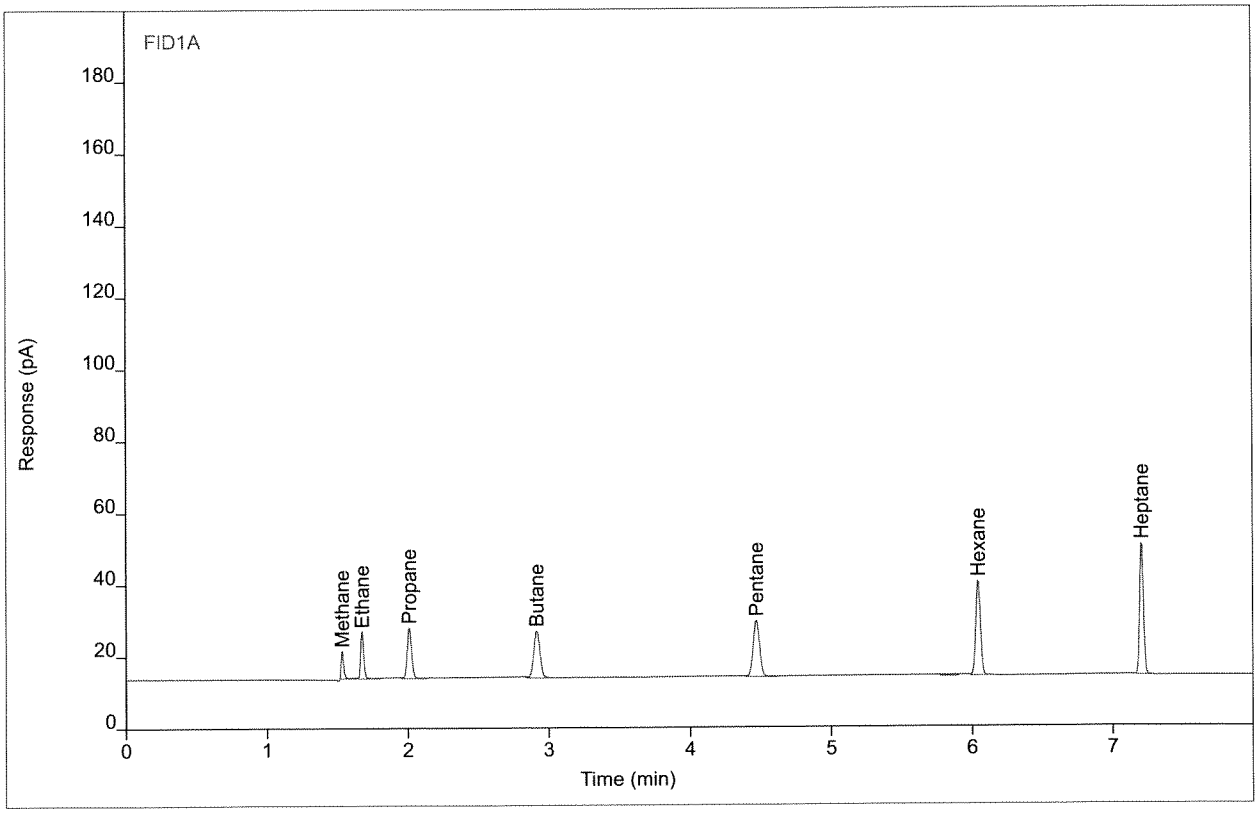
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	18.0241	5.27700	39.9246	1	39.9246	ppm
Benzene	BB	6.77	61.8661	31.2597	40.6984	1	40.6984	ppm
Toluene	BB	7.84	69.2478	38.3432	40.9897	1	40.9897	ppm
Ethylbenzene	BV	8.64	75.3474	39.8314	41.5020	1	41.5020	ppm
m-p-Xylenes	VB	8.71	75.4059	35.4078	41.6278	1	41.6278	ppm
o-Xylene	BB	8.93	73.4740	36.3320	41.7518	1	41.7518	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP770 ver.7
Data File	002F1202.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/22/2016 11:52 AM
File Modified	10/24/2016 9:13 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



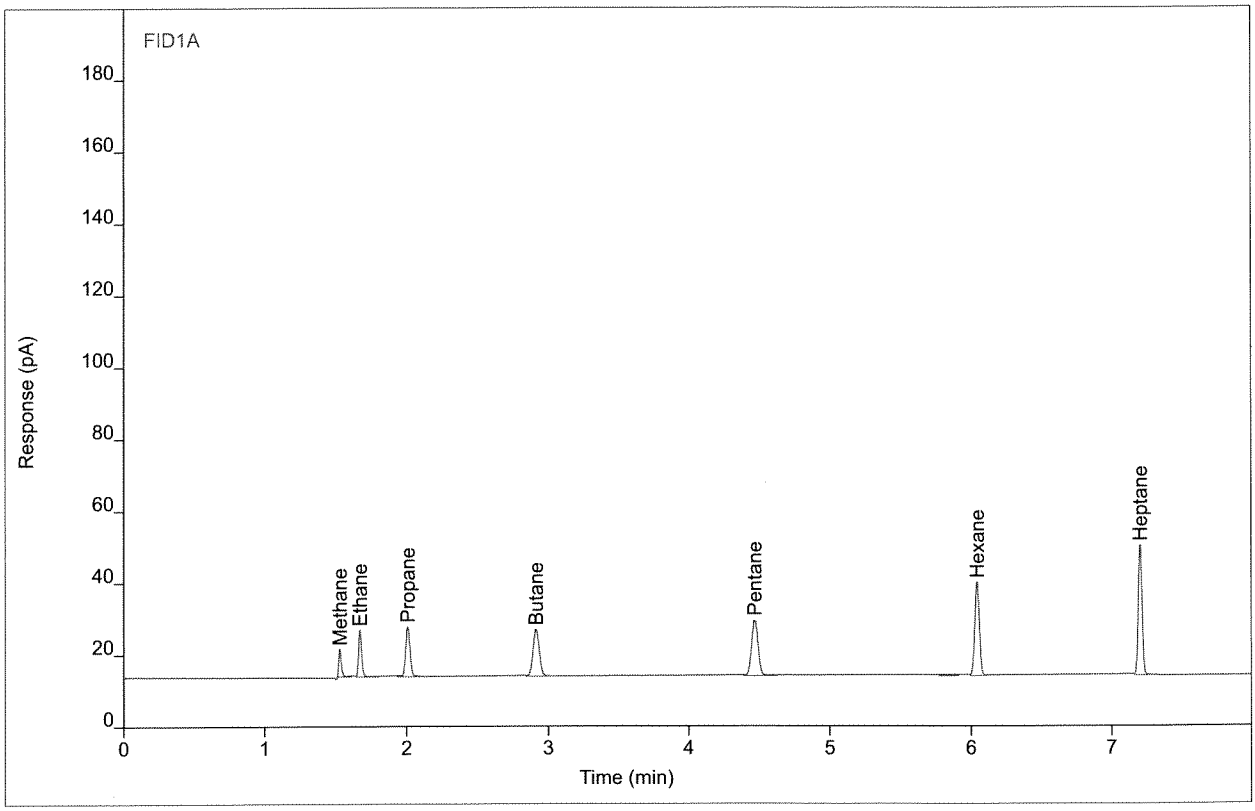
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3755	7.67790	39.3563	1	39.3563	ppm
Ethane	BB	1.67	20.2692	12.9887	39.2946	1	39.2946	ppm
Propane	BB	2.01	30.6416	14.0536	39.5967	1	39.5967	ppm
Butane	BB	2.92	40.4459	13.0998	39.3446	1	39.3446	ppm
Pentane	BB	4.47	50.7742	15.6547	39.4665	1	39.4665	ppm
?	BB	5.83	0.49817	0.17473	0.63686	1	0.63686	ppm
Hexane	BB	6.04	60.7525	26.2932	39.6575	1	39.6575	ppm
Heptane	BB	7.21	69.8422	36.4352	39.1976	1	39.1976	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP770 ver.7
Data File	002F1203.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/22/2016 12:07 PM
File Modified	10/24/2016 9:13 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



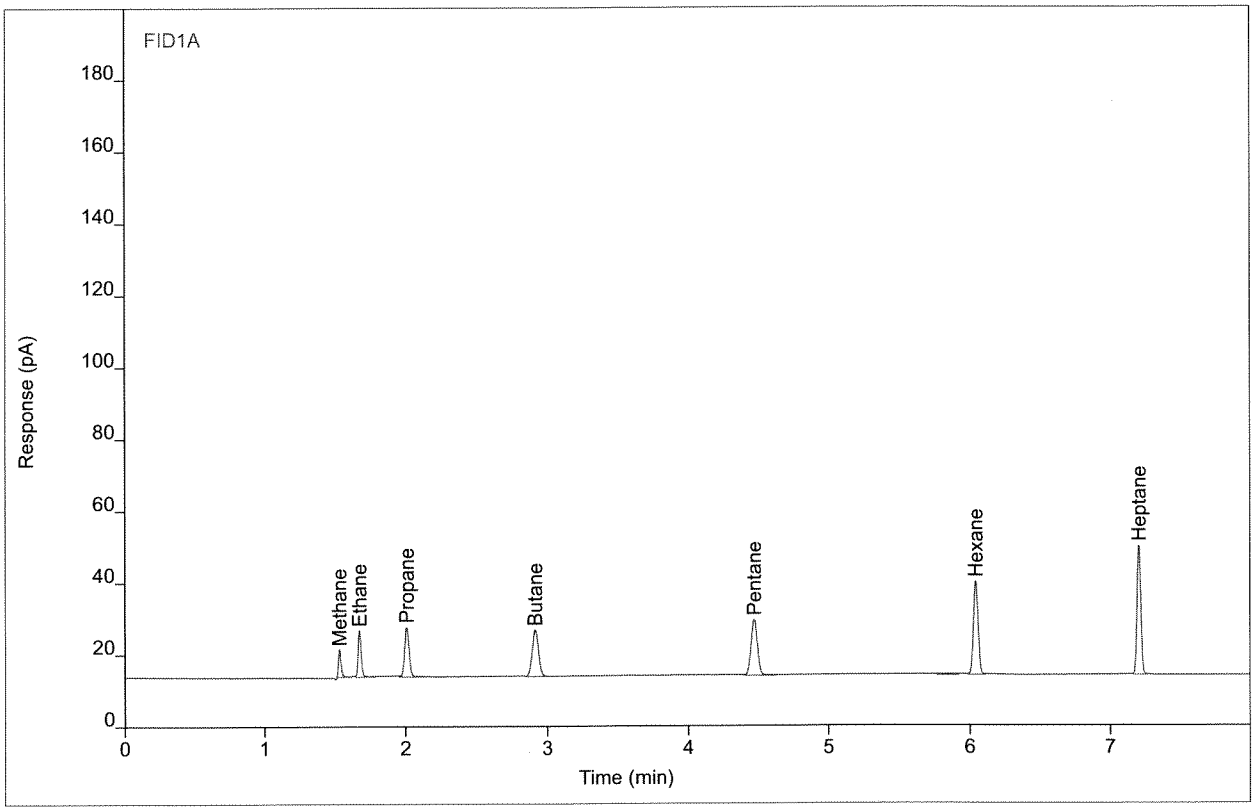
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3272	7.65100	39.1748	1	39.1748	ppm
Ethane	BB	1.67	20.2739	12.9713	39.3036	1	39.3036	ppm
Propane	PB	2.01	30.4980	13.9647	39.4110	1	39.4110	ppm
Butane	BB	2.91	40.1801	13.0416	39.0854	1	39.0854	ppm
Pentane	BB	4.47	50.4230	15.5949	39.1921	1	39.1921	ppm
?	BB	5.83	0.51401	0.17962	0.65711	1	0.65711	ppm
Hexane	BB	6.04	60.3901	26.0181	39.4201	1	39.4201	ppm
Heptane	BB	7.21	69.4276	36.1761	38.9645	1	38.9645	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp623 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP770 ver.7
Data File	002F1204.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/22/2016 12:23 PM
File Modified	10/24/2016 9:13 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	10/20/2016 5:00 PM
Printed	10/24/2016 9:41 AM



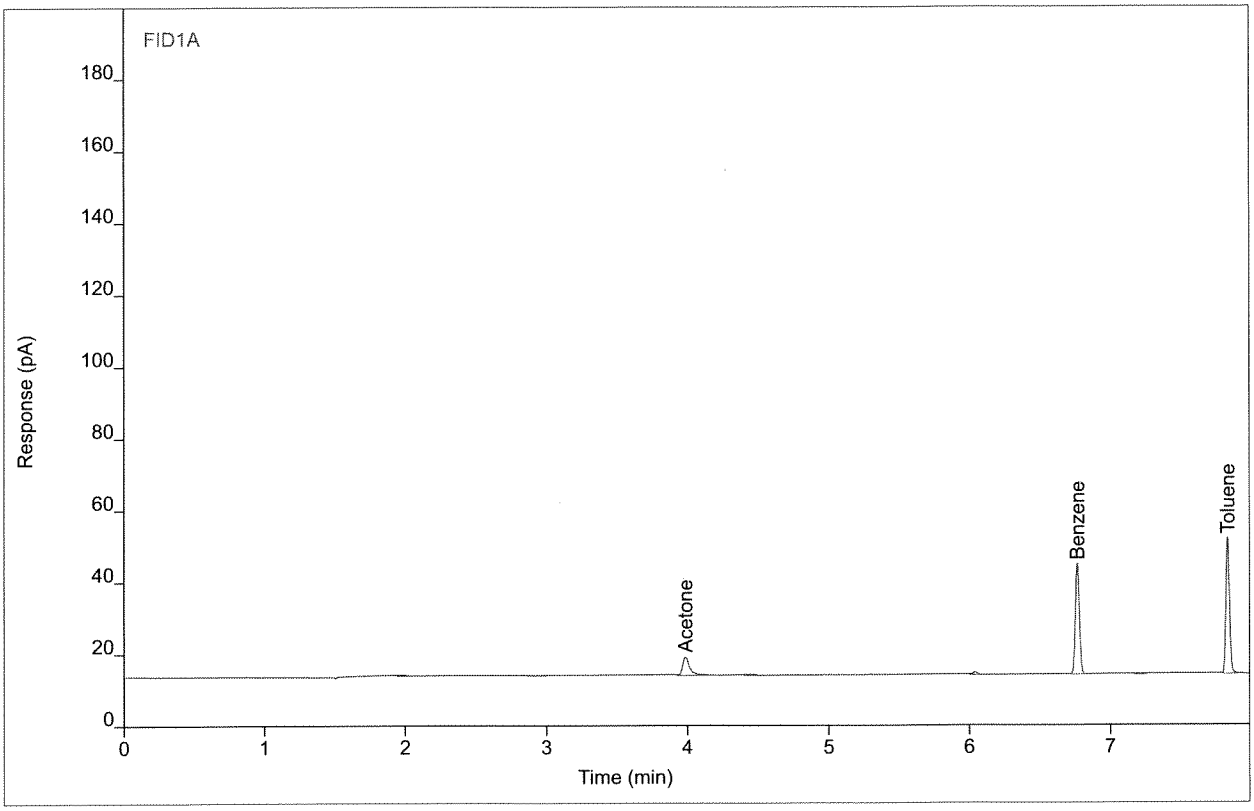
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.2203	7.58521	38.7729	1	38.7729	ppm
Ethane	BB	1.67	19.9462	12.9074	38.6681	1	38.6681	ppm
Propane	BB	2.01	30.1954	13.8858	39.0193	1	39.0193	ppm
Butane	BB	2.91	39.9414	12.9698	38.8527	1	38.8527	ppm
Pentane	BB	4.47	50.1976	15.5455	39.0161	1	39.0161	ppm
?	BB	5.83	0.50691	0.16434	0.64804	1	0.64804	ppm
Hexane	BB	6.04	60.0299	25.9574	39.1841	1	39.1841	ppm
Heptane	BB	7.21	69.0279	35.9277	38.7398	1	38.7398	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP770 ver.7
Data File	002F1301.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/22/2016 12:38 PM
File Modified	10/24/2016 9:14 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



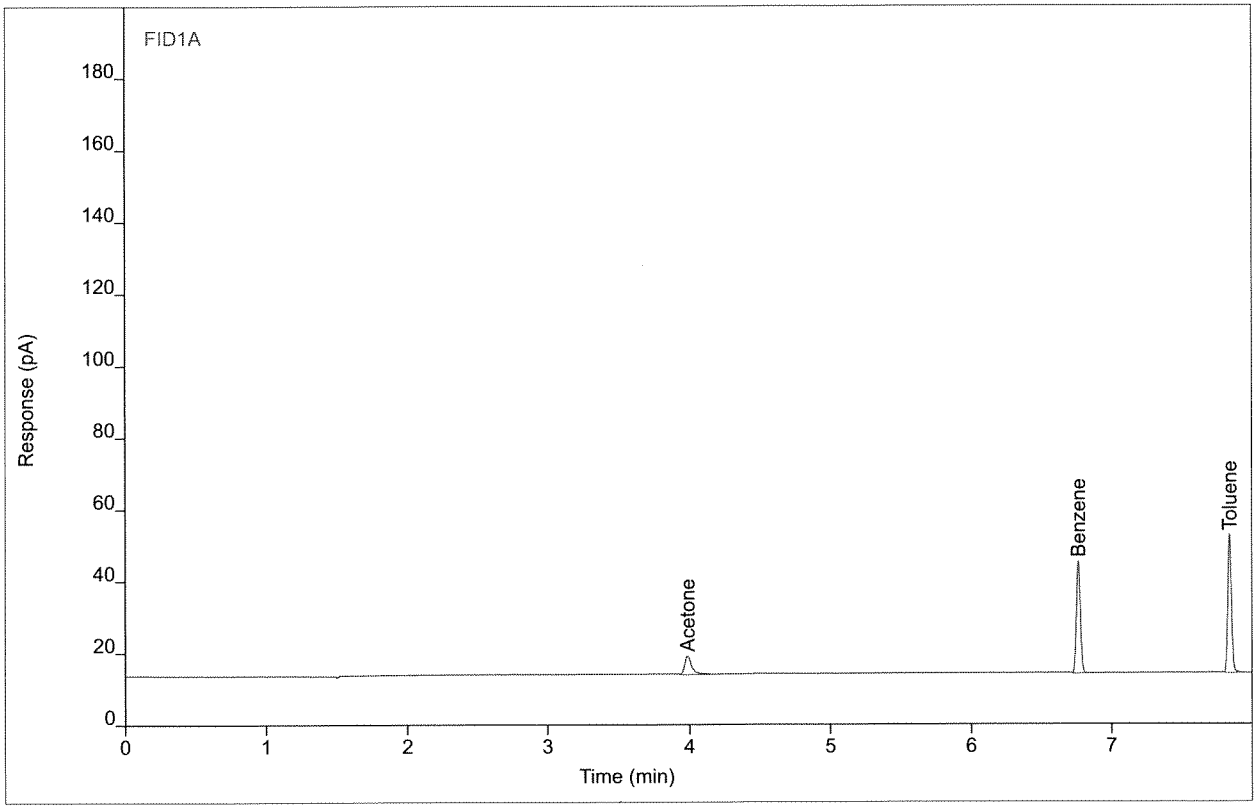
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.05	0.61170	0.12539		1		
?	BP	1.67	0.19478	0.13377		1		
?	PB	2.01	1.03480	0.45182		1		
?	BB	2.91	0.66482	0.20975		1		
Acetone	BB	3.99	18.3568	5.24369	40.6576	1	40.6576	ppm
?	BB	4.47	0.99601	0.28533		1		
?	BB	6.04	1.73657	0.74813		1		
Benzene	BB	6.77	61.1425	30.7725	40.2234	1	40.2234	ppm
?	BB	7.21	0.60572	0.31442		1		
Toluene	BB	7.84	68.0597	37.7658	40.2902	1	40.2902	ppm
Ethylbenzene	BV	8.64	73.9144	39.1695	40.7185	1	40.7185	ppm
m-p-Xylenes	VB	8.71	73.5087	34.4704	40.5908	1	40.5908	ppm
o-Xylene	BB	8.93	72.0356	35.5094	40.9415	1	40.9415	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP770 ver.7
Data File	002F1302.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/22/2016 12:53 PM
File Modified	10/24/2016 9:14 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



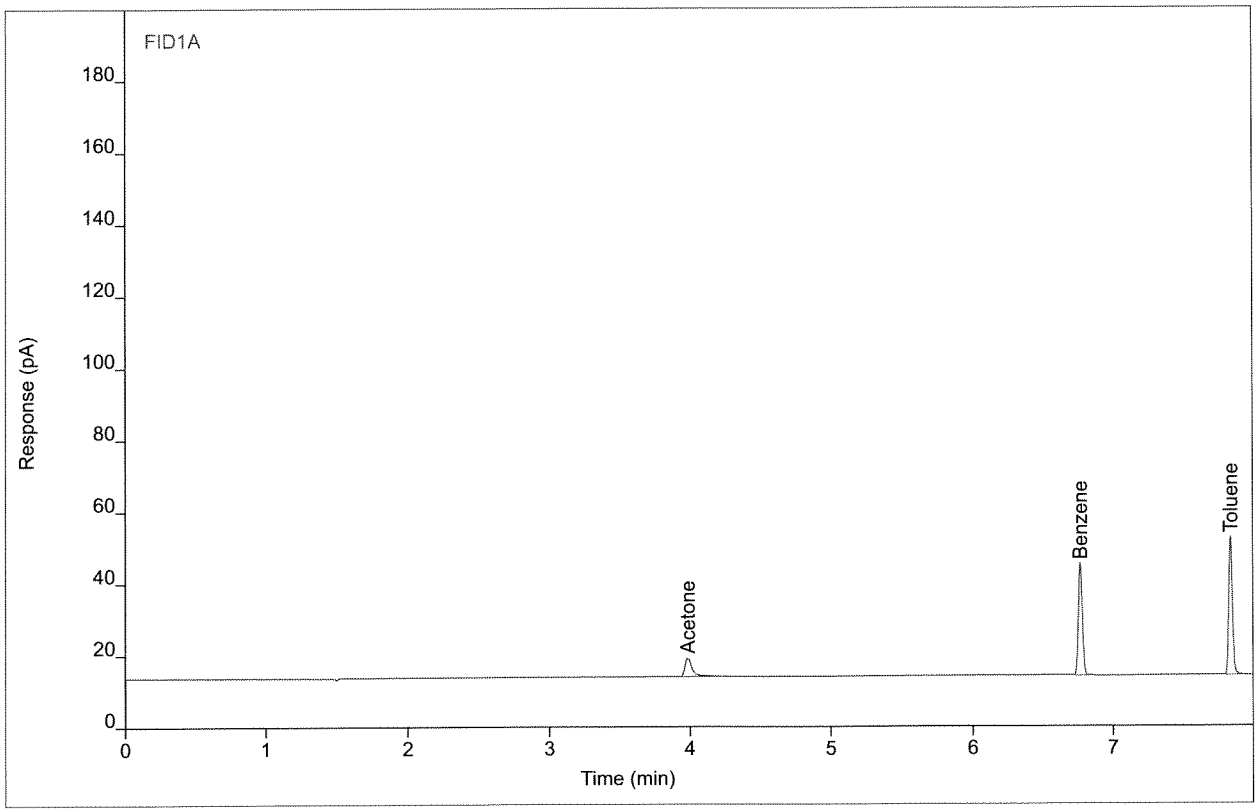
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	2.01	0.29337	0.11146		1		
Acetone	BB	3.99	18.5310	5.27575	41.0414	1	41.0414	ppm
Benzene	BB	6.77	61.6914	31.1545	40.5837	1	40.5837	ppm
Toluene	BB	7.84	69.0160	38.4378	40.8532	1	40.8532	ppm
Ethylbenzene	BV	8.64	75.4139	40.0508	41.5383	1	41.5383	ppm
m-p-Xylenes	VB	8.71	75.3567	35.5424	41.6009	1	41.6009	ppm
o-Xylene	BB	8.93	73.6059	36.2945	41.8261	1	41.8261	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,3=400)
Sequence Name	EDITHP770 ver.7
Data File	002F1303.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/22/2016 1:09 PM
File Modified	10/24/2016 9:14 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/20/2016 8:20 AM
Printed	10/24/2016 9:41 AM



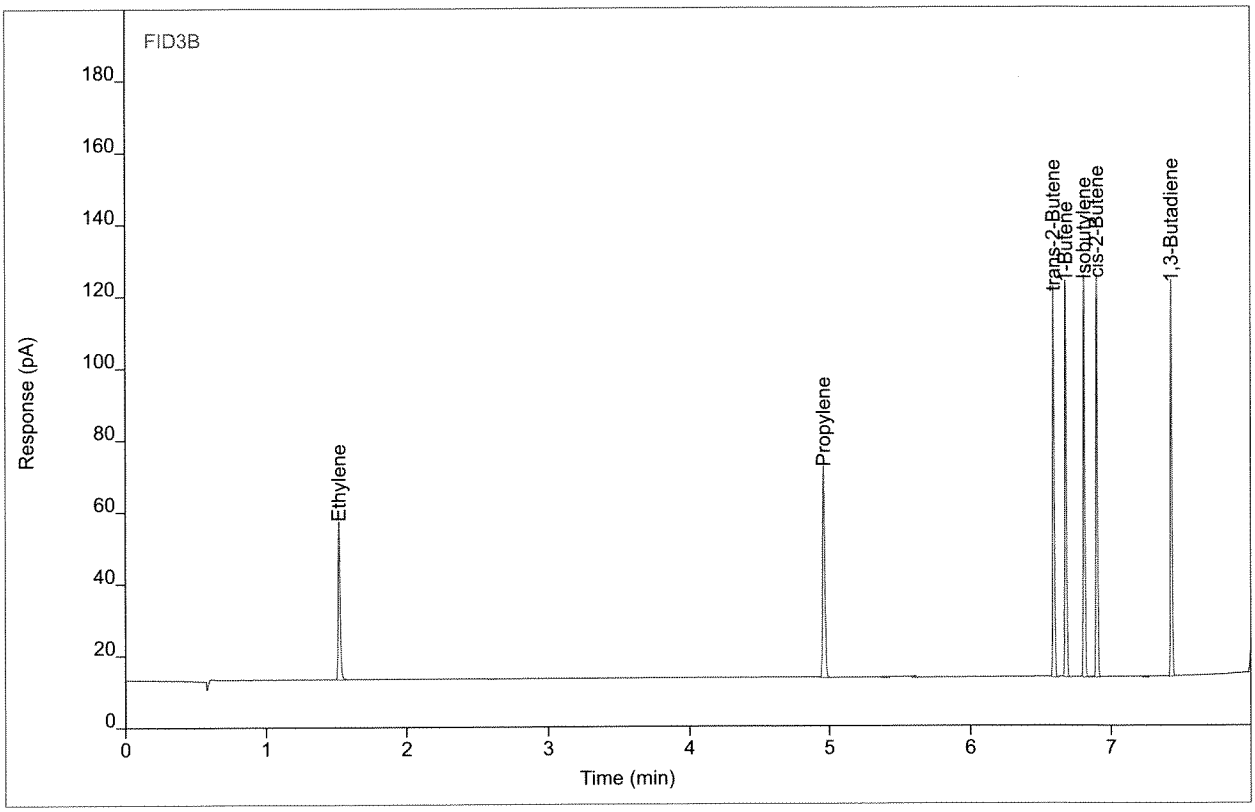
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	18.5991	5.28585	41.1913	1	41.1913	ppm
Benzene	BB	6.77	61.5751	31.0867	40.5074	1	40.5074	ppm
Toluene	BB	7.84	69.1080	38.2892	40.9074	1	40.9074	ppm
Ethylbenzene	BV	8.64	75.4646	39.7799	41.5660	1	41.5660	ppm
m-p-Xylenes	VB	8.71	75.5319	35.7675	41.6967	1	41.6967	ppm
o-Xylene	BB	8.93	73.7020	36.2960	41.8803	1	41.8803	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp727 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP766 ver.4
Data File	018B1801.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 9:47 PM
File Modified	10/22/2016 12:44 PM
Instrument	
Operator	Trevor Lott

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/20/2016 11:24 AM
Printed	10/24/2016 9:41 AM



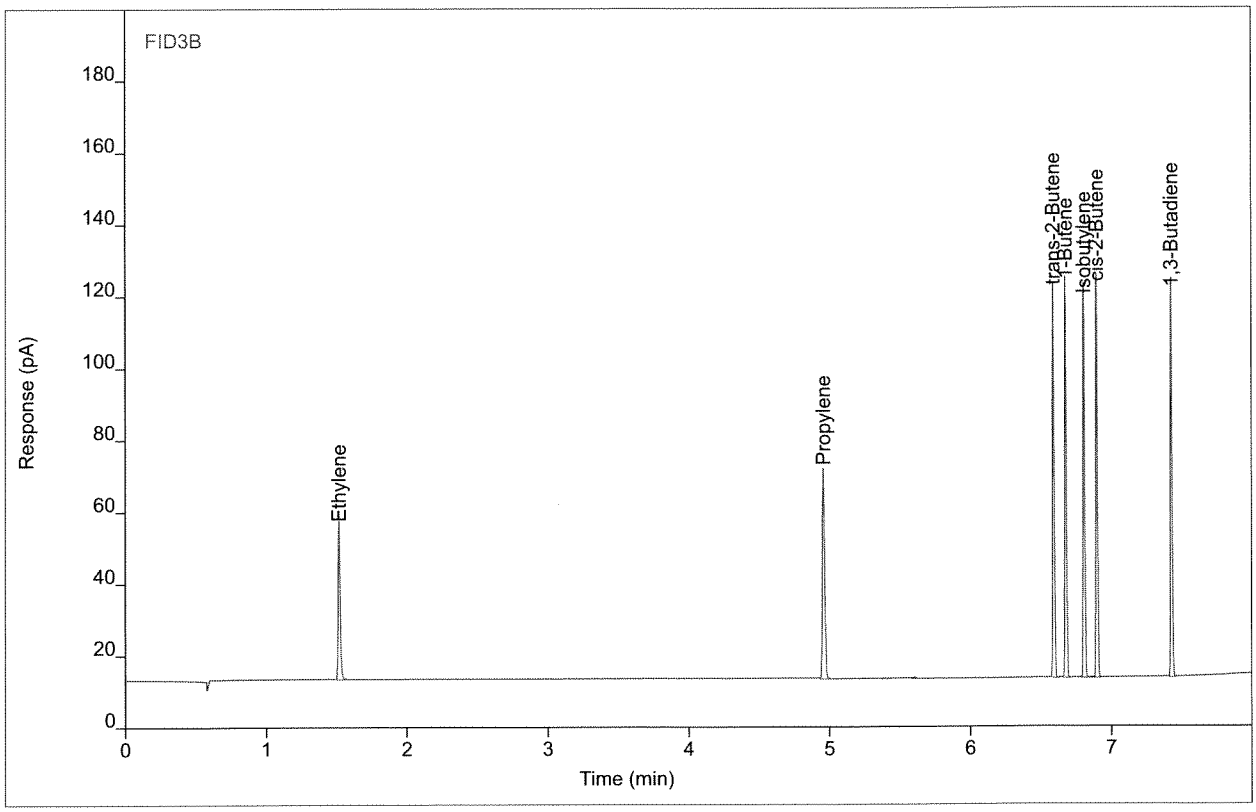
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
?	BB	0.88	0.14453	0.20205		1		
Ethylene	BB	1.52	44.6770	42.9806	40.0019	1	40.0019	ppm
?	BB	2.59	0.20042	0.13170		1		
Propylene	BB	4.96	67.1623	57.7441	41.5950	1	41.5950	ppm
?	BB	5.39	0.28112	0.25901		1		
?	BB	5.61	0.67661	0.66039		1		
trans-2-Butene	BB	6.59	88.5118	106.236	39.7926	1	39.7926	ppm
1-Butene	BB	6.68	89.7127	108.706	39.9555	1	39.9555	ppm
Isobutylene	BB	6.81	88.4964	109.617	39.7061	1	39.7061	ppm
?	BV	6.86	0.26156	0.26045		1		
cis-2-Butene	VB	6.90	89.5403	110.040	39.3587	1	39.3587	ppm
?	BB	7.24	0.27507	0.31794		1		
1,3-Butadiene	BB	7.43	86.6933	108.483	39.6693	1	39.6693	ppm
?	BB	8.03	154.208	55.6185		1		
?	BB	8.46	0.38004	0.39485		1		
?	BB	8.56	1.55317	1.60625		1		

Chromatogram Report

Sample Name	Edithp727 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP766 ver.4
Data File	018B1802.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 10:02 PM
File Modified	10/22/2016 12:44 PM
Instrument	
Operator	Trevor Lott

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/20/2016 11:24 AM
Printed	10/24/2016 9:41 AM



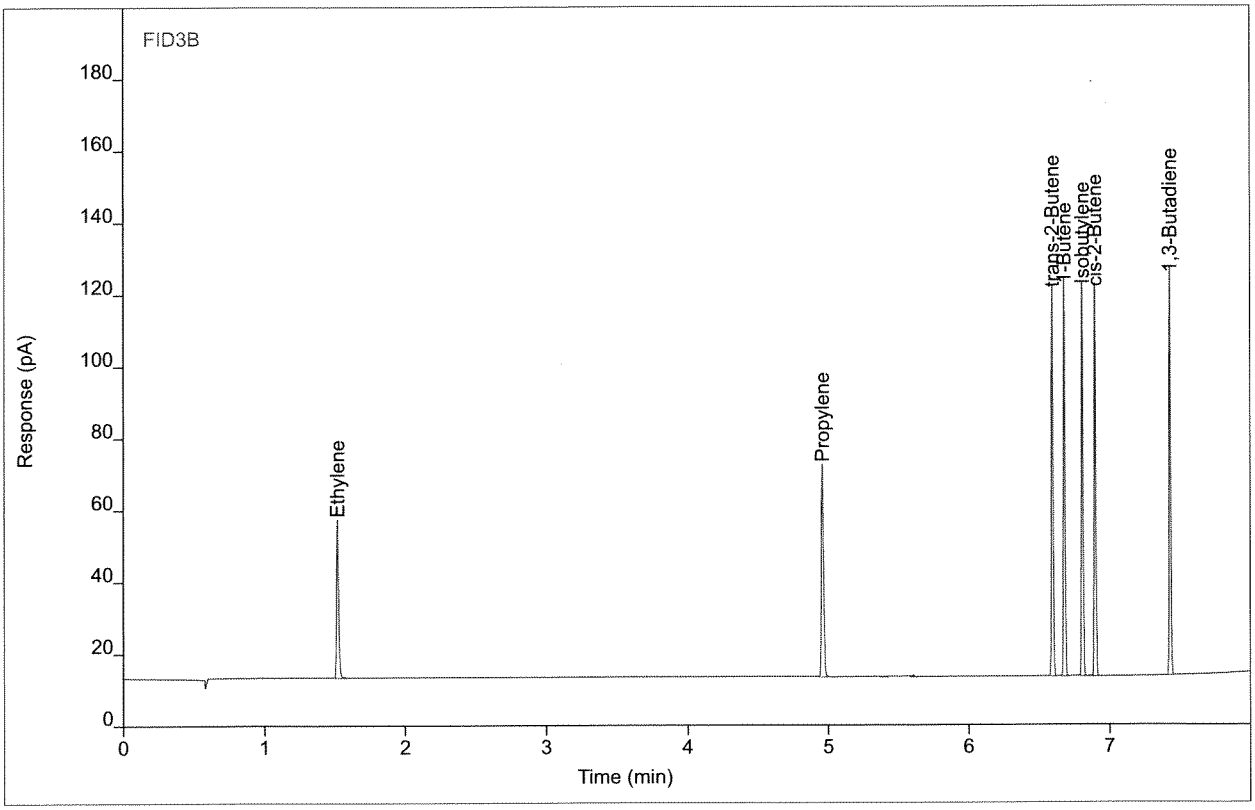
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.52	44.6932	42.8883	40.0164	1	40.0164	ppm
Propylene	BB	4.96	67.2318	58.4522	41.6380	1	41.6380	ppm
?	BB	5.39	0.28525	0.24958		1		
?	BB	5.61	0.56878	0.54785		1		
trans-2-Butene	BB	6.59	88.6336	108.227	39.8476	1	39.8476	ppm
1-Butene	BB	6.68	89.8192	109.807	40.0030	1	40.0030	ppm
Isobutylene	BB	6.81	88.5927	105.721	39.7494	1	39.7494	ppm
?	BV	6.86	0.26576	0.25394		1		
cis-2-Butene	VB	6.90	89.6238	109.161	39.3955	1	39.3955	ppm
1,3-Butadiene	BB	7.43	87.0101	107.452	39.8148	1	39.8148	ppm
?	BB	8.56	1.80213	1.64324		1		

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp727 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP766 ver.4
Data File	018B1803.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/19/2016 10:17 PM
File Modified	10/22/2016 12:44 PM
Instrument	
Operator	Trevor Lott

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/20/2016 11:24 AM
Printed	10/24/2016 9:41 AM



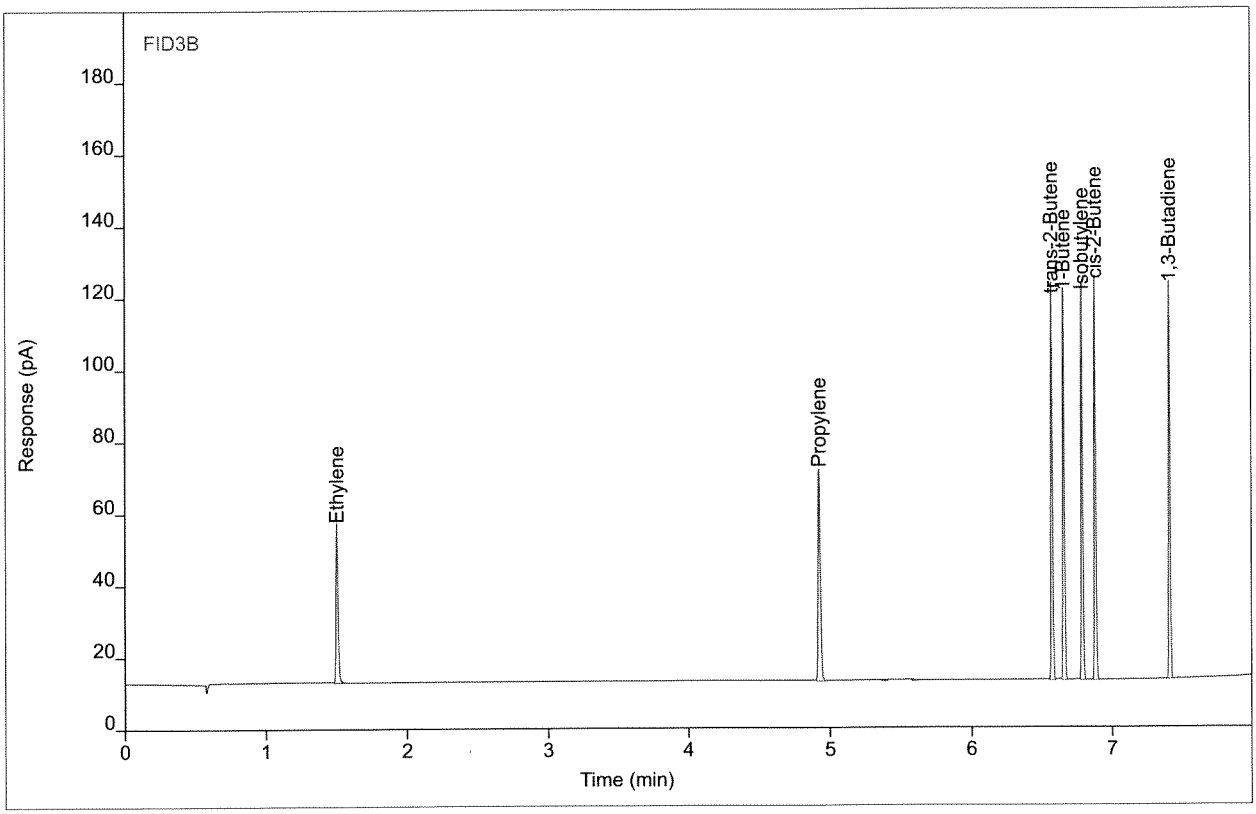
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.52	44.6733	43.6799	39.9986	1	39.9986	ppm
Propylene	BB	4.96	67.1501	58.7991	41.5874	1	41.5874	ppm
?	BB	5.39	0.29286	0.25827		1		
?	BB	5.61	0.52605	0.50358		1		
trans-2-Butene	BB	6.59	88.4987	107.142	39.7867	1	39.7867	ppm
1-Butene	BB	6.68	89.7629	108.144	39.9779	1	39.9779	ppm
Isobutylene	BB	6.81	88.4933	107.988	39.7047	1	39.7047	ppm
?	BV	6.86	0.26822	0.27867		1		
cis-2-Butene	VB	6.90	89.5372	107.303	39.3574	1	39.3574	ppm
1,3-Butadiene	BB	7.43	86.6429	110.870	39.6461	1	39.6461	ppm
?	BB	8.56	1.63396	1.64454		1		

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp727 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP768 ver.4
Data File	018B3401.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 8:44 PM
File Modified	10/24/2016 9:00 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	1 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



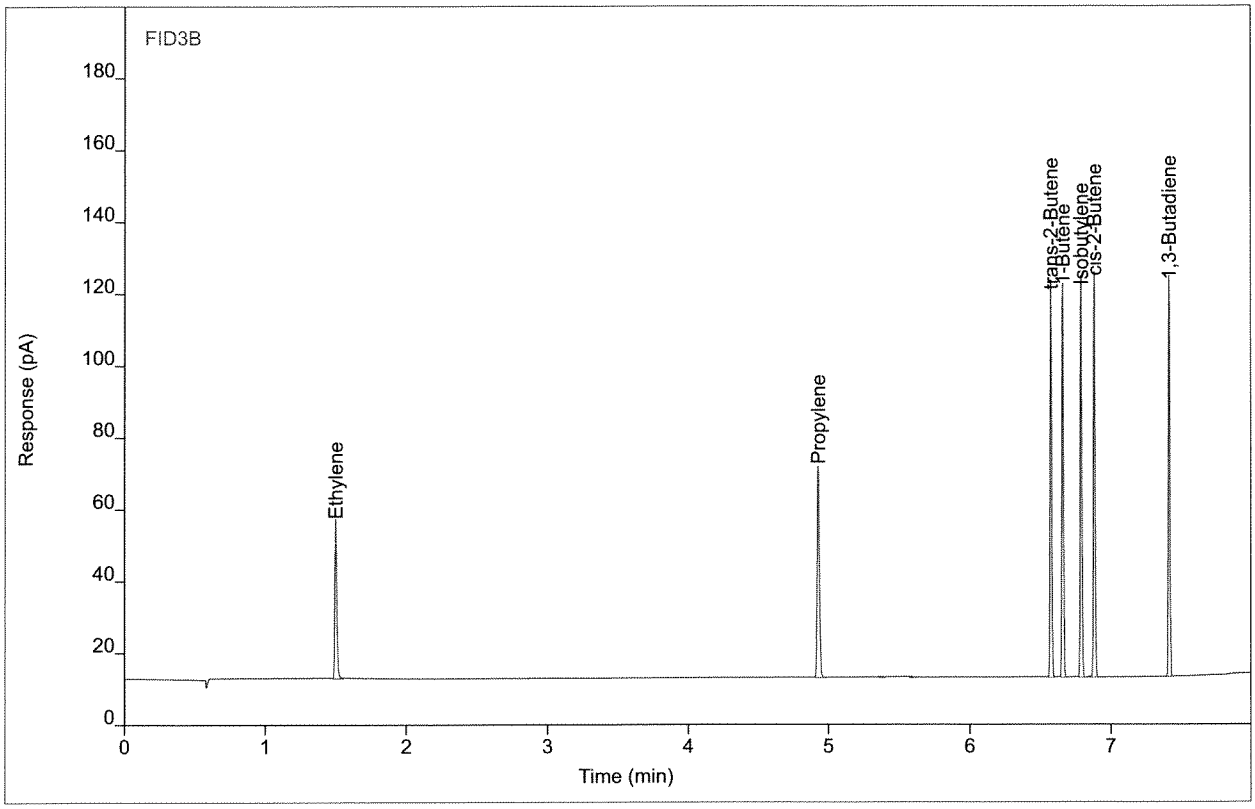
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.50	44.3420	43.4313	39.7022	1	39.7022	ppm
Propylene	BB	4.93	66.8103	58.4253	41.3769	1	41.3769	ppm
?	BB	5.38	0.27500	0.24717		1		
?	BB	5.59	0.48363	0.47119		1		
trans-2-Butene	BB	6.58	88.0287	106.395	39.5744	1	39.5744	ppm
1-Butene	BB	6.66	89.1918	107.237	39.7231	1	39.7231	ppm
Isobutylene	BB	6.79	87.9730	107.366	39.4710	1	39.4710	ppm
cis-2-Butene	BB	6.88	89.2532	110.528	39.2321	1	39.2321	ppm
1,3-Butadiene	BB	7.41	86.3821	109.253	39.5263	1	39.5263	ppm
?	BB	8.78	135.897	54.7599		1		

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp727 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP768 ver.4
Data File	018B3402.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 8:59 PM
File Modified	10/24/2016 9:00 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



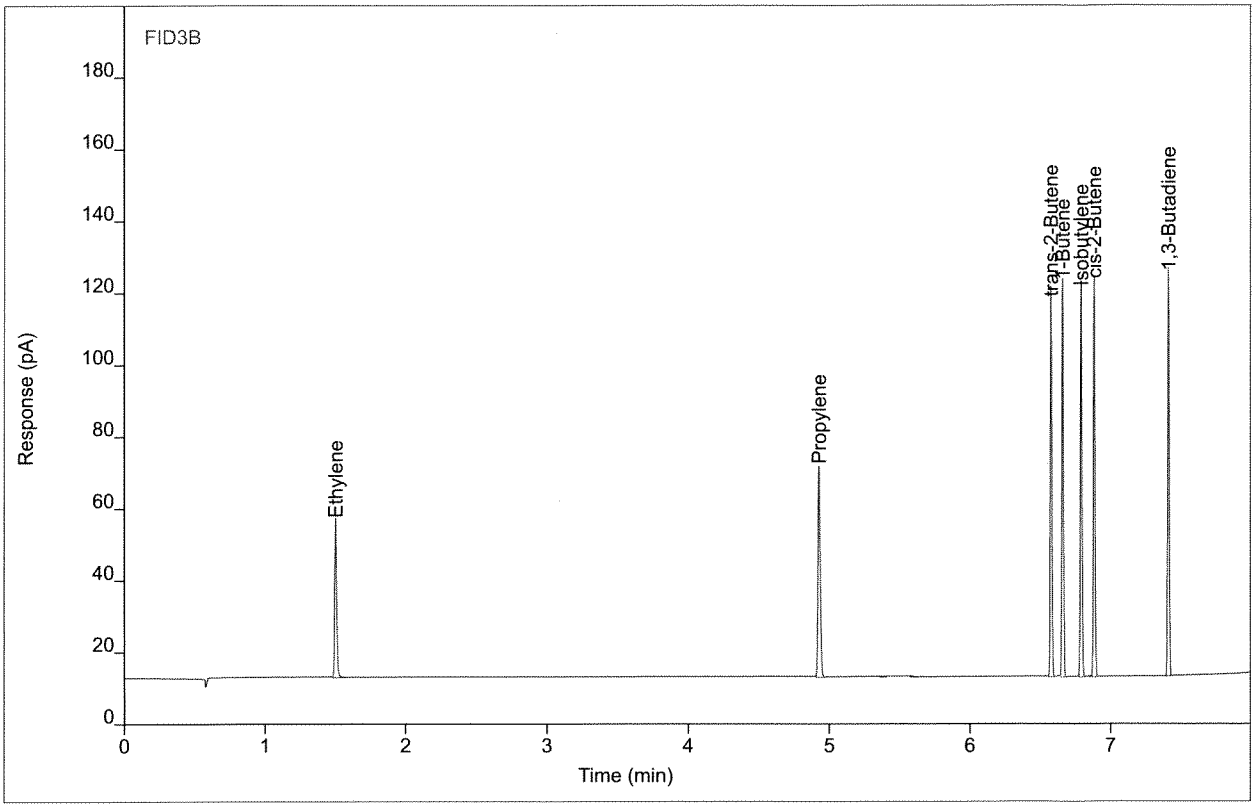
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.50	44.3801	43.3552	39.7362	1	39.7362	ppm
Propylene	BB	4.93	66.8643	58.3431	41.4103	1	41.4103	ppm
?	BB	5.38	0.27508	0.25232		1		
?	BB	5.60	0.47823	0.45469		1		
trans-2-Butene	BB	6.58	88.0988	106.854	39.6061	1	39.6061	ppm
1-Butene	BB	6.66	89.2507	108.179	39.7494	1	39.7494	ppm
Isobutylene	BB	6.79	87.9717	108.130	39.4704	1	39.4704	ppm
cis-2-Butene	BB	6.88	89.2928	110.701	39.2496	1	39.2496	ppm
1,3-Butadiene	BB	7.41	86.4284	109.365	39.5476	1	39.5476	ppm
?	BV	8.75	71.6349	21.7525		1		
?	VB	8.78	78.0496	20.5541		1		

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp727 #HR4 ENV(1=600,4=400)
Sequence Name	EDITHP768 ver.4
Data File	018B3403.D
File Location	GC/2016/Edith/Quarter 4
Injection Date	10/21/2016 9:14 PM
File Modified	10/24/2016 9:01 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 3
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	10/22/2016 11:28 AM
Printed	10/24/2016 9:41 AM



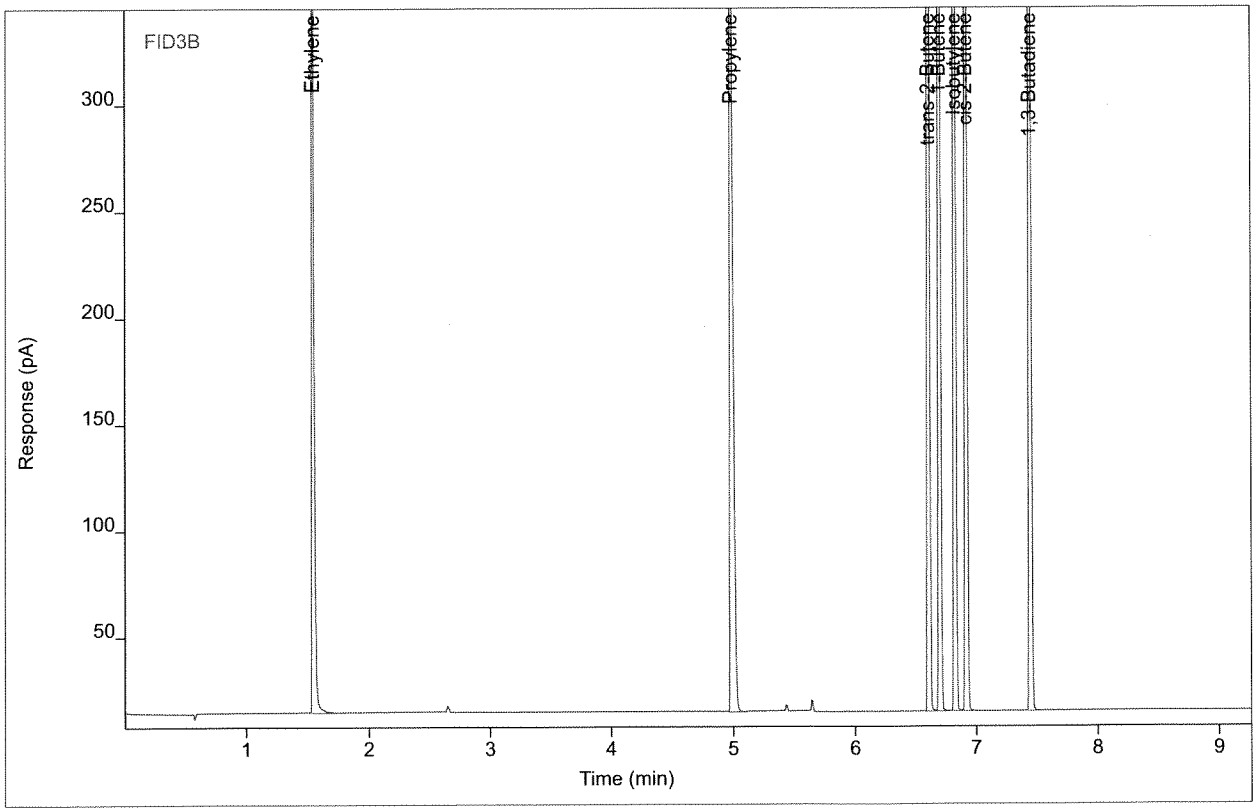
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.50	44.4759	43.4198	39.8220	1	39.8220	ppm
Propylene	BB	4.93	66.9087	58.3422	41.4378	1	41.4378	ppm
?	BB	5.38	0.27728	0.25003		1		
?	BB	5.60	0.48094	0.46381		1		
trans-2-Butene	BB	6.58	88.1767	104.734	39.6413	1	39.6413	ppm
1-Butene	BB	6.66	89.2862	109.432	39.7652	1	39.7652	ppm
Isobutylene	BB	6.79	88.0899	107.693	39.5235	1	39.5235	ppm
cis-2-Butene	BB	6.88	89.3562	109.825	39.2775	1	39.2775	ppm
1,3-Butadiene	BB	7.41	86.5275	111.670	39.5931	1	39.5931	ppm
?	BB	8.75	153.954	22.4345		1		

Chromatogram Report

Sample Name	Edithp275 #HR7 ENV(1=1900,3=112.58)
Sequence Name	EDITHP636A ver.2
Data File	018B0102.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 1:28 PM
File Modified	6/20/2016 12:39 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



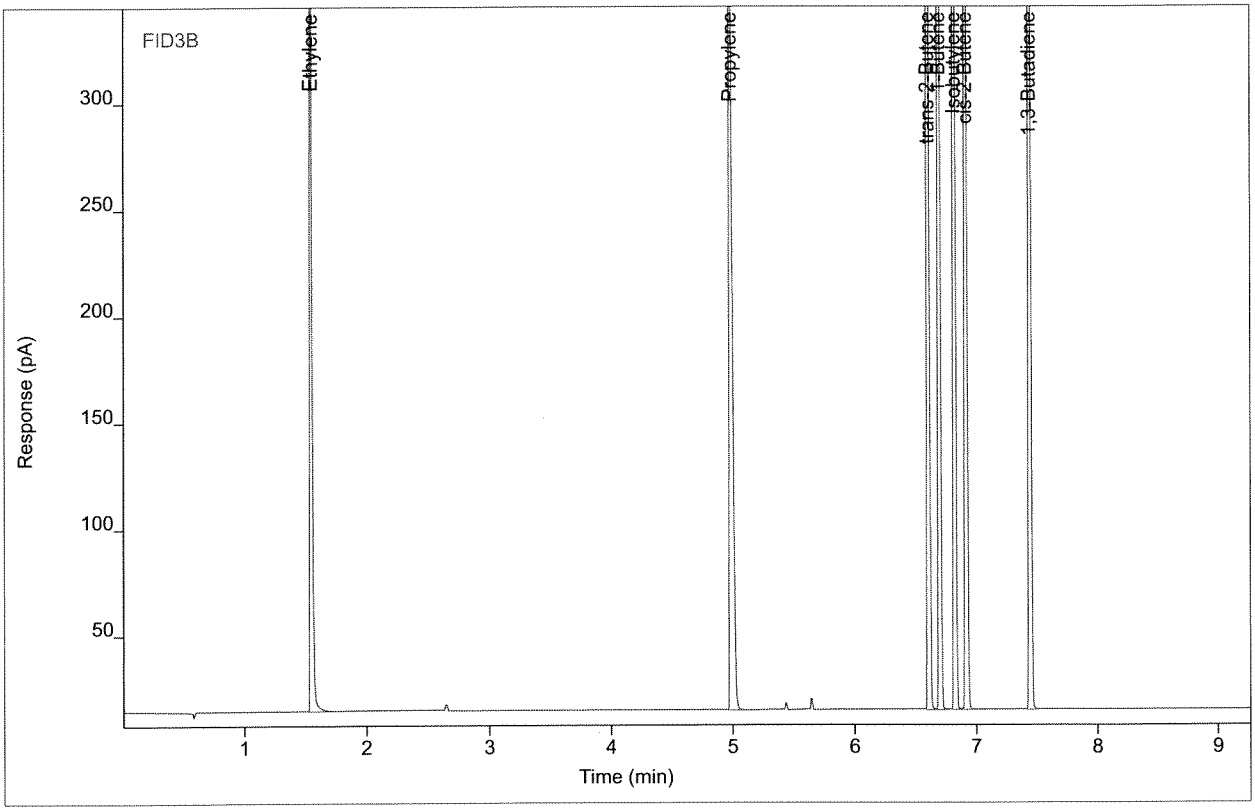
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	566.814	507.220	507.187	1	507.187	ppm
Propylene	BB	4.98	817.869	501.006	506.745	1	506.745	ppm
Acetylene		(5.72)				1		
trans-2-Butene	BV	6.60	1126.09	1039.53	508.374	1	508.374	ppm
1-Butene	VB	6.69	1110.61	1021.29	495.357	1	495.357	ppm
Isobutylene	BB	6.82	1100.95	947.356	494.631	1	494.631	ppm
cis-2-Butene	BB	6.91	1120.89	964.910	494.119	1	494.119	ppm
1,3-Butadiene	BB	7.44	1104.15	983.501	507.053	1	507.053	ppm

Chromatogram Report

Sample Name	Edithp275 #HR7 ENV(1=1900,3=112.58)
Sequence Name	EDITHP636A ver.2
Data File	018B0103.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 1:43 PM
File Modified	6/20/2016 12:40 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



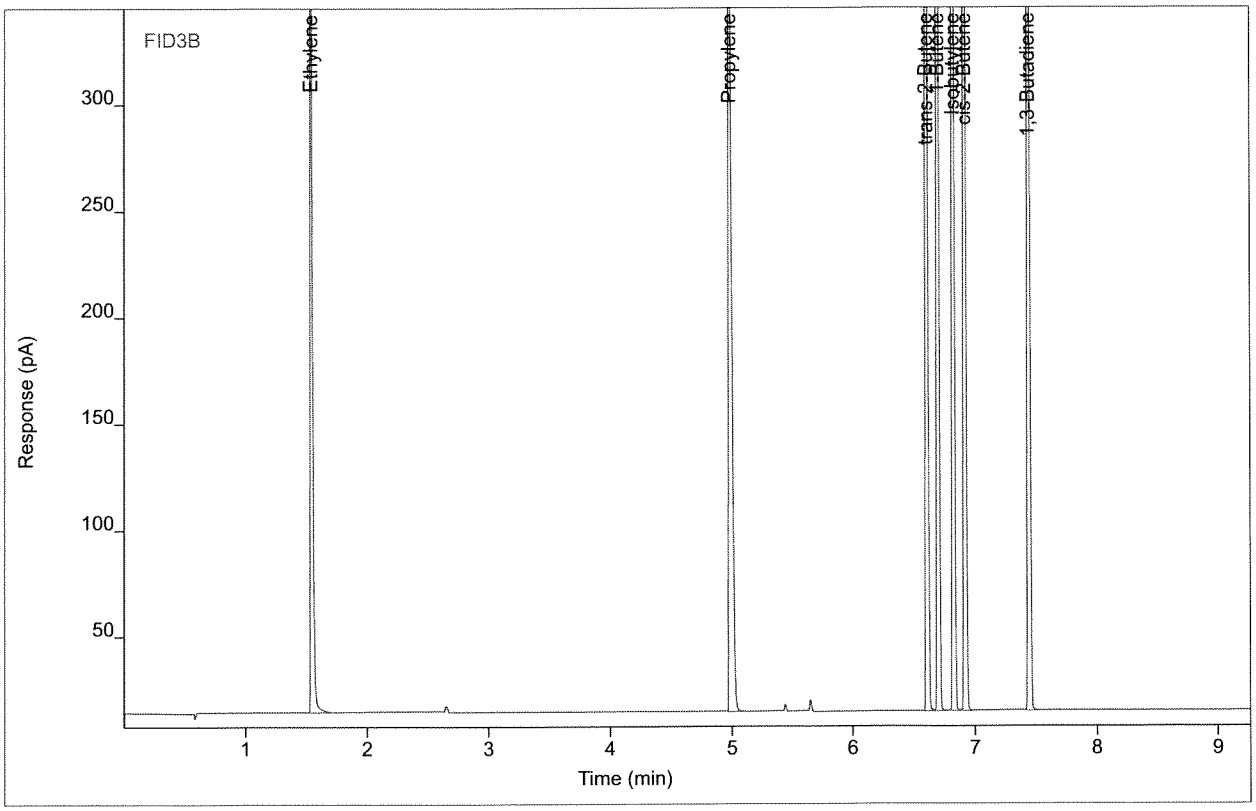
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	563.861	510.961	504.545	1	504.545	ppm
Propylene	BB	4.98	814.017	498.341	504.358	1	504.358	ppm
Acetylene		(5.72)				1		
trans-2-Butene	BV	6.60	1120.55	1047.16	505.871	1	505.871	ppm
1-Butene	VB	6.69	1105.45	1016.25	493.056	1	493.056	ppm
Isobutylene	BB	6.82	1095.70	945.396	492.274	1	492.274	ppm
cis-2-Butene	BB	6.91	1115.46	983.941	491.722	1	491.722	ppm
1,3-Butadiene	BB	7.44	1098.96	909.815	504.668	1	504.668	ppm

Chromatogram Report

Sample Name	Edithp275 #HR7 ENV(1=1900,3=112.58)
Sequence Name	EDITHP636A ver.2
Data File	018B0104.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 1:57 PM
File Modified	6/18/2016 2:02 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



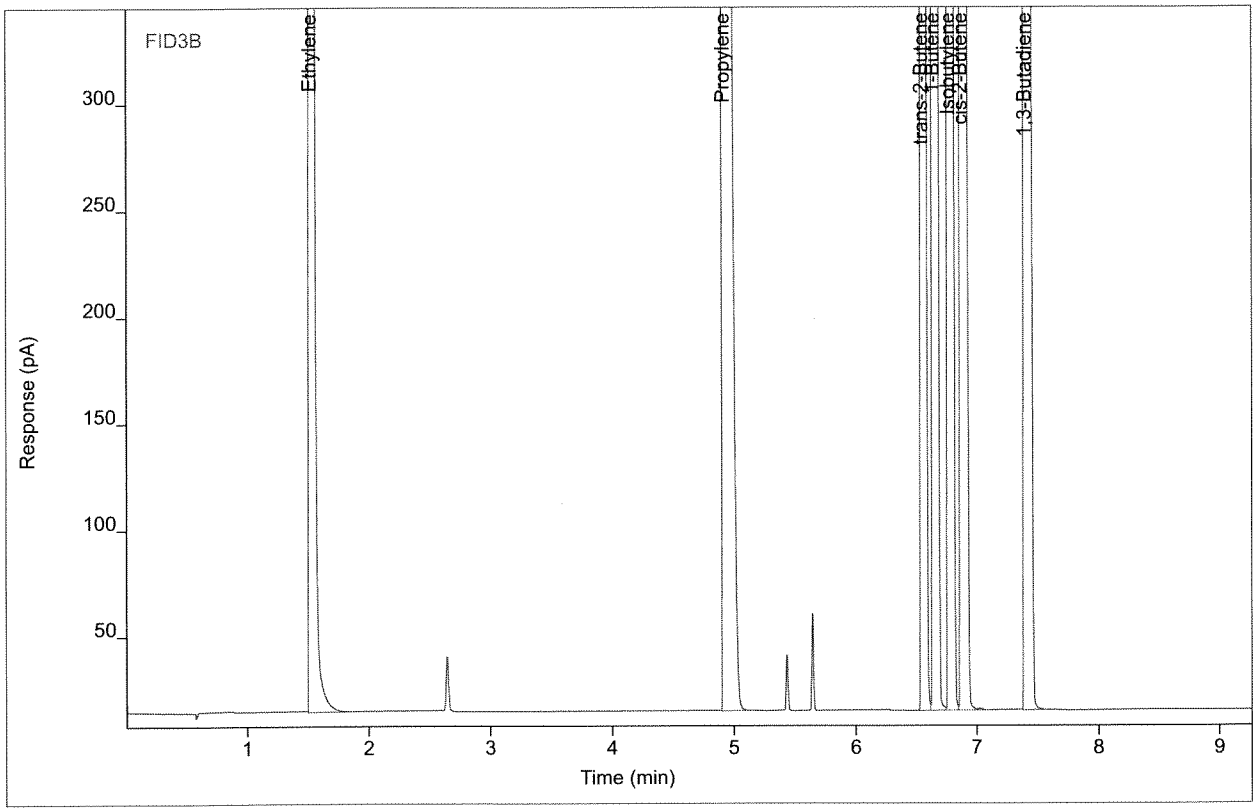
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	562.067	510.689	502.939	1	502.939	ppm
Propylene	BB	4.98	811.120	503.895	502.563	1	502.563	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV	6.60	1116.60	1054.58	504.088	1	504.088	ppm
1-Butene	VB	6.69	1101.29	1027.52	491.200	1	491.200	ppm
Isobutylene	BB	6.82	1091.70	970.355	490.476	1	490.476	ppm
cis-2-Butene	BB	6.91	1111.45	974.585	489.955	1	489.955	ppm
1,3-Butadiene	BB	7.44	1094.84	897.957	502.775	1	502.775	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR8 ENV(1=600,3=450.33)
Sequence Name	EDITHP636A ver.2
Data File	018B0202.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 2:27 PM
File Modified	6/18/2016 2:03 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



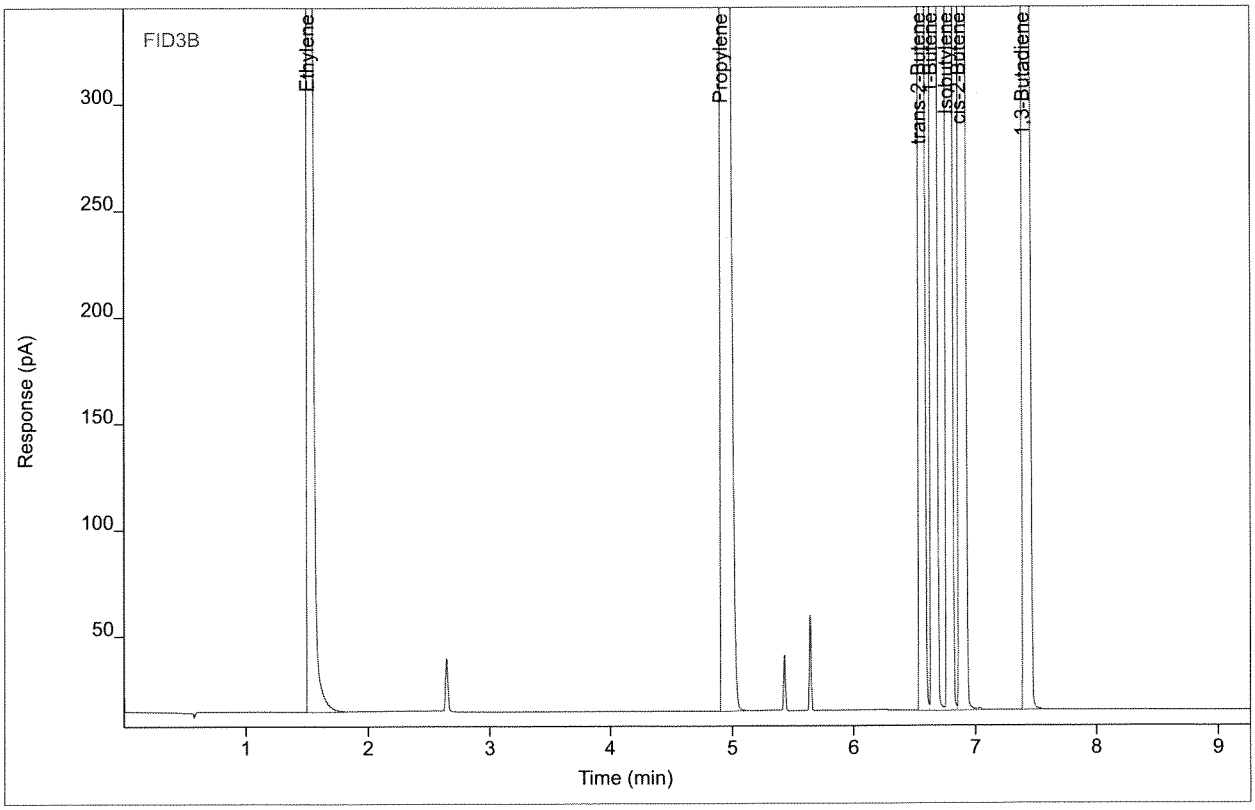
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.51	4525.60	2303.04	4049.34	1	4049.34	ppm
Propylene	BB S	4.91	6522.17	1936.66	4041.22	1	4041.22	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV S	6.54	8977.22	4543.06	4054.03	1	4054.03	ppm
1-Butene	VV S	6.64	8849.64	4194.31	3947.57	1	3947.57	ppm
Isobutylene	VV S	6.76	8771.07	4158.43	3941.05	1	3941.05	ppm
cis-2-Butene	VB S	6.87	8946.02	4222.77	3944.50	1	3944.50	ppm
1,3-Butadiene	BB S	7.39	8816.32	3780.83	4049.75	1	4049.75	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR8 ENV(1=600,3=450.33)
Sequence Name	EDITHP636A ver.2
Data File	018B0203.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 2:42 PM
File Modified	6/18/2016 2:03 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



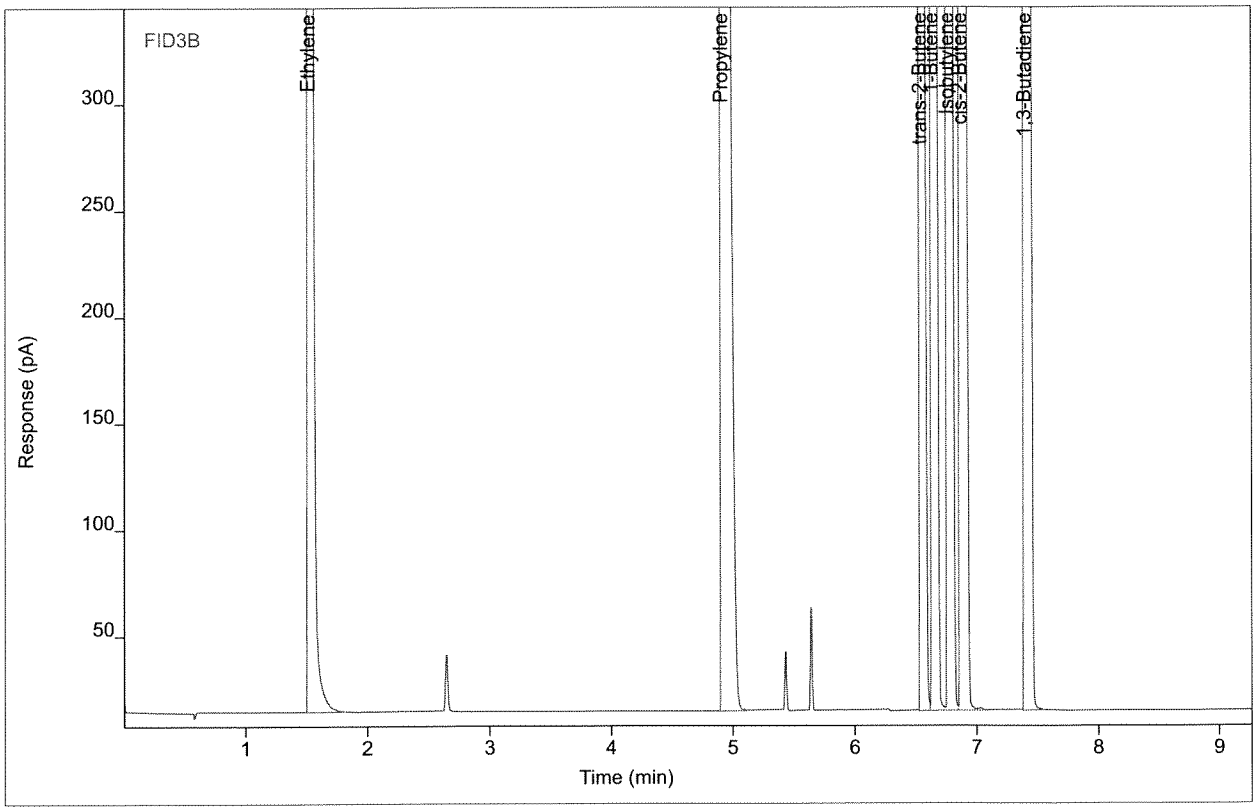
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.51	4420.09	2244.54	3954.93	1	3954.93	ppm
Propylene	BB S	4.91	6372.36	1970.55	3948.40	1	3948.40	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV S	6.54	8772.26	4661.97	3961.46	1	3961.46	ppm
1-Butene	VV S	6.64	8646.16	4306.00	3856.80	1	3856.80	ppm
Isobutylene	VV S	6.77	8569.64	4134.07	3850.54	1	3850.54	ppm
cis-2-Butene	VB S	6.87	8741.30	3936.29	3854.23	1	3854.23	ppm
1,3-Butadiene	BB S	7.39	8614.85	3866.47	3957.20	1	3957.20	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR8 ENV(1=600,3=450.33)
Sequence Name	EDITHP636A ver.2
Data File	018B0204.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 2:57 PM
File Modified	6/18/2016 2:03 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



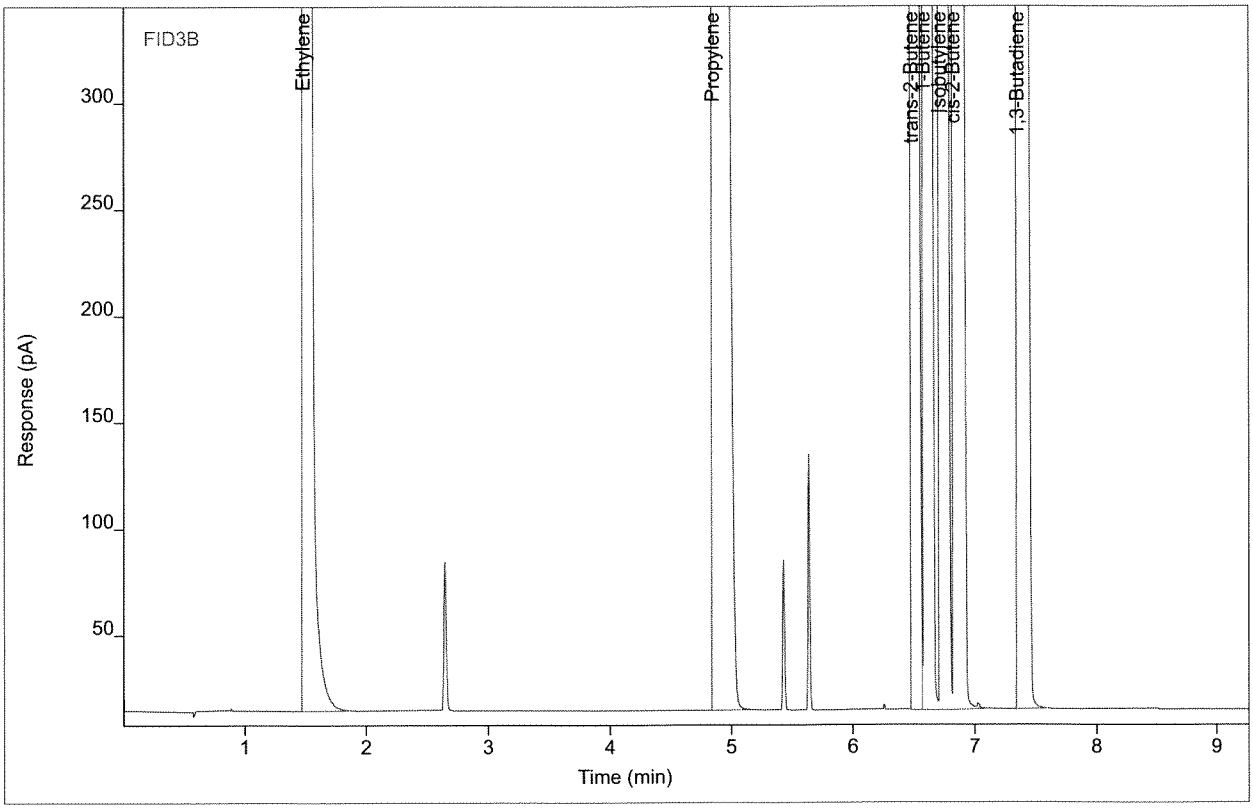
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.51	4718.94	2399.66	4222.33	1	4222.33	ppm
Propylene	BB S	4.91	6800.39	2025.61	4213.61	1	4213.61	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV S	6.54	9360.62	4891.33	4227.17	1	4227.17	ppm
1-Butene	VV S	6.64	9226.51	4464.21	4115.69	1	4115.69	ppm
Isobutylene	VV S	6.76	9144.59	4390.99	4108.88	1	4108.88	ppm
cis-2-Butene	VB S	6.87	9328.65	4257.48	4113.21	1	4113.21	ppm
1,3-Butadiene	BB S	7.39	9193.62	3861.73	4223.07	1	4223.07	ppm

Chromatogram Report

Sample Name	Edithp275 #HR9 ENV(1=0,3=450)
Sequence Name	EDITHP636A ver.2
Data File	018B0302.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 3:26 PM
File Modified	6/18/2016 2:04 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



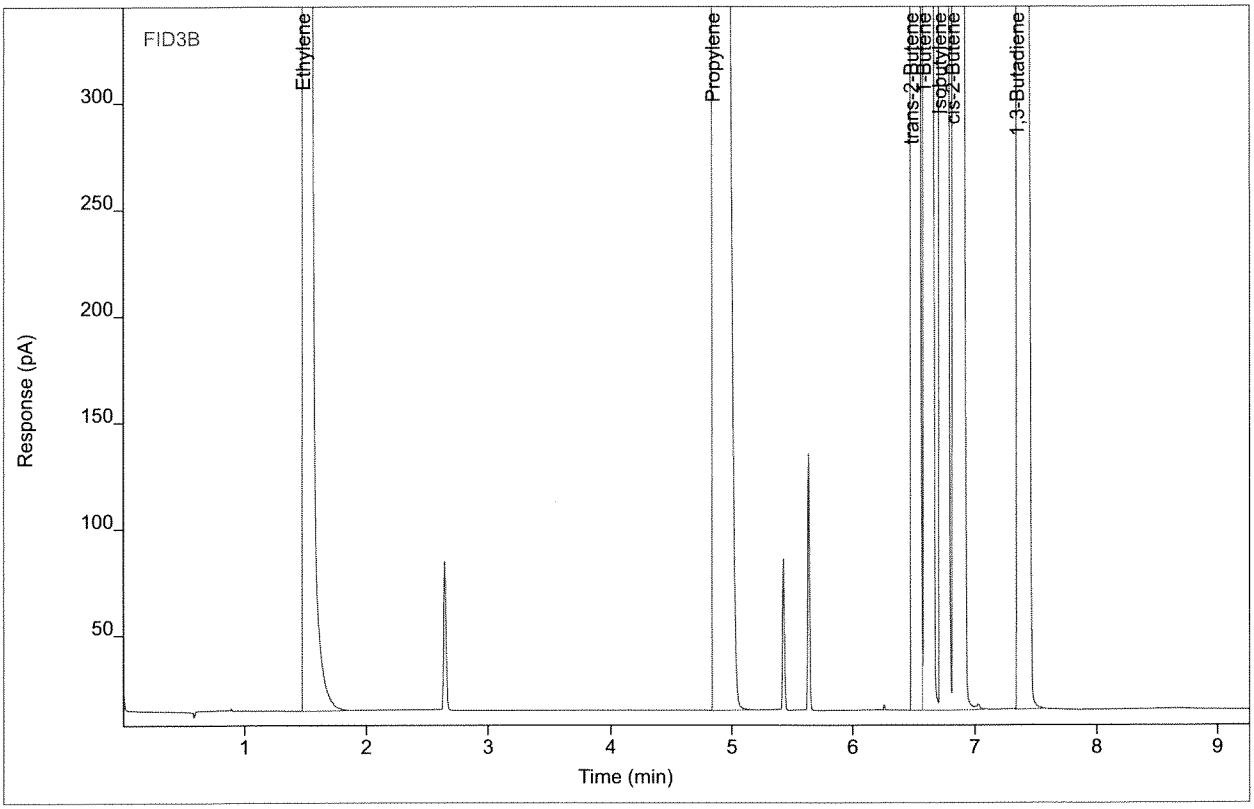
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.48	12025.7	4425.06	10760.1	1	10760.1	ppm
Propylene	BB S	4.85	17338.4	3427.25	10743.2	1	10743.2	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV S	6.48	23809.6	9499.90	10752.5	1	10752.5	ppm
1-Butene	VV S	6.58	23502.4	8013.58	10483.8	1	10483.8	ppm
Isobutylene	VV S	6.71	23277.9	8332.80	10459.4	1	10459.4	ppm
cis-2-Butene	VB S	6.83	23764.5	7509.92	10478.5	1	10478.5	ppm
1,3-Butadiene	BB S	7.35	23424.1	6989.11	10760.0	1	10760.0	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR9 ENV(1=0,3=450)
Sequence Name	EDITHP636A ver.2
Data File	018B0303.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 3:41 PM
File Modified	6/18/2016 2:04 PM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



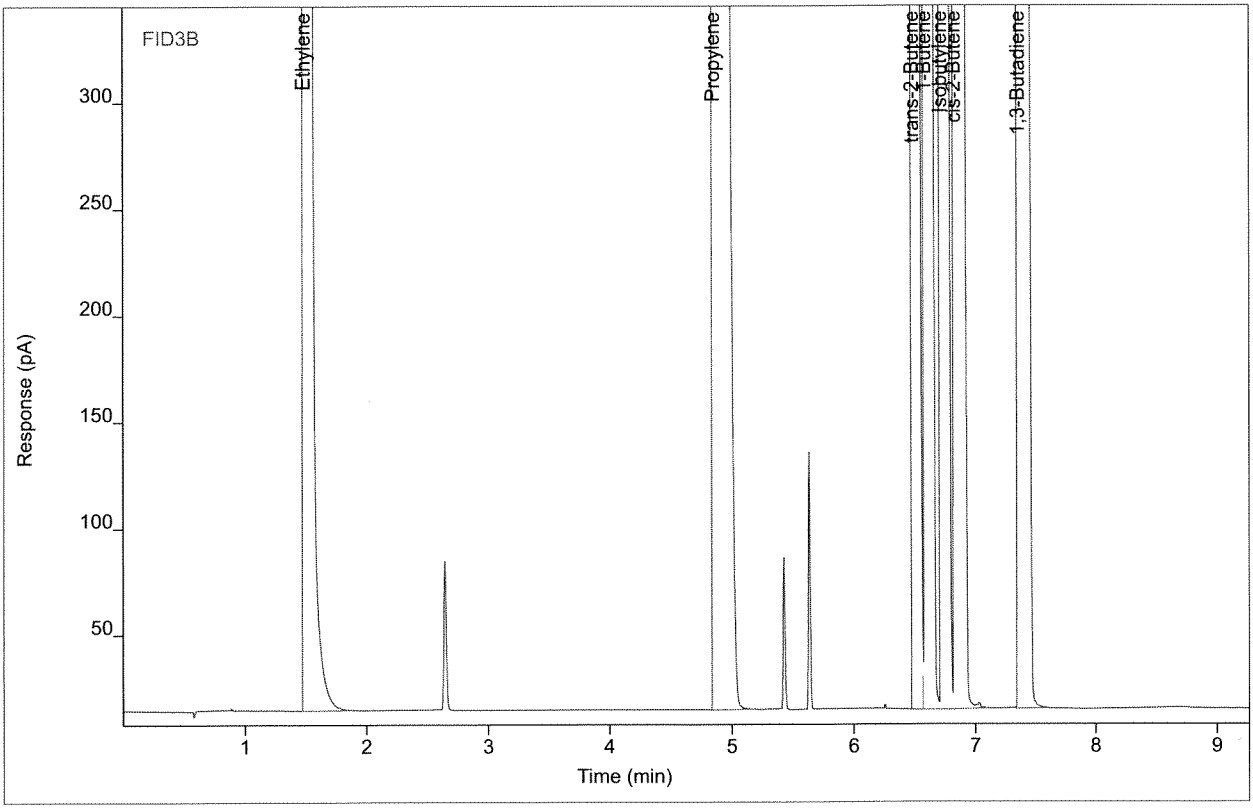
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.48	12058.9	4415.83	10789.8	1	10789.8	ppm
Propylene	BB S	4.85	17386.9	3455.34	10773.2	1	10773.2	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV S	6.48	23876.4	9297.13	10782.7	1	10782.7	ppm
1-Butene	VV S	6.58	23568.6	8566.53	10513.4	1	10513.4	ppm
Isobutylene	VV S	6.71	23344.1	8308.04	10489.2	1	10489.2	ppm
cis-2-Butene	VB S	6.83	23833.7	7428.50	10509.0	1	10509.0	ppm
1,3-Butadiene	BB S	7.35	23490.1	7103.66	10790.3	1	10790.3	ppm

Chromatogram Report

Sample Name	Edithp275 #HR9 ENV(1=0,3=450)
Sequence Name	EDITHP636A ver.2
Data File	018B0304.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 3:56 PM
File Modified	6/18/2016 2:04 PM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



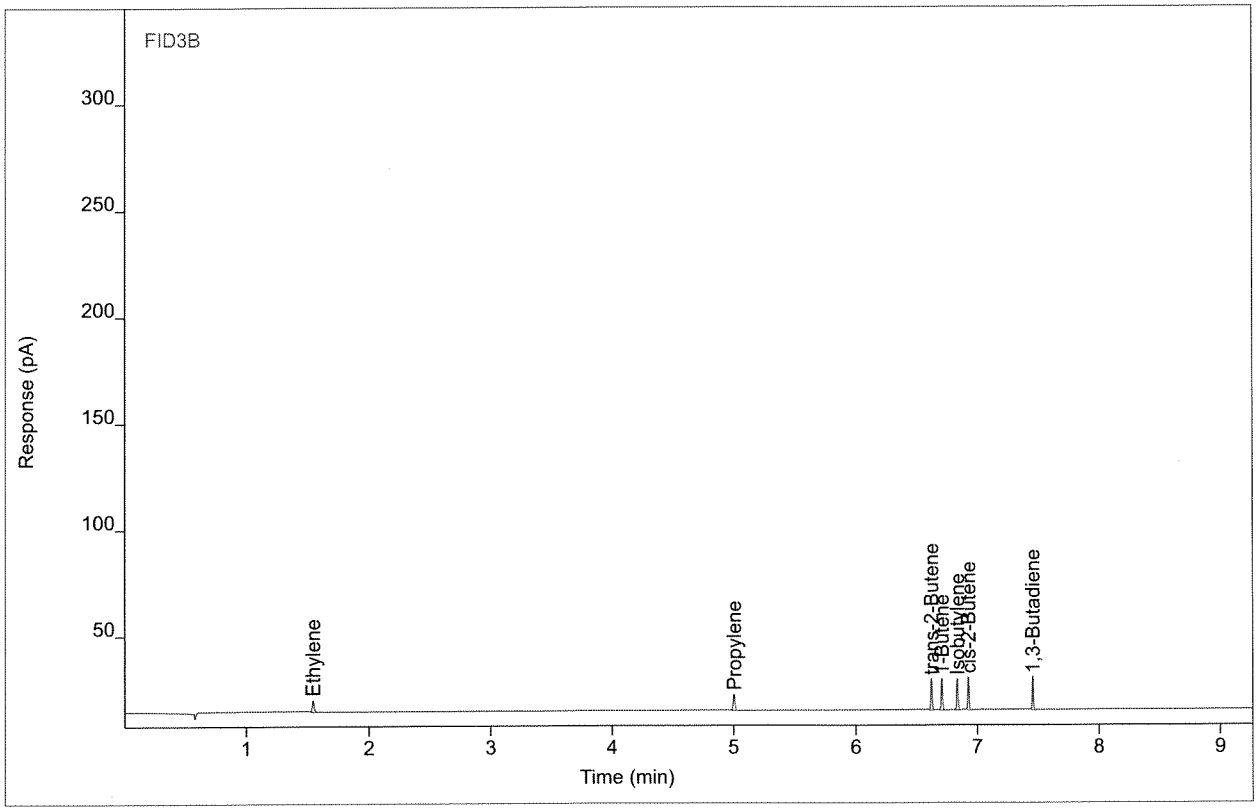
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB S	1.48	12032.1	4403.56	10765.8	1	10765.8	ppm
Propylene	BB S	4.85	17349.4	3415.35	10750.0	1	10750.0	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BV S	6.48	23826.0	9311.06	10759.9	1	10759.9	ppm
1-Butene	VV S	6.58	23520.6	8397.03	10492.0	1	10492.0	ppm
Isobutylene	VV S	6.71	23294.4	8259.98	10466.8	1	10466.8	ppm
cis-2-Butene	VB S	6.83	23783.1	7618.35	10486.7	1	10486.7	ppm
1,3-Butadiene	BB S	7.35	23441.0	7153.82	10767.8	1	10767.8	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR2 ENV(1=1900,3=100)
Sequence Name	EDITHP636A ver.2
Data File	018B0602.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 8:10 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



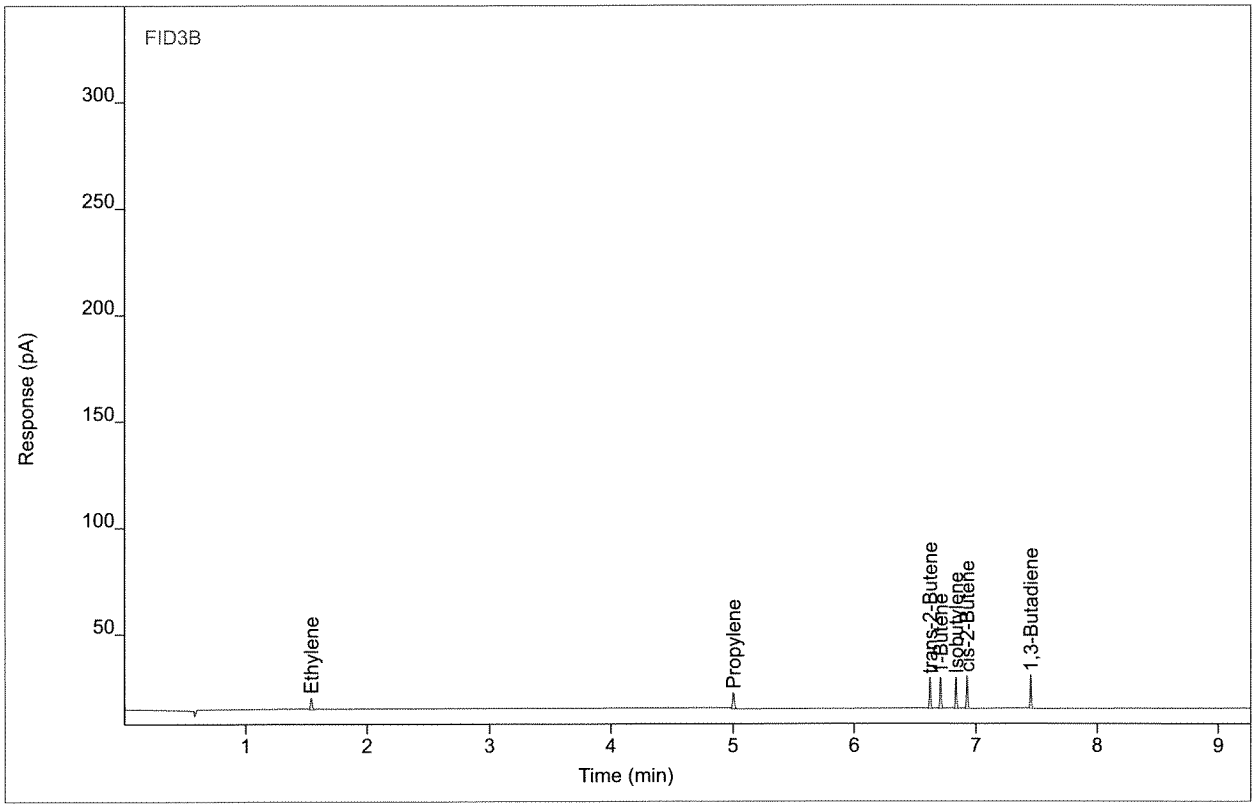
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	5.69758	5.57737	5.12487	1	5.12487	ppm
Propylene	BB	5.01	8.20078	7.62527	5.06147	1	5.06147	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	11.7455	14.6572	5.12413	1	5.12413	ppm
1-Butene	BB	6.71	11.7905	14.5367	5.19602	1	5.19602	ppm
Isobutylene	BB	6.84	11.7008	14.4297	5.19954	1	5.19954	ppm
cis-2-Butene	BB	6.93	12.0353	15.3363	5.18400	1	5.18400	ppm
1,3-Butadiene	BB	7.46	11.4325	15.3228	5.09715	1	5.09715	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR2 ENV(1=1900,3=100)
Sequence Name	EDITHP636A ver.2
Data File	018B0603.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 8:29 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



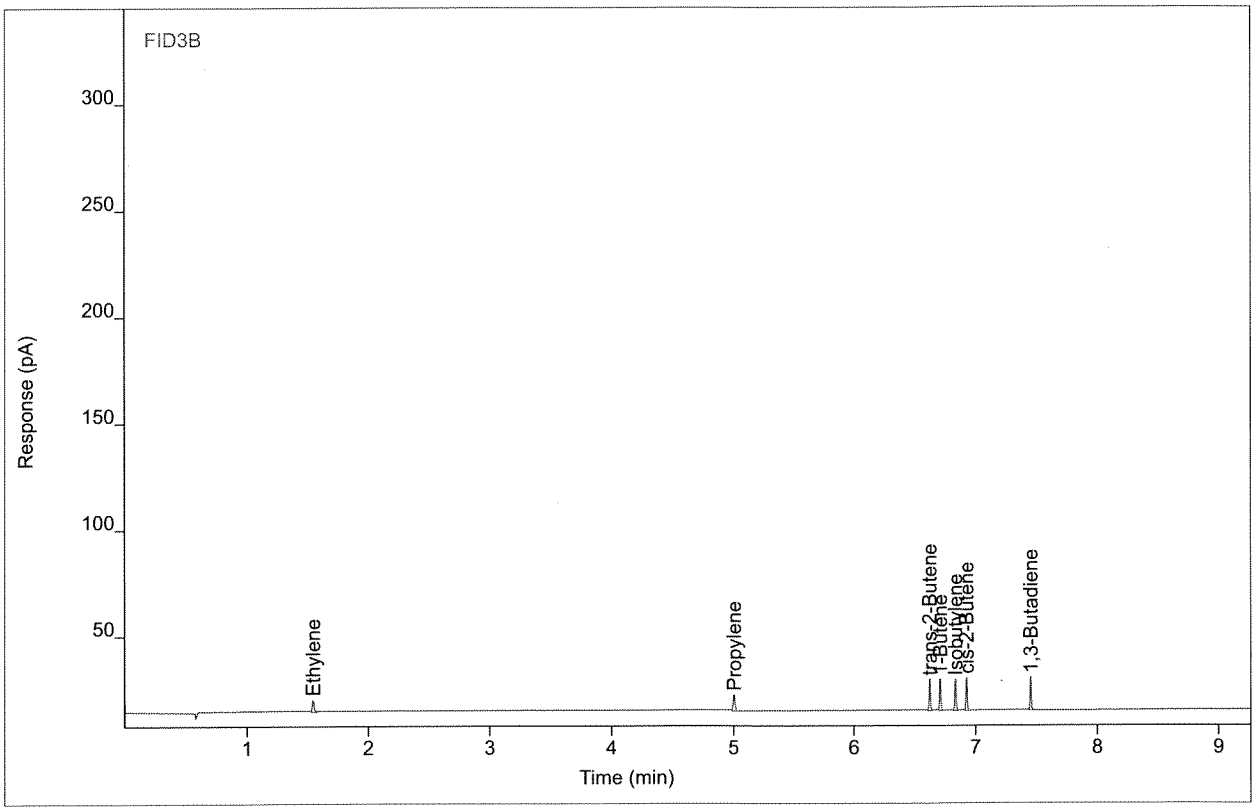
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	5.67462	5.57006	5.10433	1	5.10433	ppm
Propylene	BB	5.01	8.16713	7.62202	5.04062	1	5.04062	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	11.6926	14.5175	5.10024	1	5.10024	ppm
1-Butene	BB	6.71	11.7604	14.3318	5.18260	1	5.18260	ppm
Isobutylene	BB	6.84	11.6704	14.5697	5.18590	1	5.18590	ppm
cis-2-Butene	BB	6.93	12.0081	15.3134	5.17202	1	5.17202	ppm
1,3-Butadiene	BB	7.46	11.4433	15.4363	5.10213	1	5.10213	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR2 ENV(1=1900,3=100)
Sequence Name	EDITHP636A ver.2
Data File	018B0604.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 8:47 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM

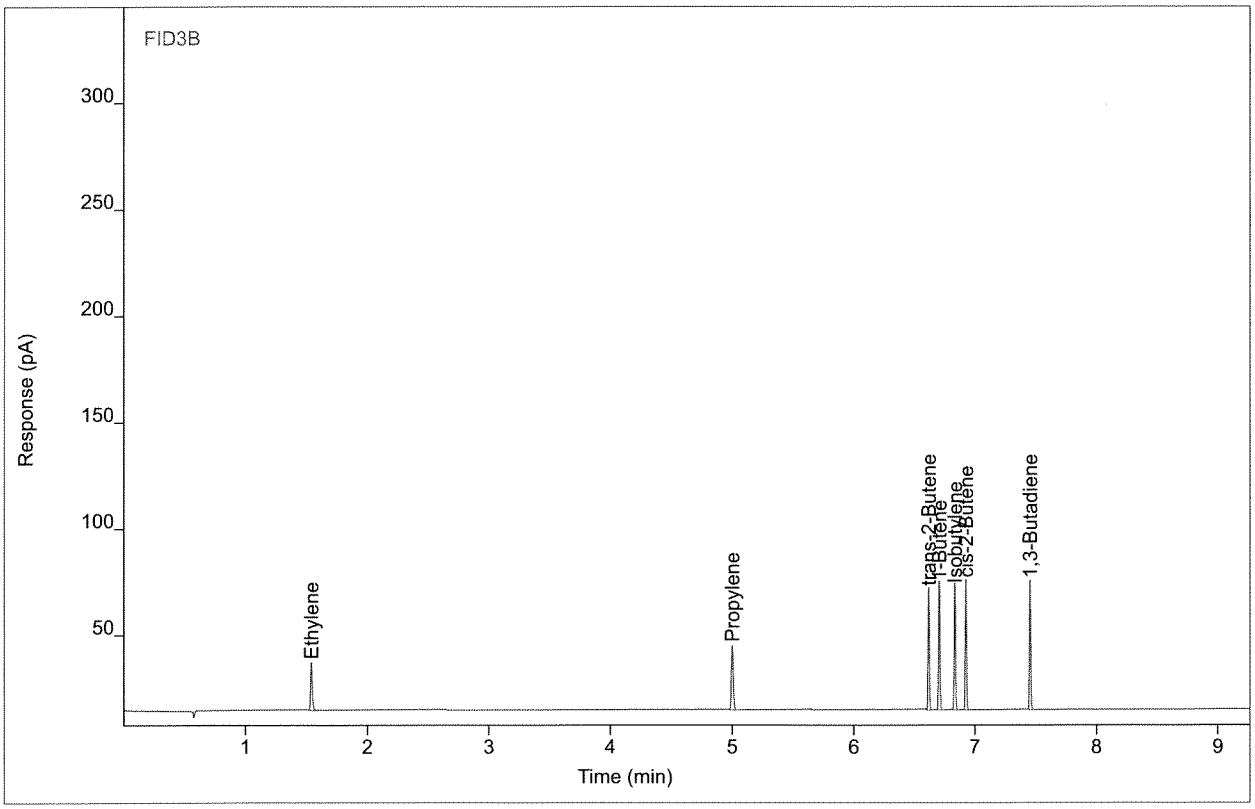


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	5.68550	5.58076	5.11406	1	5.11406	ppm
Propylene	BB	5.00	8.20208	7.62388	5.06228	1	5.06228	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	11.7108	14.6139	5.10846	1	5.10846	ppm
1-Butene	BB	6.71	11.7727	14.7668	5.18810	1	5.18810	ppm
Isobutylene	BB	6.84	11.6843	14.4920	5.19214	1	5.19214	ppm
cis-2-Butene	BB	6.93	12.0210	15.3219	5.17768	1	5.17768	ppm
1,3-Butadiene	BB	7.46	11.4255	15.4333	5.09395	1	5.09395	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR3 ENV(1=800,3=200)	Sample Type	Calibration
Sequence Name	EDITHP636A ver.2	Vial Number	Vial 18
Data File	018B0702.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 2	Injection	2 of 4
Injection Date	6/14/2016 9:23 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	6/18/2016 2:01 PM	Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/18/2016 1:45 PM
Operator	Daniel Clayton	Printed	6/20/2016 12:42 PM



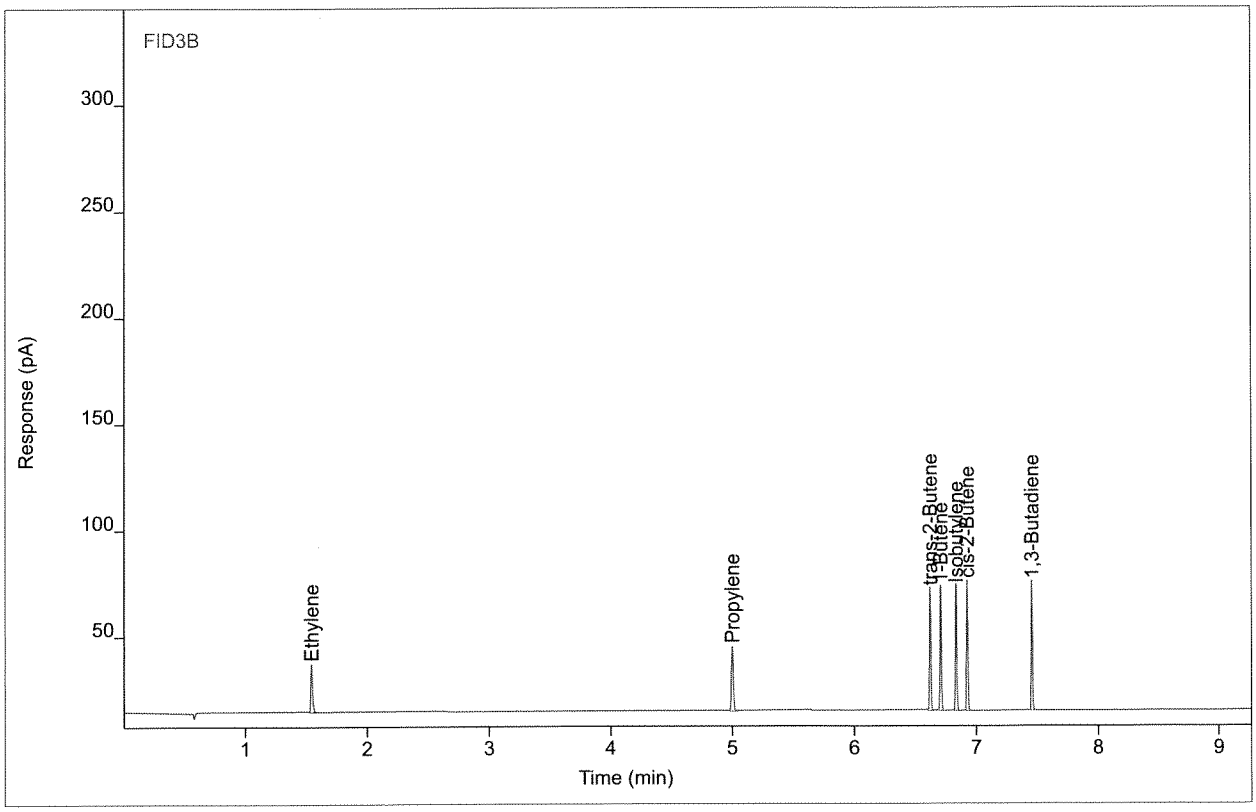
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	23.0633	22.2201	20.6630	1	20.6630	ppm
Propylene	BB	5.00	32.9642	30.1687	20.4053	1	20.4053	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	46.3935	56.6129	20.7715	1	20.7715	ppm
1-Butene	BB	6.71	47.1661	58.9531	20.9763	1	20.9763	ppm
Isobutylene	BB	6.83	46.8829	57.7868	21.0079	1	21.0079	ppm
cis-2-Butene	BB	6.93	47.9532	60.4493	21.0215	1	21.0215	ppm
1,3-Butadiene	BB	7.45	45.5398	60.0292	20.7648	1	20.7648	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR3 ENV(1=800,3=200)
Sequence Name	EDITHP636A ver.2
Data File	018B0703.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 9:42 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



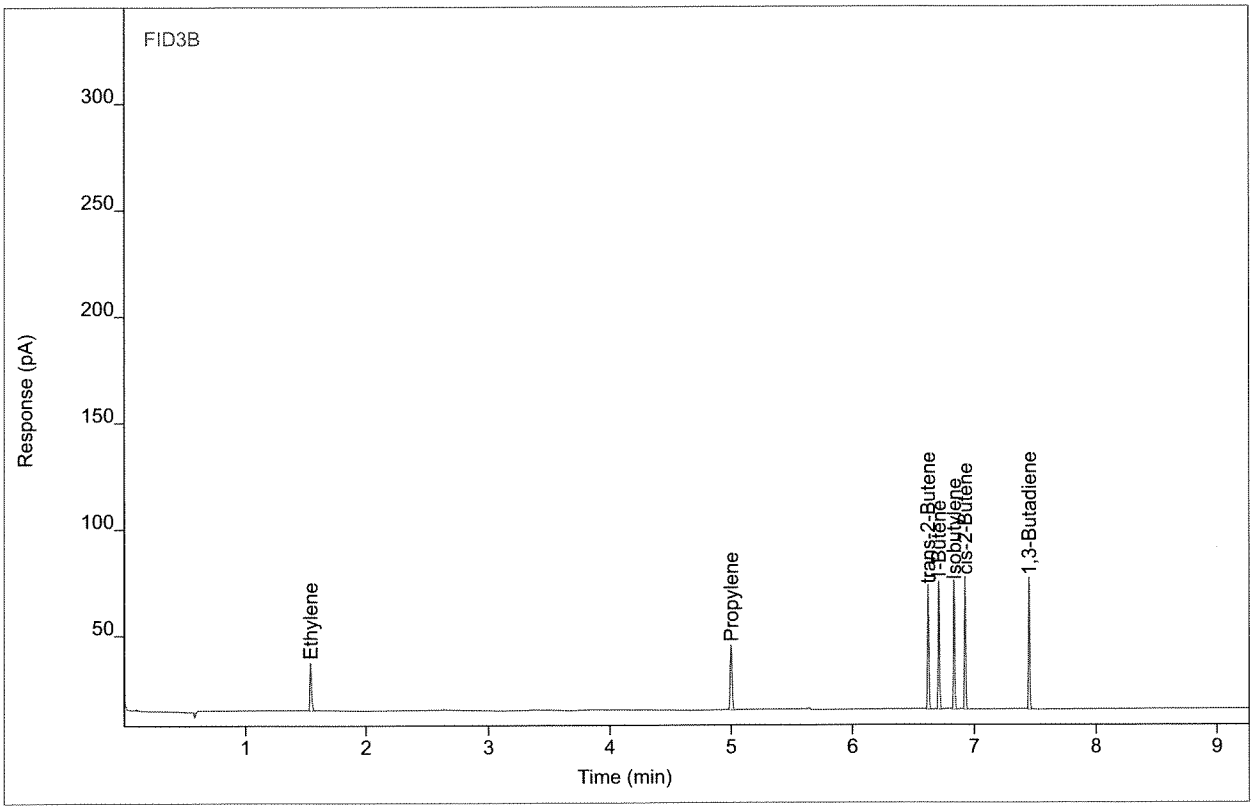
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	22.9854	22.2120	20.5932	1	20.5932	ppm
Propylene	BB	5.00	32.8974	30.0102	20.3639	1	20.3639	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	46.2321	57.0290	20.6987	1	20.6987	ppm
1-Butene	BB	6.71	47.0407	58.0988	20.9204	1	20.9204	ppm
Isobutylene	BB	6.83	46.7923	58.0898	20.9672	1	20.9672	ppm
cis-2-Butene	BB	6.93	47.8336	60.4251	20.9687	1	20.9687	ppm
1,3-Butadiene	BB	7.45	45.4293	59.9705	20.7141	1	20.7141	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR3 ENV(1=800,3=200)
Sequence Name	EDITHP636A ver.2
Data File	018B0704.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 10:00 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



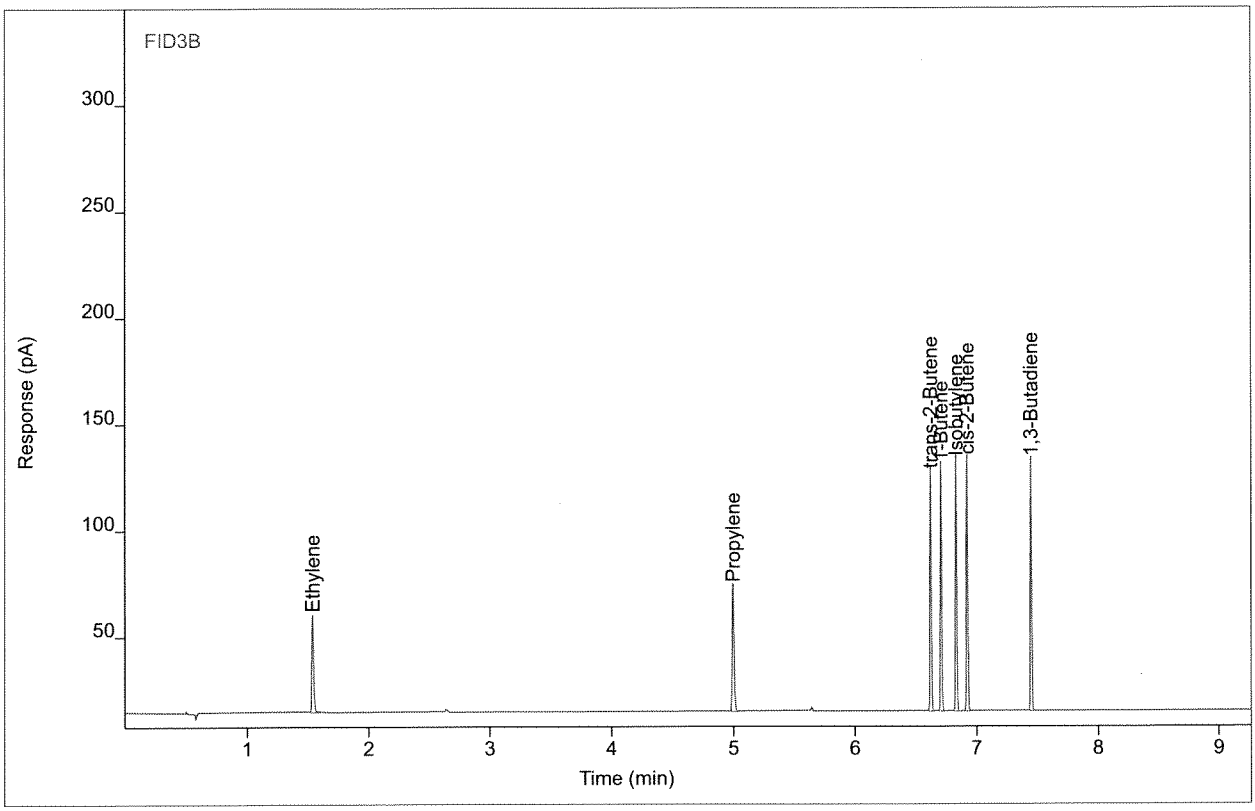
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	23.2584	22.2529	20.8375	1	20.8375	ppm
Propylene	BB	5.00	33.1627	30.2256	20.5283	1	20.5283	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	46.6794	57.1132	20.9007	1	20.9007	ppm
1-Butene	BB	6.71	47.4747	58.4549	21.1140	1	21.1140	ppm
Isobutylene	BB	6.83	47.1729	58.9185	21.1382	1	21.1382	ppm
cis-2-Butene	BB	6.93	48.2507	61.4240	21.1527	1	21.1527	ppm
1,3-Butadiene	BB	7.45	45.8235	60.9581	20.8952	1	20.8952	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR4 ENV(1=600,3=400)
Sequence Name	EDITHP636A ver.2
Data File	018B0802.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 10:37 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



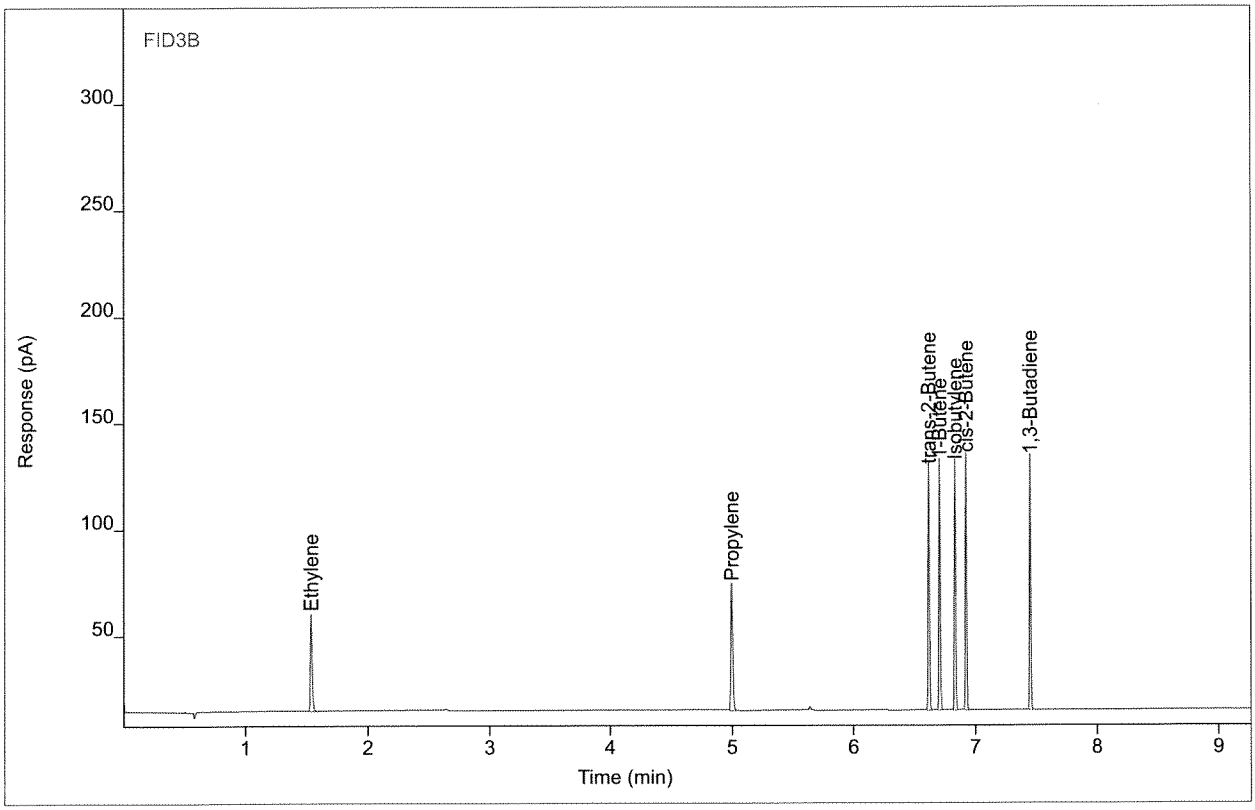
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	46.6197	45.3384	41.7402	1	41.7402	ppm
Propylene	BB	5.00	66.4049	58.9615	41.1257	1	41.1257	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	92.7487	112.383	41.7060	1	41.7060	ppm
1-Butene	BB	6.71	94.8785	115.369	42.2598	1	42.2598	ppm
Isobutylene	BB	6.83	94.3405	118.049	42.3320	1	42.3320	ppm
cis-2-Butene	BB	6.92	96.3313	118.690	42.3531	1	42.3531	ppm
1,3-Butadiene	BB	7.45	91.2671	117.786	41.7703	1	41.7703	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR4 ENV(1=600,3=400)
Sequence Name	EDITHP636A ver.2
Data File	018B0803.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 10:55 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



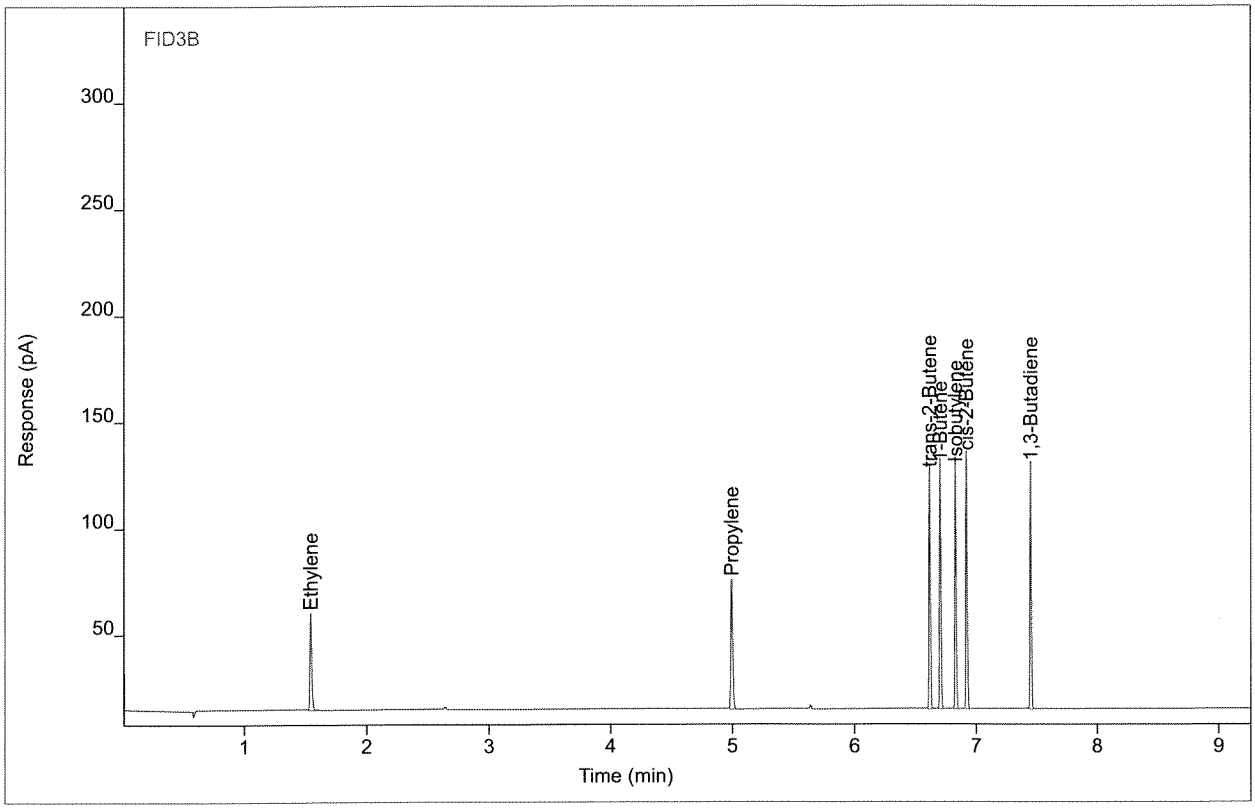
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	46.5759	45.3391	41.7010	1	41.7010	ppm
Propylene	BB	5.00	66.3584	59.1452	41.0969	1	41.0969	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	92.7097	113.992	41.6884	1	41.6884	ppm
1-Butene	BB	6.71	94.8483	116.294	42.2463	1	42.2463	ppm
Isobutylene	BB	6.83	94.3284	115.764	42.3266	1	42.3266	ppm
cis-2-Butene	BB	6.92	96.2306	119.341	42.3087	1	42.3087	ppm
1,3-Butadiene	BB	7.45	91.2871	118.186	41.7795	1	41.7795	ppm

Chromatogram Report

Sample Name	Edithp275 #HR4 ENV(1=600,3=400)
Sequence Name	EDITHP636A ver.2
Data File	018B0804.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 11:13 PM
File Modified	6/18/2016 2:01 PM
Instrument	
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



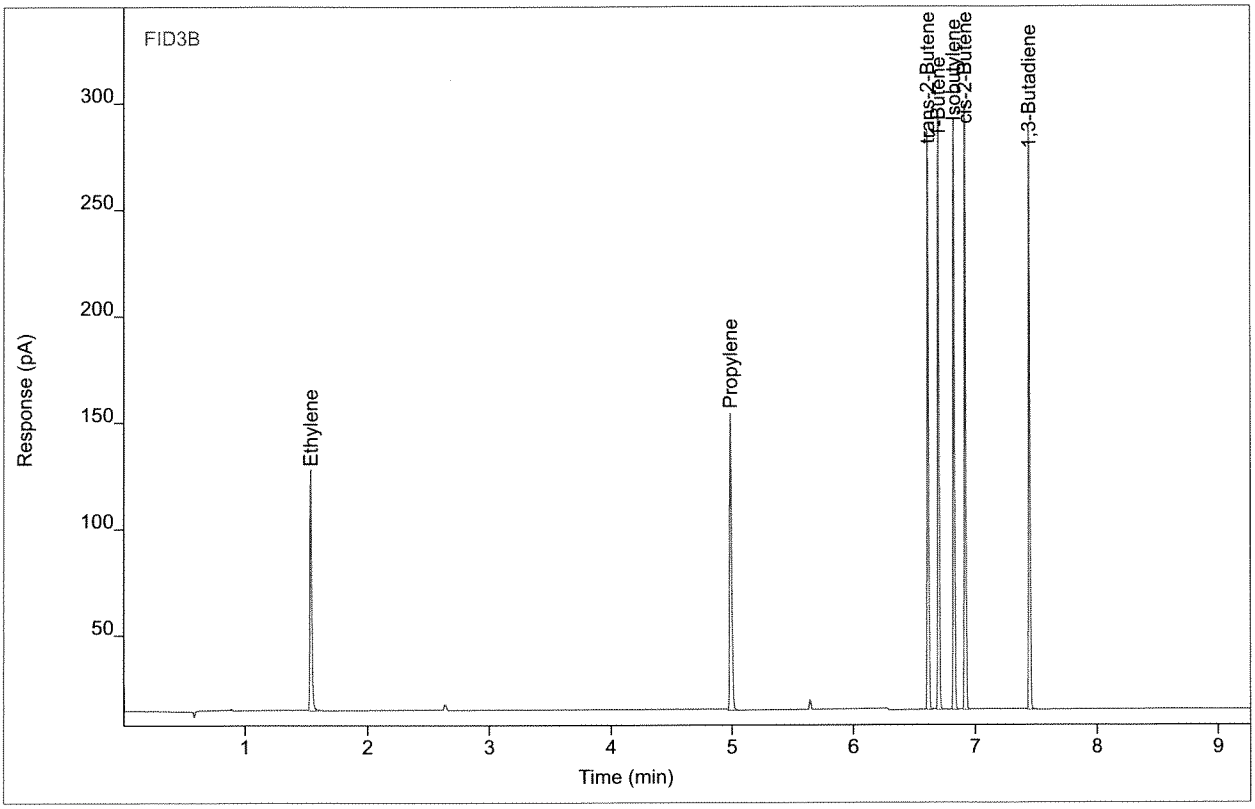
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	46.6494	45.3364	41.7668	1	41.7668	ppm
Propylene	BB	5.00	66.4052	60.6968	41.1258	1	41.1258	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	92.7424	111.868	41.7032	1	41.7032	ppm
1-Butene	BB	6.70	94.9355	114.304	42.2852	1	42.2852	ppm
Isobutylene	BB	6.83	94.3541	114.164	42.3382	1	42.3382	ppm
cis-2-Butene	BB	6.92	96.2183	119.687	42.3033	1	42.3033	ppm
1,3-Butadiene	BB	7.45	91.2950	114.859	41.7832	1	41.7832	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR5 ENV(1=0,3=450)
Sequence Name	EDITHP636A ver.2
Data File	018B0902.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/14/2016 11:50 PM
File Modified	6/18/2016 2:02 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



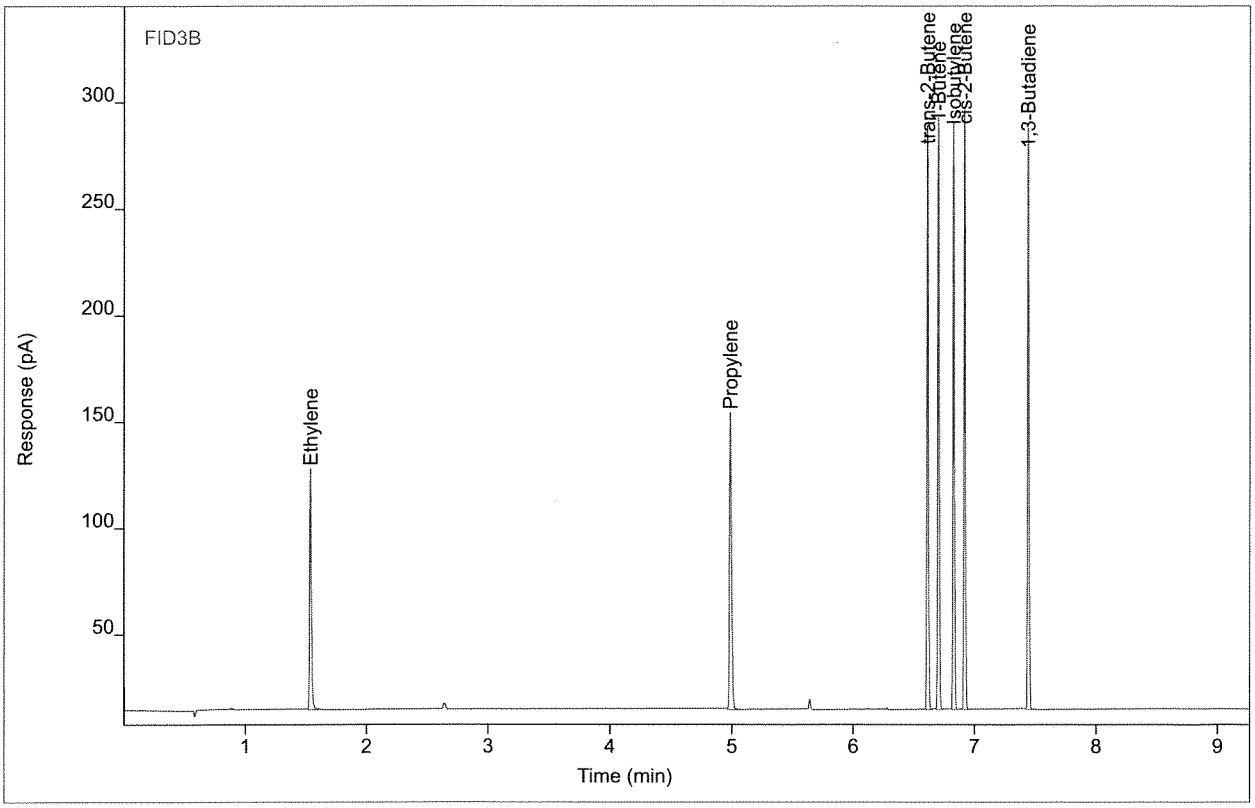
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	116.783	113.010	104.520	1	104.520	ppm
Propylene	BB	4.99	165.388	140.029	102.457	1	102.457	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.61	230.643	269.377	103.981	1	103.981	ppm
1-Butene	BB	6.70	236.294	266.717	105.342	1	105.342	ppm
Isobutylene	BB	6.83	235.009	274.514	105.539	1	105.539	ppm
cis-2-Butene	BB	6.92	239.628	278.662	105.538	1	105.538	ppm
1,3-Butadiene	BB	7.44	227.405	261.484	104.307	1	104.307	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR5 ENV(1=0,3=450)
Sequence Name	EDITHP636A ver.2
Data File	018B0903.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/15/2016 12:08 AM
File Modified	6/18/2016 2:02 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



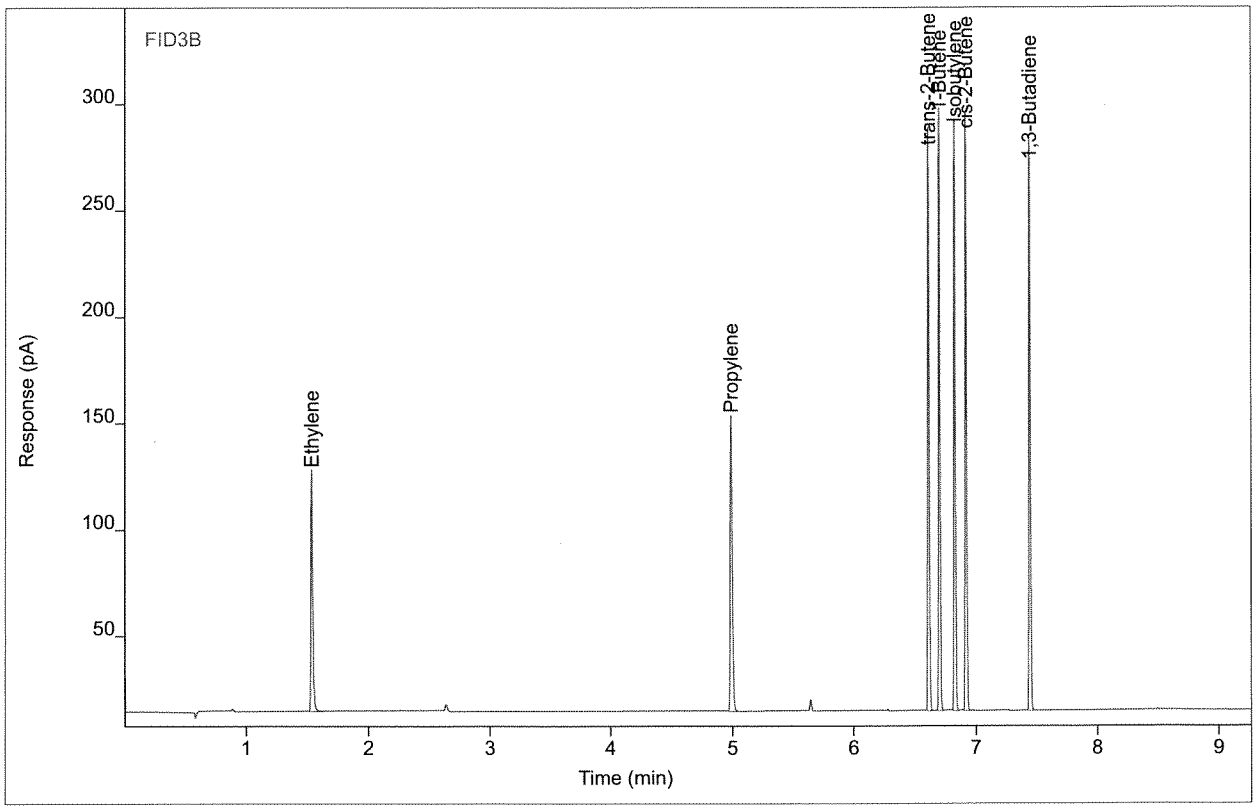
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	117.053	112.930	104.761	1	104.761	ppm
Propylene	BB	4.99	165.583	139.290	102.578	1	102.578	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.61	230.867	271.801	104.082	1	104.082	ppm
1-Butene	BB	6.70	236.587	274.239	105.473	1	105.473	ppm
Isobutylene	BB	6.83	235.278	272.883	105.660	1	105.660	ppm
cis-2-Butene	BB	6.92	239.994	276.146	105.699	1	105.699	ppm
1,3-Butadiene	BB	7.44	227.612	261.860	104.402	1	104.402	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR5 ENV(1=0,3=450)
Sequence Name	EDITHP636A ver.2
Data File	018B0904.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/15/2016 12:27 AM
File Modified	6/18/2016 2:02 PM
Instrument	
Operator	Daniel Clayton

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM

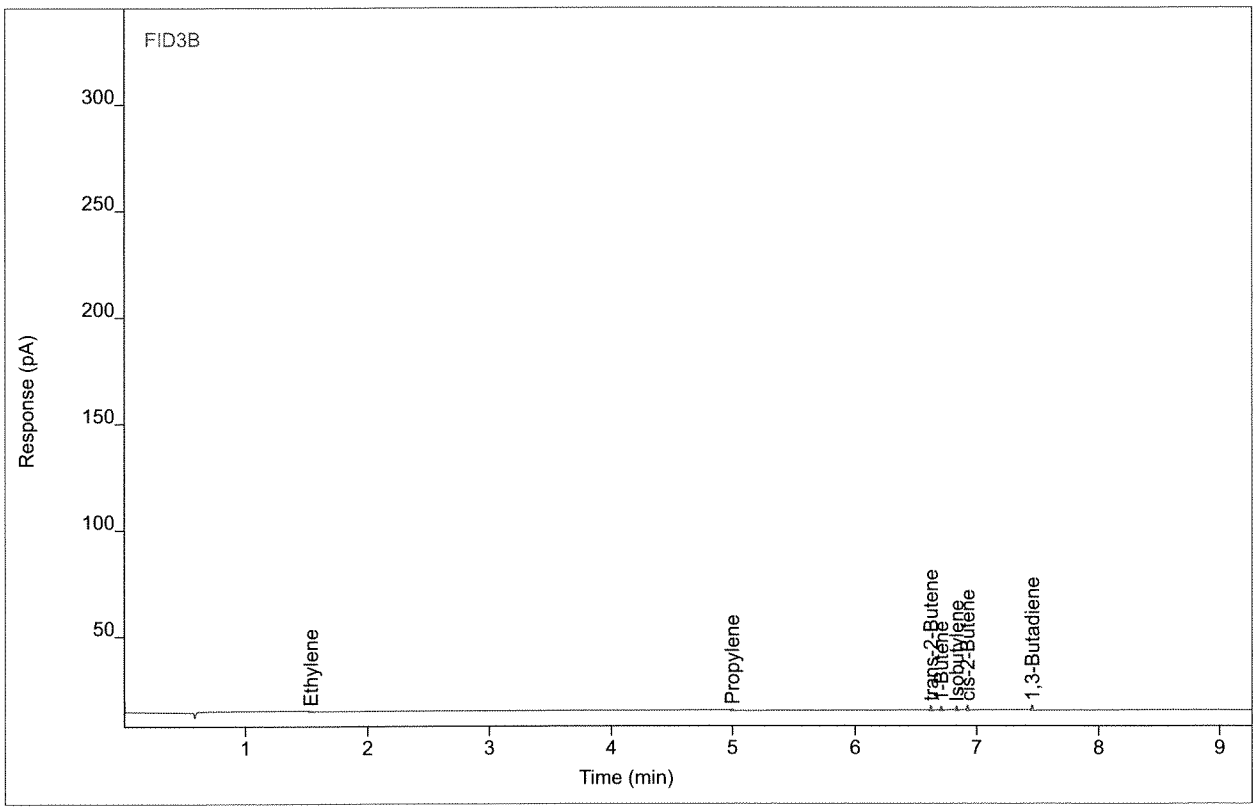


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	117.060	112.880	104.767	1	104.767	ppm
Propylene	BB	4.99	165.567	138.450	102.568	1	102.568	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.61	230.976	270.871	104.131	1	104.131	ppm
1-Butene	BB	6.70	236.640	279.926	105.497	1	105.497	ppm
Isobutylene	BB	6.83	235.314	274.432	105.676	1	105.676	ppm
cis-2-Butene	BB	6.92	240.084	271.692	105.739	1	105.739	ppm
1,3-Butadiene	BB	7.44	227.710	256.965	104.447	1	104.447	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp275 #HR1 ENV(1=3970,3=30)	Sample Type	Calibration
Sequence Name	EDITHP636A ver.2	Vial Number	Vial 18
Data File	018B1002.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 2	Injection	2 of 4
Injection Date	6/15/2016 1:03 AM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	6/18/2016 2:02 PM	Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Instrument		Method Modified	6/18/2016 1:45 PM
Operator	Daniel Clayton	Printed	6/20/2016 12:42 PM



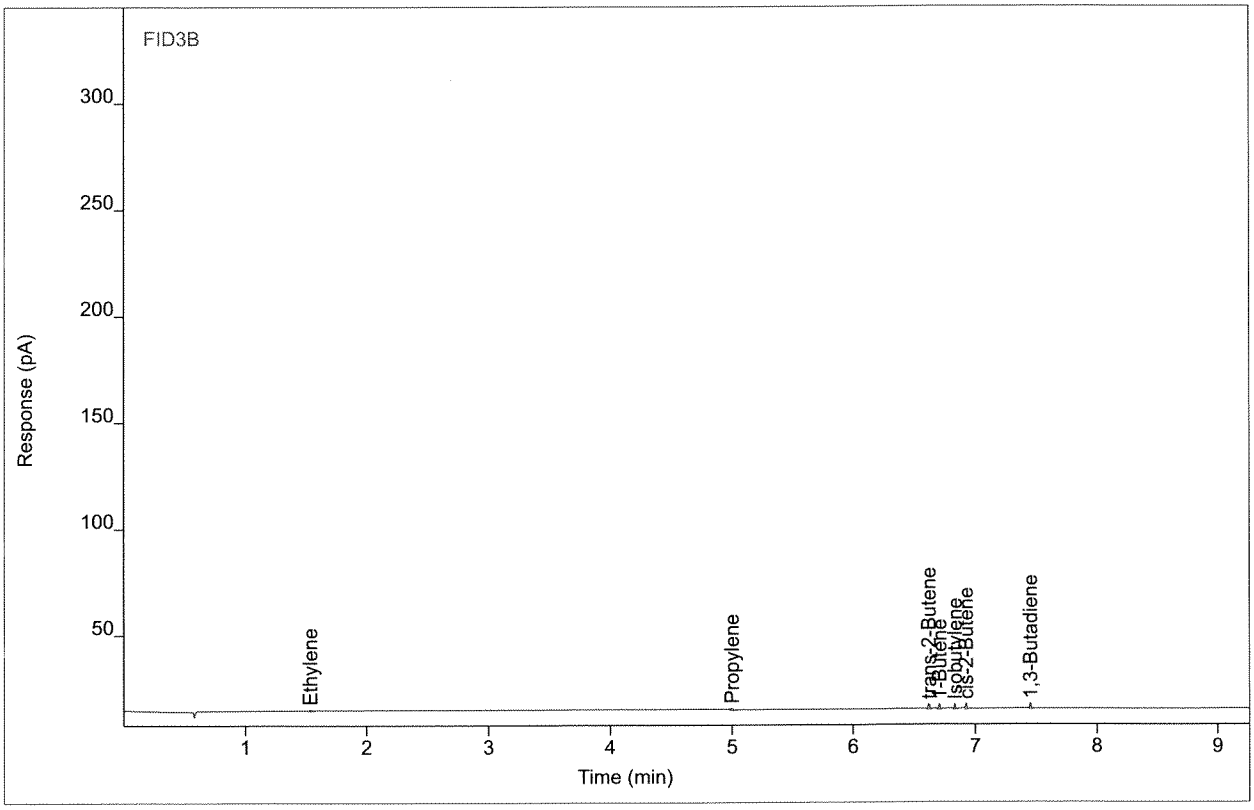
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	0.82010	0.80351	0.75975	1	0.75975	ppm
Propylene	BB	5.00	1.25702	1.16023	0.75972	1	0.75972	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	2.09469	2.64147	0.76988	1	0.76988	ppm
1-Butene	BB	6.71	1.83853	2.30722	0.75901	1	0.75901	ppm
Isobutylene	BB	6.83	1.81467	2.31893	0.75952	1	0.75952	ppm
cis-2-Butene	BB	6.93	1.99164	2.59737	0.75978	1	0.75978	ppm
1,3-Butadiene	BB	7.45	2.00275	2.66259	0.76917	1	0.76917	ppm

Chromatogram Report

Sample Name	Edithp275 #HR1 ENV(1=3970,3=30)
Sequence Name	EDITHP636A ver.2
Data File	018B1003.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/15/2016 1:22 AM
File Modified	6/18/2016 2:02 PM
Instrument	
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



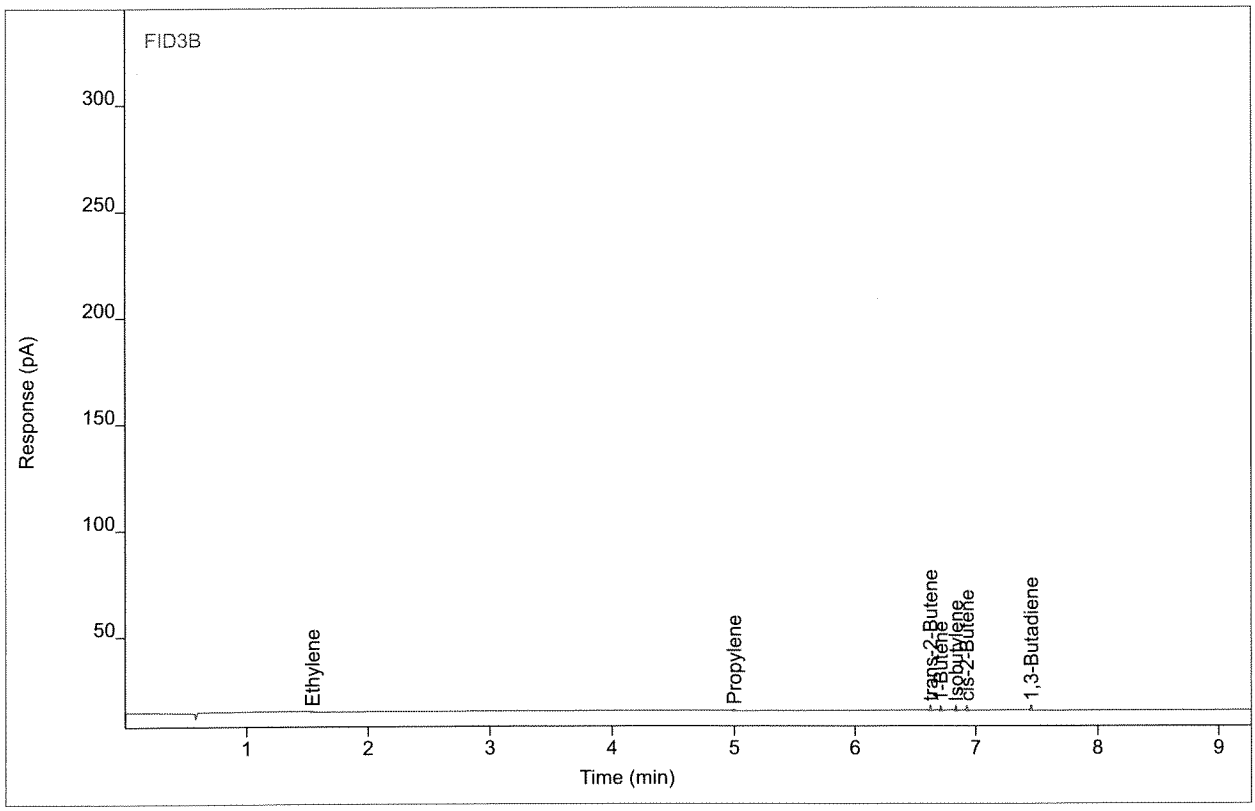
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	0.86936	0.86928	0.80480	1	0.80480	ppm
Propylene	BB	5.00	1.34554	1.26210	0.81385	1	0.81385	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	2.22453	2.77879	0.82437	1	0.82437	ppm
1-Butene	BB	6.71	1.96349	2.46295	0.81242	1	0.81242	ppm
Isobutylene	BB	6.83	1.93405	2.48647	0.81106	1	0.81106	ppm
cis-2-Butene	BB	6.93	2.12883	2.72863	0.81588	1	0.81588	ppm
1,3-Butadiene	BB	7.45	2.11779	2.77556	0.81832	1	0.81832	ppm

Chromatogram Report

Sample Name	Edithp275 #HR1 ENV(1=3970,3=30)
Sequence Name	EDITHP636A ver.2
Data File	018B1004.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/15/2016 1:36 AM
File Modified	6/18/2016 2:02 PM
Instrument	
Operator	Daniel Clayton

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/18/2016 1:45 PM
Printed	6/20/2016 12:42 PM



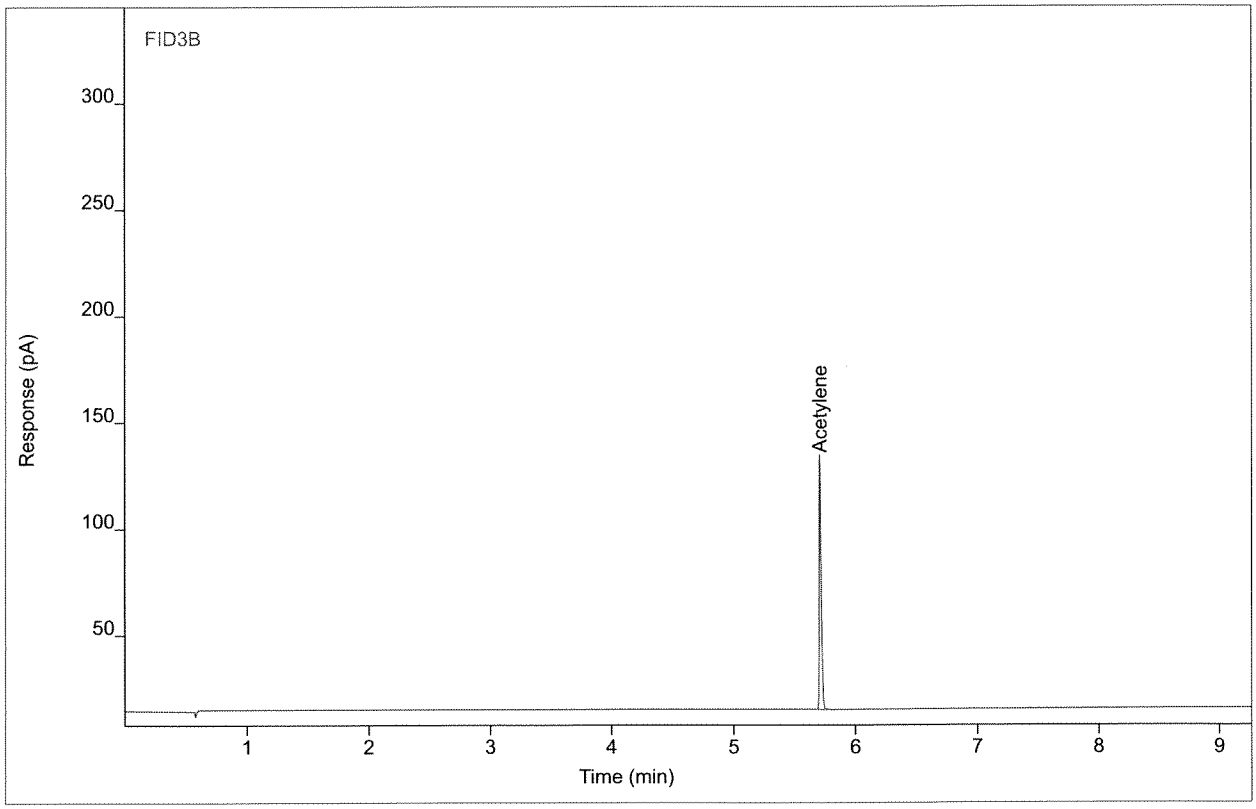
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Ethylene	BB	1.54	0.87437	0.86602	0.80928	1	0.80928	ppm
Propylene	BB	5.00	1.33614	1.24088	0.80803	1	0.80803	ppm
Acetylene		(5.88)				1		
trans-2-Butene	BB	6.62	2.13665	2.71241	0.78530	1	0.78530	ppm
1-Butene	BB	6.71	1.93285	2.42619	0.79875	1	0.79875	ppm
Isobutylene	BB	6.84	1.90692	2.47592	0.79887	1	0.79887	ppm
cis-2-Butene	BB	6.93	2.08615	2.68398	0.79706	1	0.79706	ppm
1,3-Butadiene	BB	7.45	2.05994	2.72314	0.79175	1	0.79175	ppm

Chromatogram Report

Sample Name	Edithp639 #A3 ENV(1=600,4=400)
Sequence Name	EDITHP640 ver.1
Data File	018B2202.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 7:08 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



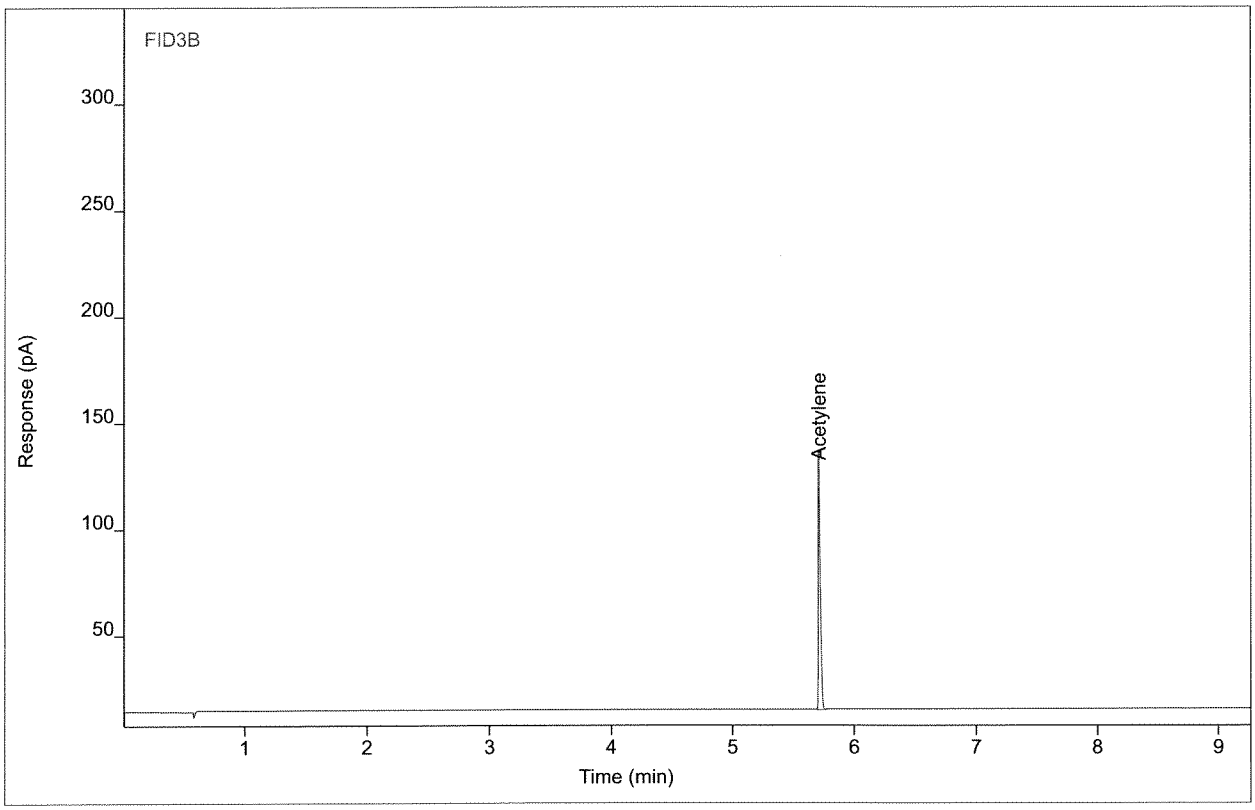
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	MM	5.71	141.107	118.891	102.342	1	102.342	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp639 #A3 ENV(1=600,4=400)
Sequence Name	EDITHP640 ver.1
Data File	018B2203.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 7:23 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



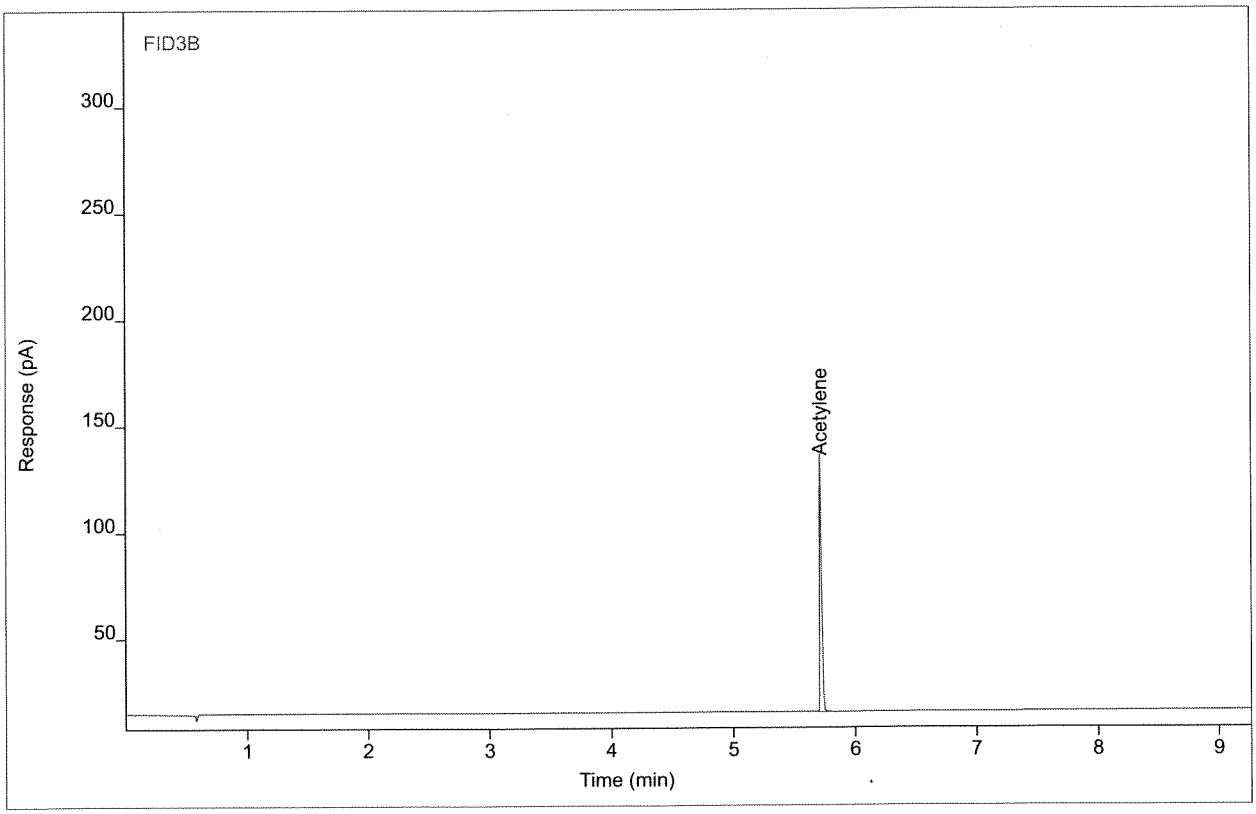
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.71	140.636	115.398	101.999	1	101.999	ppm

Chromatogram Report

Sample Name	Edithp639 #A3 ENV(1=600,4=400)
Sequence Name	EDITHP640 ver.1
Data File	018B2204.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 7:39 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



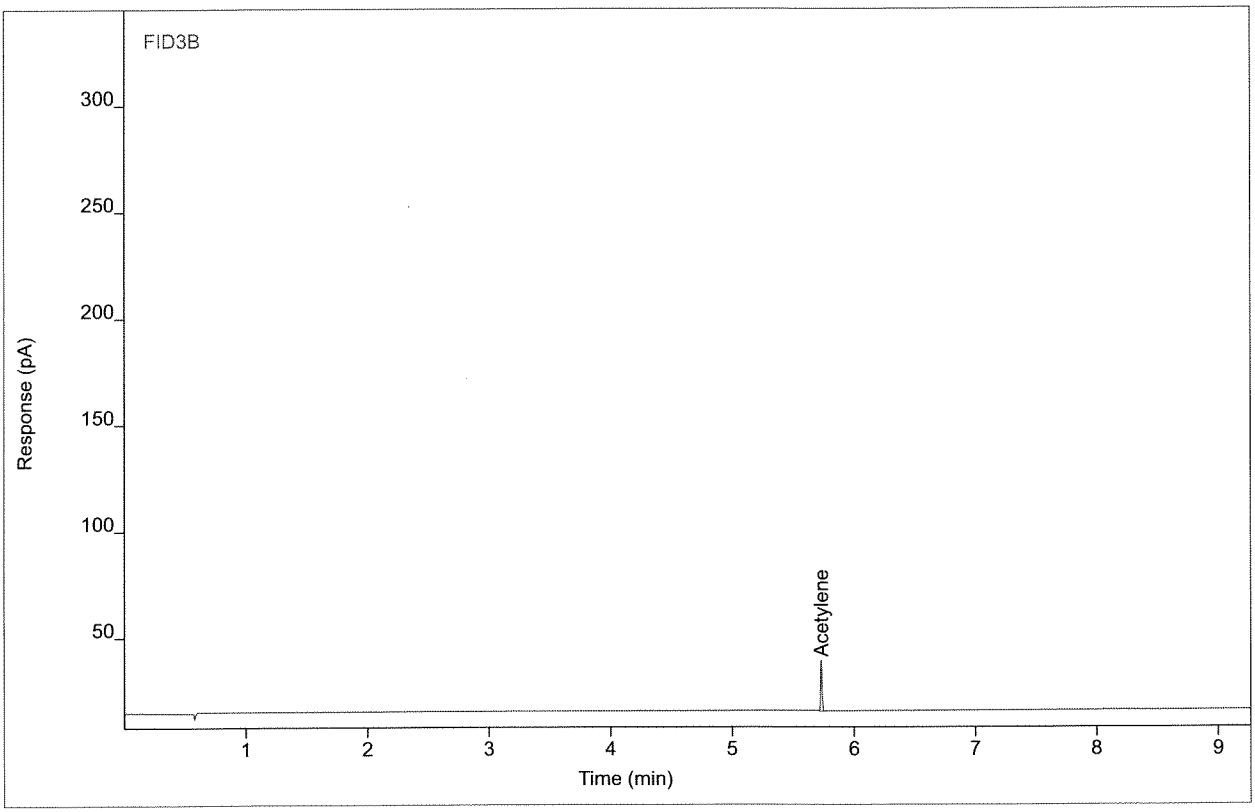
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.71	140.825	118.529	102.136	1	102.136	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp639 #A2 ENV(1=800,4=50)
Sequence Name	EDITHP640 ver.1
Data File	018B2302.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 8:09 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



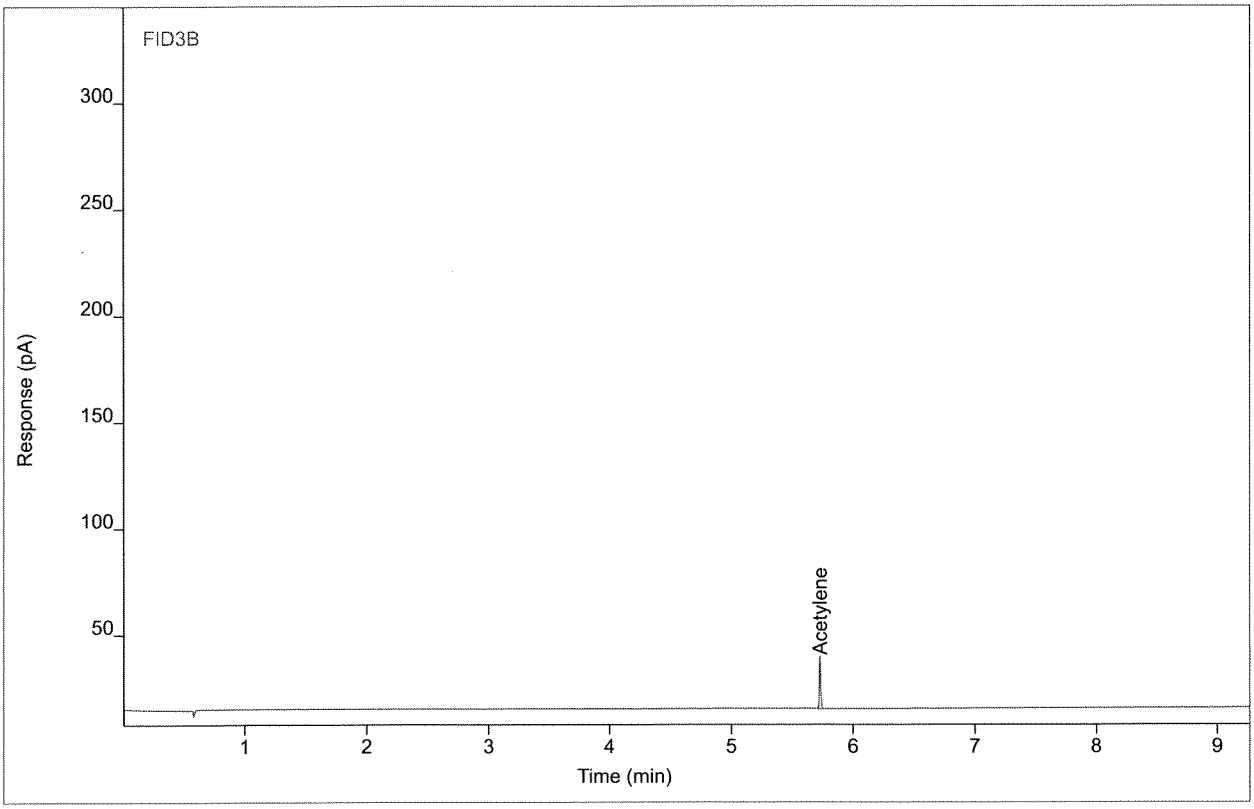
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.73	20.5041	23.7057	14.3465	1	14.3465	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp639 #A2 ENV(1=800,4=50)
Sequence Name	EDITHP640 ver.1
Data File	018B2303.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 8:24 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



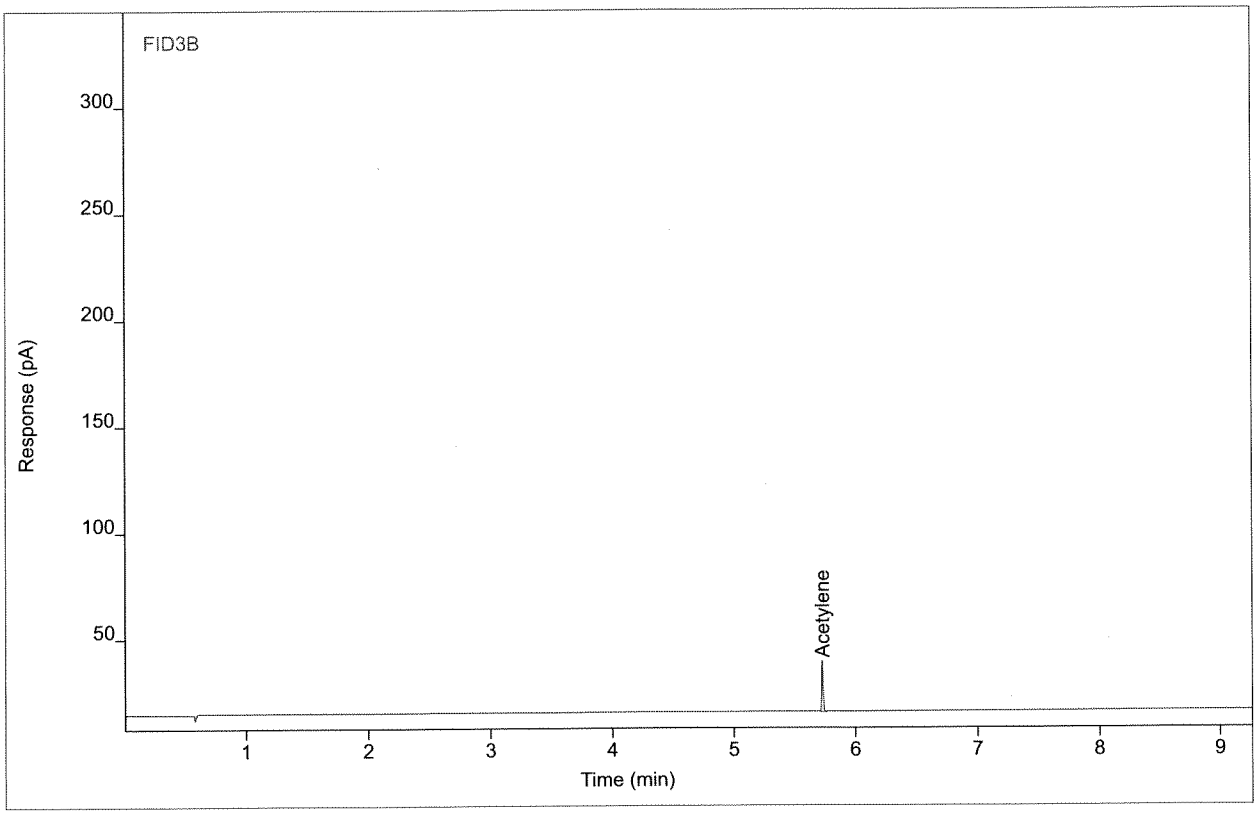
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.73	20.4522	23.4486	14.3086	1	14.3086	ppm

Chromatogram Report

Sample Name	Edithp639 #A2 ENV(1=800,4=50)
Sequence Name	EDITHP640 ver.1
Data File	018B2304.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 8:39 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 4
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



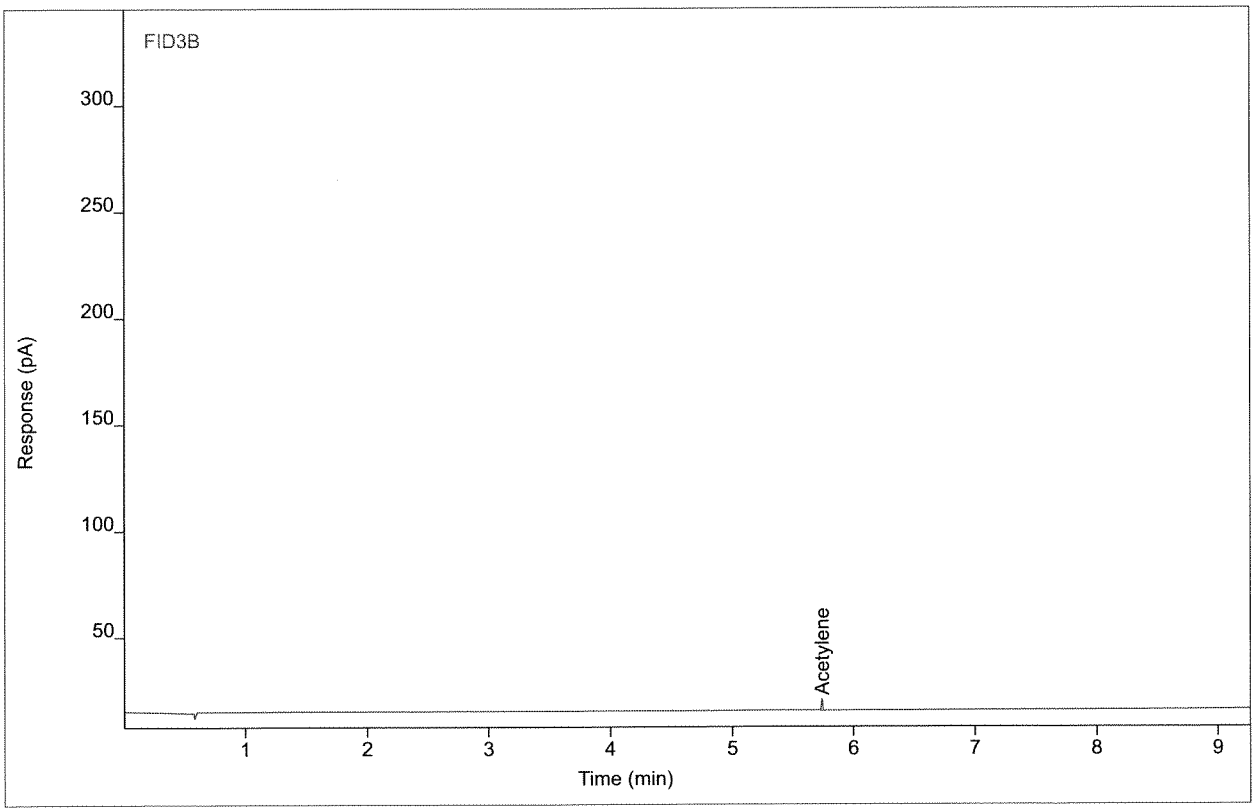
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.73	20.4764	23.5949	14.3263	1	14.3263	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp639 #A1 ENV(1=4950,4=50)
Sequence Name	EDITHP640 ver.1
Data File	018B2402.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 9:10 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	2 of 8
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



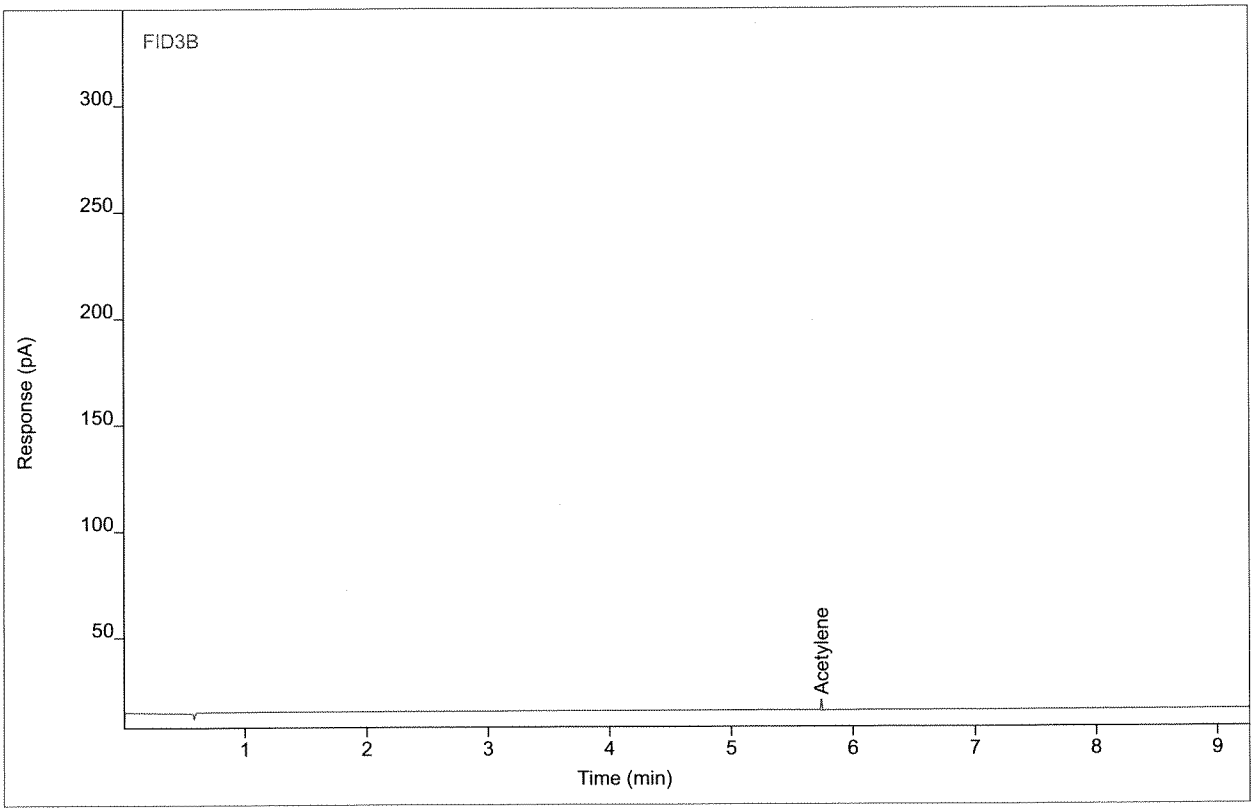
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.74	4.27677	5.40421	2.50648	1	2.50648	ppm

Chromatogram Report

Sample Name	Edithp639 #A1 ENV(1=4950,4=50)
Sequence Name	EDITHP640 ver.1
Data File	018B2403.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 9:25 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	3 of 8
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



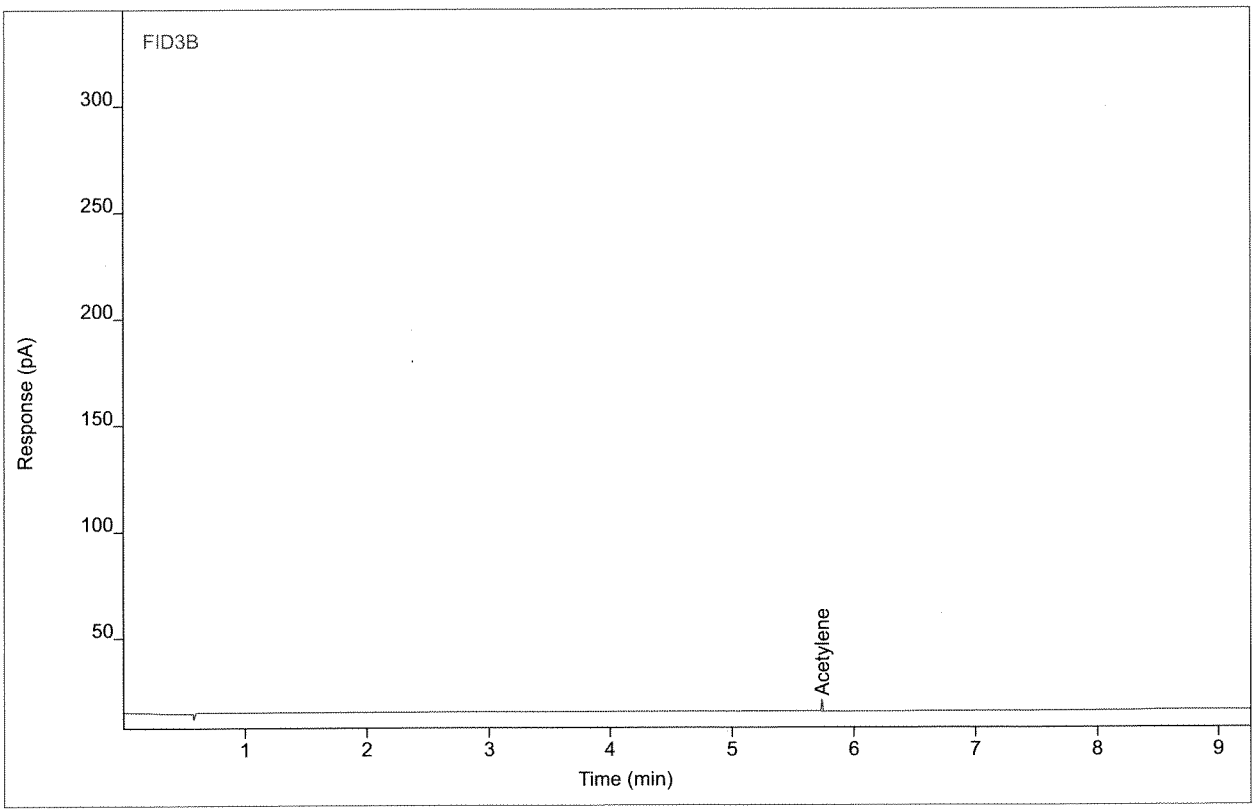
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.74	4.28925	5.44600	2.51559	1	2.51559	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp639 #A1 ENV(1=4950,4=50)
Sequence Name	EDITHP640 ver.1
Data File	018B2404.D
File Location	GC/2016/Edith/Quarter 2
Injection Date	6/18/2016 9:40 PM
File Modified	6/20/2016 8:13 AM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 18
Injection Volume	250
Injection	4 of 8
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP636R_HRVOC_ACETYLENE.M
Method Modified	6/20/2016 7:28 AM
Printed	6/20/2016 12:44 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetylene	BB	5.74	4.27643	5.46769	2.50623	1	2.50623	ppm

Airgas

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Part Number:	X02NI99C15AC3D1	Reference Number:	141-124546359-1
Cylinder Number:	CC151066	Cylinder Volume:	144.4 CF
Laboratory:	ASG - Conley Stryker - OH	Cylinder Pressure:	2015 PSIG
Analysis Date:	Mar 23, 2016	Valve Outlet:	350
Lot Number:	141-124546359-1		

Expiration Date: Mar 23, 2019

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
ACETYLENE	250.0 PPM	250.0 PPM	+/- 2%
NITROGEN	Balance		

Rebecca J England

Approved for Release

THE LINDE GROUP

Linde

SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr. Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	112821990
Production#:	1337396
Certification Date:	May-06-2015
P.O.# :	02031504
Blend Type:	CERTIFIED
Material#:	24086389
Traceability:	NIST by weight
Expiration Date:	May-06-2017
Do NOT use under:	150 psig

Cylinder Size:	2A (8" X 47.5")
Cylinder # :	CC-126673
Cylinder Pressure:	2000 psig
Cylinder Valve:	CGA 350 / Steel
Cylinder Volume:	29.5 Liter
Cylinder Material:	Aluminum
Gas Volume:	4000 Liters
Blend Tolerance:	5% Relative
Analytical Accuracy:	2% Relative

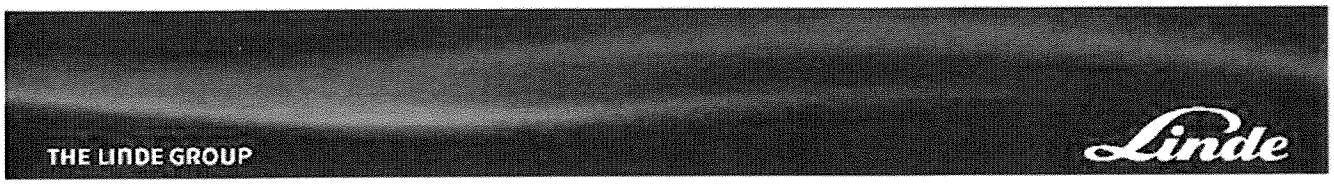
COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Ethylene	74-85-1	100 ppm	105 ppm
Propylene	115-07-1	100 ppm	105 ppm
1-Butene	106-98-9	100 ppm	105 ppm
Isobutylene	115-11-7	100 ppm	105 ppm
1,3-Butadiene	106-99-0	100 ppm	105 ppm
Trans-2-Butene	624-64-6	100 ppm	105 ppm
Cis-2-Butene	590-18-1	100 ppm	105 ppm
Nitrogen	7727-37-9	Balance	Balance

ANALYST: Lou Lorenzetti

DATE: May-06-2015

Linde Gas North America LLC

(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com



SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr., Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	112822034	**Cylinder Size:**	2 (9" X 51")
Production#:	1337733	**Cylinder # :**	9851414
Certification Date:	May-20-2015	**Cylinder Pressure:**	900 psig
P.O.# :	02051501	**Cylinder Valve:**	CGA 350 / Steel
Blend Type:	CERTIFIED	**Cylinder Volume:**	44 Liter
Material#:	24095118	**Cylinder Material:**	Steel
Traceability:	NIST by weight	**Gas Volume:**	2694 Liters
Expiration Date:	May-20-2017	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Ethylene	74-85-1	1.00 %	1.02 %
Propylene	115-07-1	1.00 %	1.00 %
1-Butene	106-98-9	1.00 %	1.01 %
Isobutylene	115-11-7	1.00 %	1.01 %
1,3-Butadiene	106-99-0	1.00 %	1.02 %
Trans-2-Butene	624-64-6	1.00 %	1.02 %
Cis-2-Butene	590-18-1	1.00 %	1.01 %
Nitrogen	7727-37-9	Balance	Balance

ANALYST: Lou Lorenzetti

DATE: May-20-2015

Linde Gas North America LLC
(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com

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Agilent 7890A

==========

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 8 min	
Run Time	16.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	16.27 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

7.5439 mL/min for 0 min	
Run Time	16.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
then 15 °C/min to 70 °C for 0.07 min	
Run Time	4.6033 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	4.6033 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On
7.5439 mL/min for 0 min	

Run Time	4.6033 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

7.5439 mL/min for 0 min	
Run Time	9.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Calibration Table

Calib. Data Modified : Wednesday, September 14, 2016 8:15:10 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : compound name not specified
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

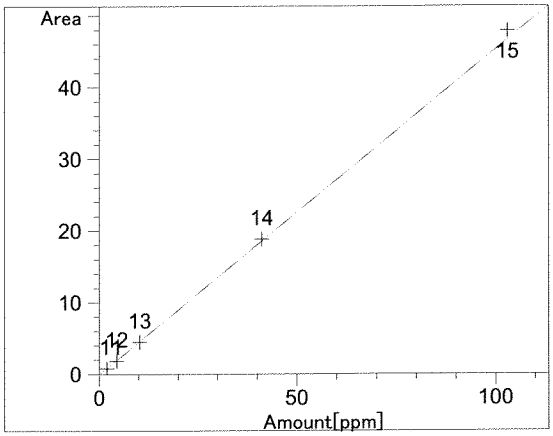
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
3.979	1	11	1.98100	8.20972e-1	2.41299		Acetone
		12	4.44000	1.84080	2.41199		
		13	10.30000	4.48319	2.29747		
		14	41.20000	18.84762	2.18595		
		15	103.00000	47.86759	2.15177		
6.765	1	11	1.98100	2.90820	6.81178e-1		Benzene
		12	4.44000	6.51698	6.81297e-1		
		13	10.30000	15.36646	6.70291e-1		
		14	41.20000	63.05889	6.53358e-1		
		15	103.00000	158.73637	6.48875e-1		
7.838	1	11	1.98100	3.05866	6.47668e-1		Toluene
		12	4.44000	6.88747	6.44649e-1		
		13	10.30000	16.82837	6.12062e-1		
		14	41.20000	70.44241	5.84875e-1		
		15	103.00000	178.68423	5.76436e-1		
8.639	1	11	1.98100	3.15268	6.28355e-1		Ethylbenzene
		12	4.44000	7.10527	6.24888e-1		
		13	10.30000	18.06059	5.70303e-1		
		14	41.20000	75.95344	5.42438e-1		
		15	103.00000	192.71248	5.34475e-1		
8.703	1	11	1.98100	2.99505	6.61425e-1		m-p-Xylenes
		12	4.44000	6.78043	6.54826e-1		
		13	10.30000	17.82745	5.77761e-1		
		14	41.20000	76.06460	5.41645e-1		
		15	103.00000	194.11854	5.30604e-1		

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
8.927	1	11	1.98100	2.97723	6.65385e-1		o-Xylene
		12	4.44000	6.74795	6.57978e-1		
		13	10.30000	17.41992	5.91277e-1		
		14	41.20000	73.62040	5.59627e-1		
		15	103.00000	187.75536	5.48586e-1		

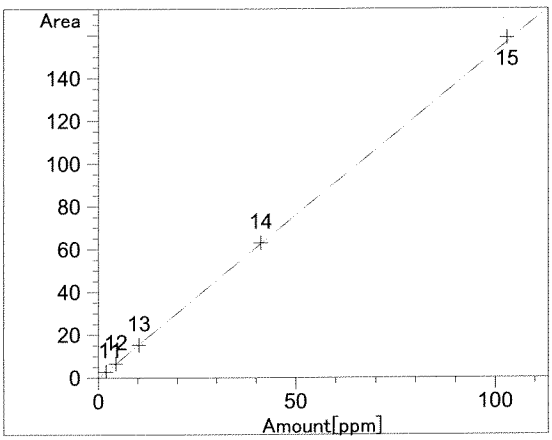
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.8693	1.8630	None
as Propane	1.855	2.479	None	1.2383	1.2383	None
as Butane	2.479	3.714	None	9.4644e-1	0.9464	None
as Pentane	3.714	5.209	None	7.4700e-1	0.7470	None
as Hexane	5.209	6.650	None	6.3600e-1	0.6360	None
as Heptane	6.650	16.300	None	5.3600e-1	0.5360	None

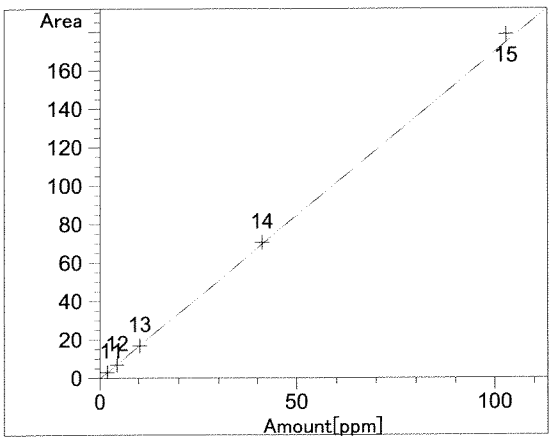
Calibration Curves



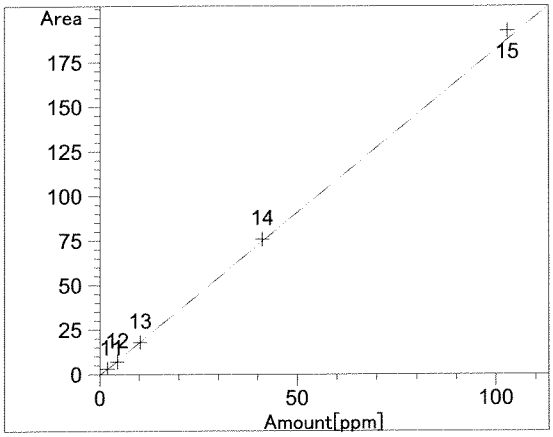
Acetone at exp. RT: 3.979
FID1 A, Front Signal
Correlation: 0.99940
Residual Std. Dev.: 0.71964
Formula: y = mx + b
m: 4.53864e-1
b: -9.62030e-2
x: Amount
y: Area
Calibration Level Weights:
Level 11 : 1
Level 12 : 0.199069
Level 13 : 0.036991
Level 14 : 0.002312
Level 15 : 0.00037



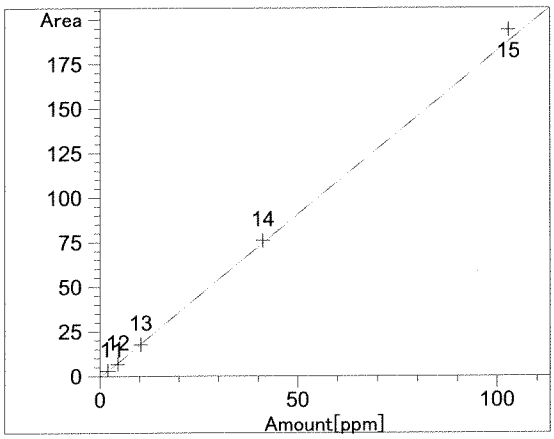
Benzene at exp. RT: 6.765
FID1 A, Front Signal
Correlation: 0.99987
Residual Std. Dev.: 1.16259
Formula: y = mx + b
m: 1.52348
b: -1.37013e-1
x: Amount
y: Area
Calibration Level Weights:
Level 11 : 1
Level 12 : 0.199069
Level 13 : 0.036991
Level 14 : 0.002312
Level 15 : 0.00037



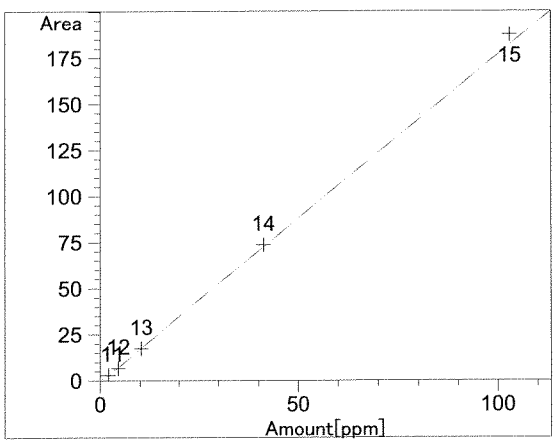
Toluene at exp. RT: 7.838
FID1 A, Front Signal
Correlation: 0.99948
Residual Std. Dev.: 2.43749
Formula: y = mx + b
m: 1.69842
b: -3.69838e-1
x: Amount
y: Area
Calibration Level Weights:
Level 11 : 1
Level 12 : 0.199069
Level 13 : 0.036991
Level 14 : 0.002312
Level 15 : 0.00037



Ethylbenzene at exp. RT: 8.639
FID1 A, Front Signal
Correlation: 0.99910
Residual Std. Dev.: 2.90974
Formula: y = mx + b
m: 1.82911
b: -5.64196e-1
x: Amount
y: Area
Calibration Level Weights:
Level 11 : 1
Level 12 : 0.199069
Level 13 : 0.036991
Level 14 : 0.002312
Level 15 : 0.00037



m-p-Xylenes at exp. RT: 8.703
FID1 A, Front Signal
Correlation: 0.99846
Residual Std. Dev.: 3.82571
Formula: y = mx + b
m: 1.82947
b: -7.50969e-1
x: Amount
y: Area
Calibration Level Weights:
Level 11 : 1
Level 12 : 0.199069
Level 13 : 0.036991
Level 14 : 0.002312
Level 15 : 0.00037



o-Xylene at exp. RT: 8.927
FID1 A, Front Signal
Correlation: 0.99886
Residual Std. Dev.: 3.28936
Formula: y = mx + b
m: 1.77513
b: -6.40973e-1
x: Amount
y: Area
Calibration Level Weights:
Level 11 : 1
Level 12 : 0.199069
Level 13 : 0.036991
Level 14 : 0.002312

Level 15 : 0.00037

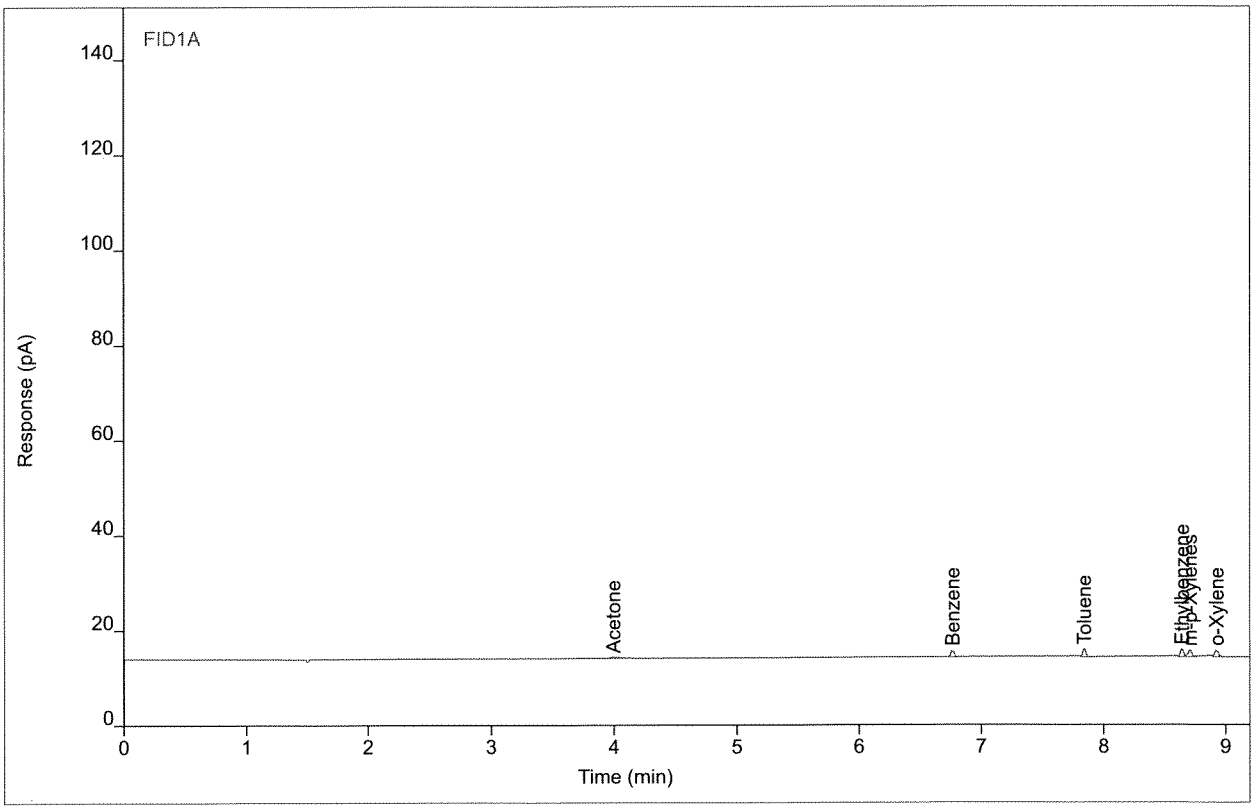
lith 9/15/2016 1:07:17 PM Nicholas Traversa

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B1 ENV(1=2550,6=50)
Sequence Name	EDITHP725 ver.5
Data File	002F0808.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 5:13 PM
File Modified	9/14/2016 11:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	8 of 10
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



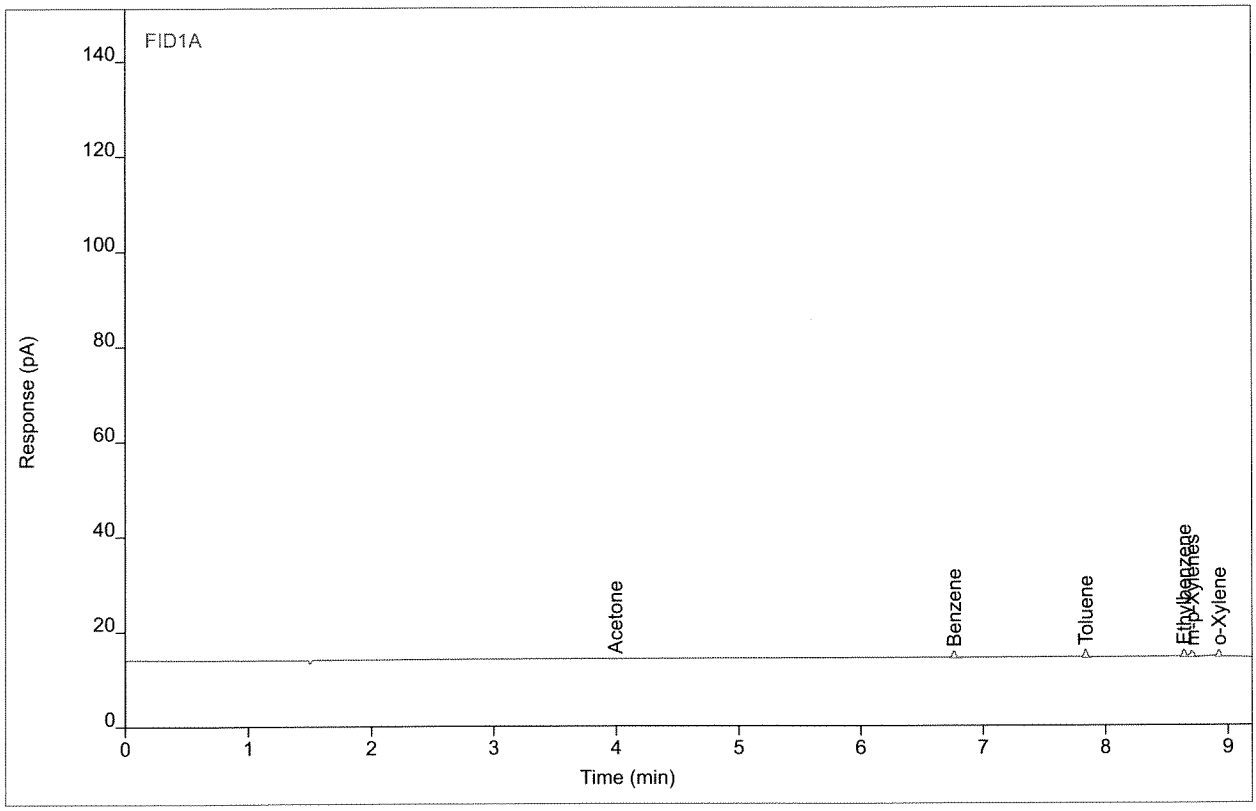
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	4.00	0.87157	0.21523	2.13231	1	2.13231	ppm
Benzene	BB	6.77	2.90184	1.45372	1.99468	1	1.99468	ppm
Toluene	BB	7.84	3.03798	1.68853	2.00647	1	2.00647	ppm
Ethylbenzene	BV	8.64	3.13562	1.66128	2.02274	1	2.02274	ppm
m-p-Xylenes	VB	8.70	2.96758	1.38418	2.03258	1	2.03258	ppm
o-Xylene	BB	8.93	2.96003	1.45758	2.02859	1	2.02859	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B1 ENV(1=2550,6=50)
Sequence Name	EDITHP725 ver.5
Data File	002F0809.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 5:27 PM
File Modified	9/14/2016 11:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	9 of 10
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



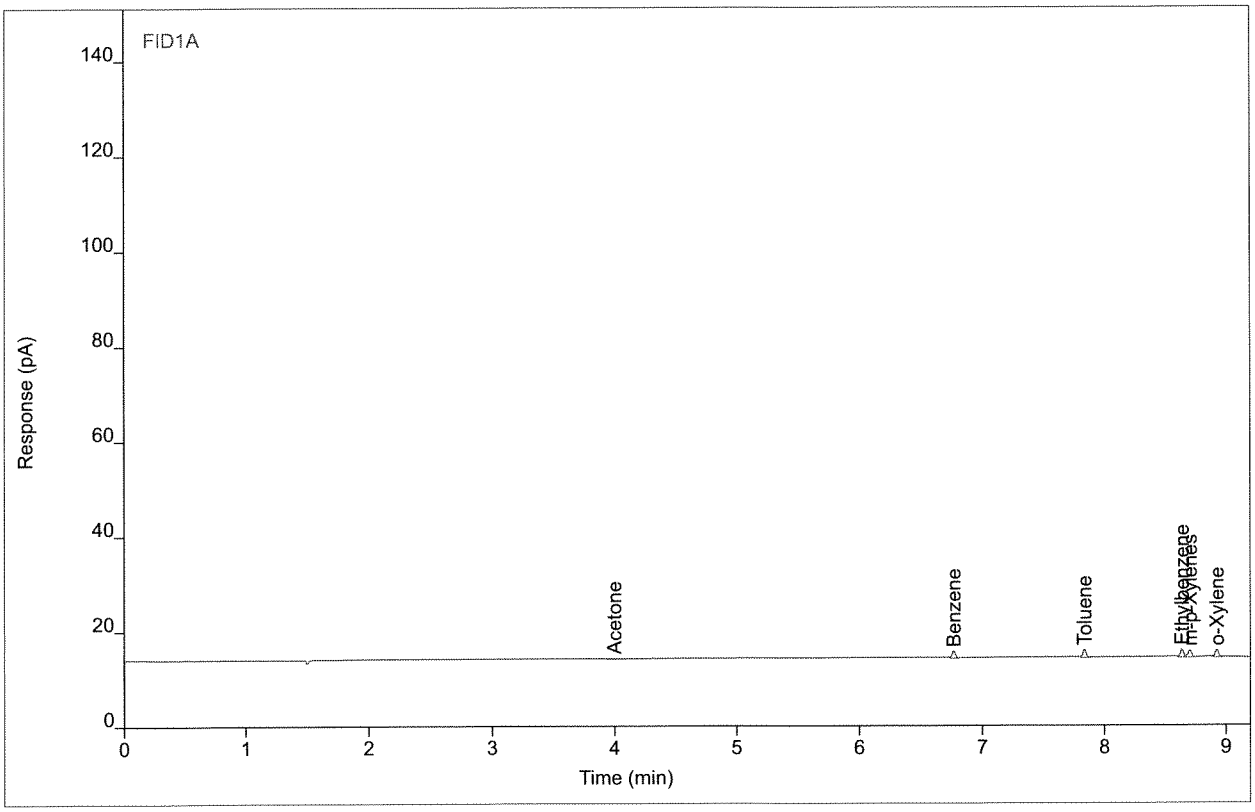
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	0.78665	0.20920	1.94091	1	1.94091	ppm
Benzene	BB	6.77	2.90793	1.45616	1.99868	1	1.99868	ppm
Toluene	BB	7.84	3.07153	1.71507	2.02622	1	2.02622	ppm
Ethylbenzene	BV	8.64	3.13966	1.65656	2.02495	1	2.02495	ppm
m-p-Xylenes	VB	8.70	2.97142	1.41949	2.03468	1	2.03468	ppm
o-Xylene	BB	8.93	2.96776	1.48893	2.03294	1	2.03294	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B1 ENV(1=2550,6=50)
Sequence Name	EDITHP725 ver.5
Data File	002F0810.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 5:42 PM
File Modified	9/14/2016 11:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	10 of 10
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



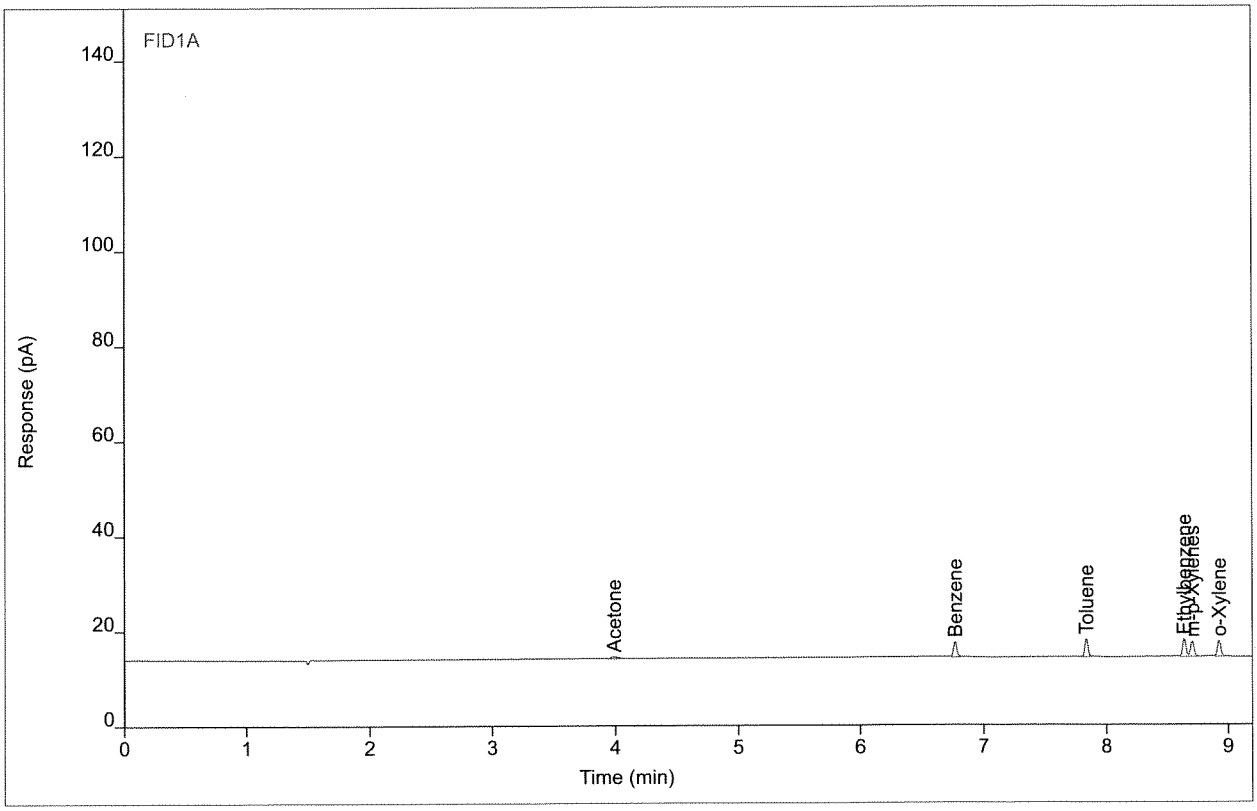
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	4.00	0.80469	0.21509	1.98495	1	1.98495	ppm
Benzene	BB	6.77	2.91481	1.46517	2.00320	1	2.00320	ppm
Toluene	BB	7.84	3.06649	1.71287	2.02325	1	2.02325	ppm
Ethylbenzene	BV	8.64	3.18275	1.67703	2.04851	1	2.04851	ppm
m-p-Xylenes	VB	8.70	3.04615	1.43642	2.07553	1	2.07553	ppm
o-Xylene	BB	8.93	3.00388	1.49447	2.05329	1	2.05329	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B2 ENV(1=1000,6=45)
Sequence Name	EDITHP725 ver.5
Data File	002F0903.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 6:27 PM
File Modified	9/14/2016 11:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



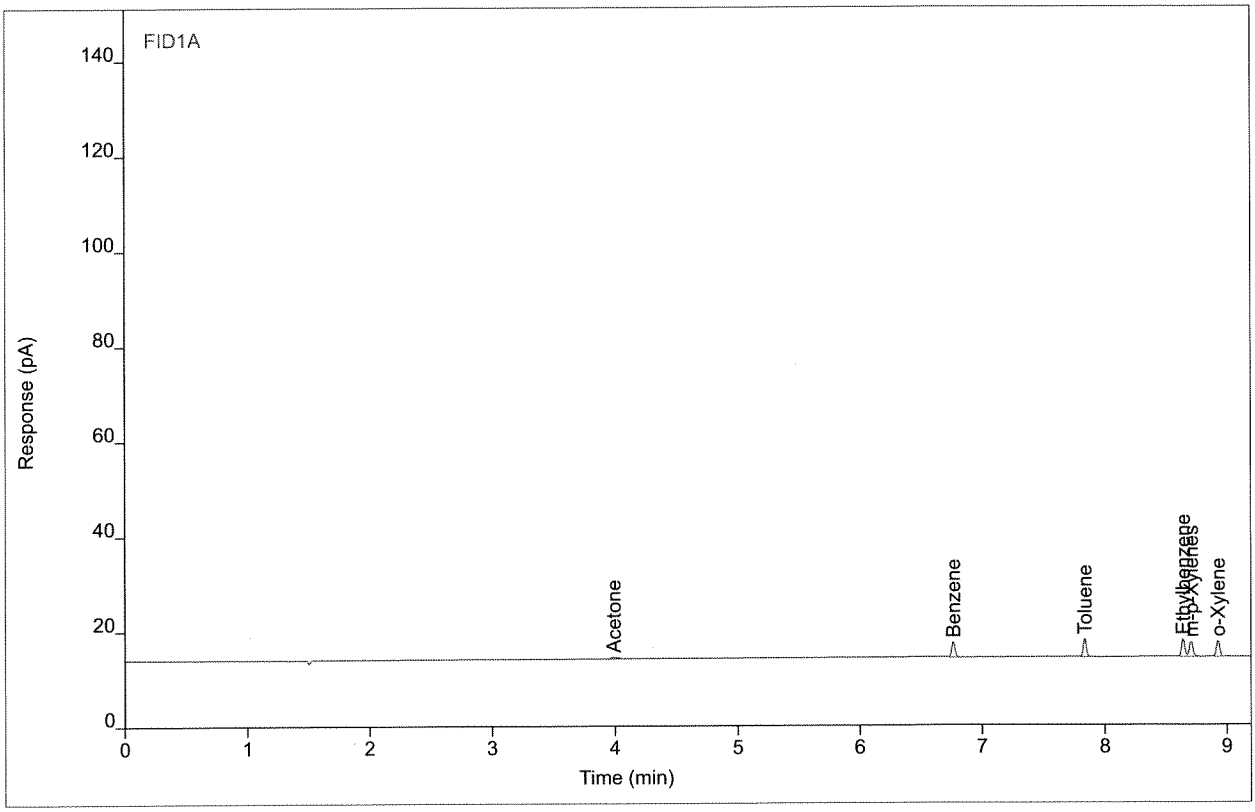
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	1.86887	0.49613	4.32965	1	4.32965	ppm
Benzene	BB	6.77	6.49749	3.28423	4.35484	1	4.35484	ppm
Toluene	BB	7.84	6.87017	3.83278	4.26280	1	4.26280	ppm
Ethylbenzene	BV	8.64	7.06805	3.73668	4.17266	1	4.17266	ppm
m-p-Xylenes	VB	8.70	6.72925	3.17330	4.08873	1	4.08873	ppm
o-Xylene	BB	8.93	6.70045	3.32778	4.13571	1	4.13571	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B2 ENV(1=1000,6=45)
Sequence Name	EDITHP725 ver.5
Data File	002F0904.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 6:41 PM
File Modified	9/14/2016 11:45 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



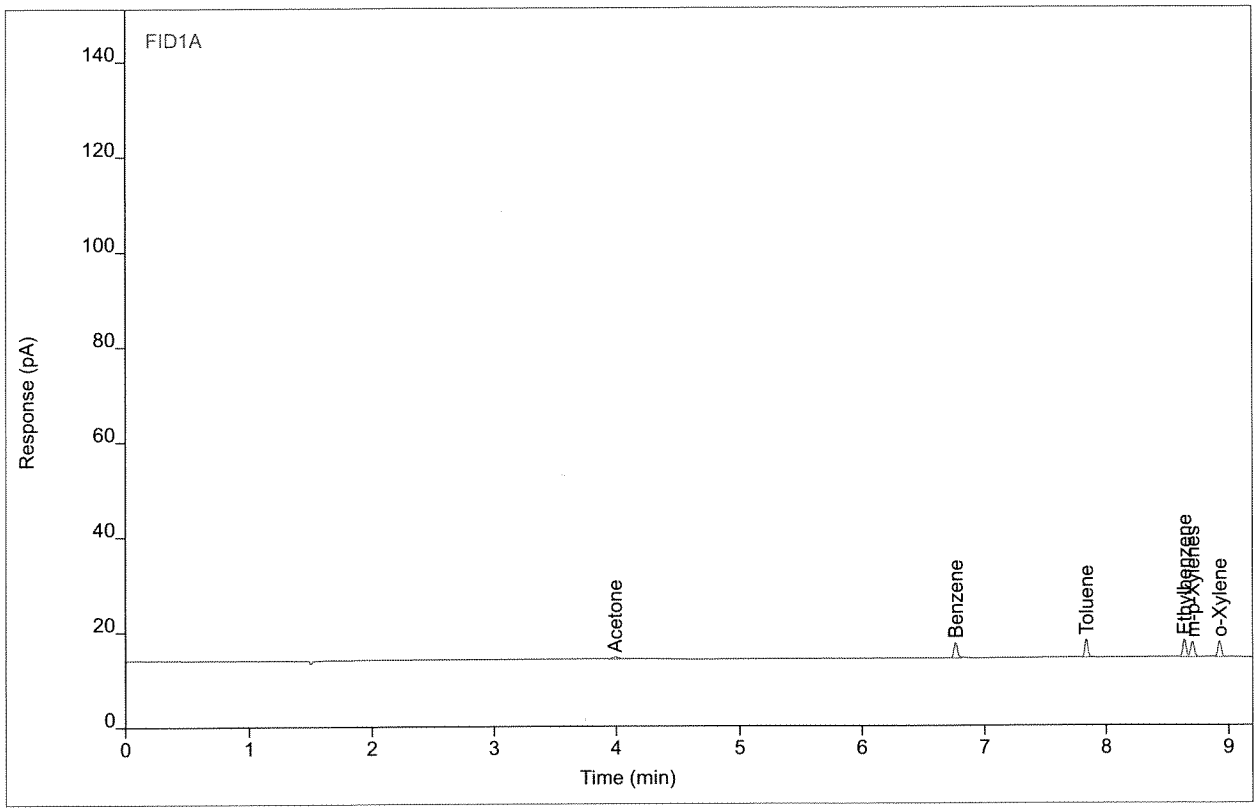
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	1.81527	0.48578	4.21157	1	4.21157	ppm
Benzene	BB	6.77	6.52409	3.26071	4.37230	1	4.37230	ppm
Toluene	BB	7.84	6.88011	3.84016	4.26865	1	4.26865	ppm
Ethylbenzene	BV	8.64	7.10310	3.74725	4.19182	1	4.19182	ppm
m-p-Xylenes	VB	8.70	6.78881	3.20854	4.12129	1	4.12129	ppm
o-Xylene	BB	8.93	6.75250	3.34574	4.16503	1	4.16503	ppm

Chromatogram Report

Sample Name	Edithp723 #B2 ENV(1=1000,6=45)
Sequence Name	EDITHP725 ver.5
Data File	002F0905.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 6:56 PM
File Modified	9/14/2016 11:45 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	5 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM

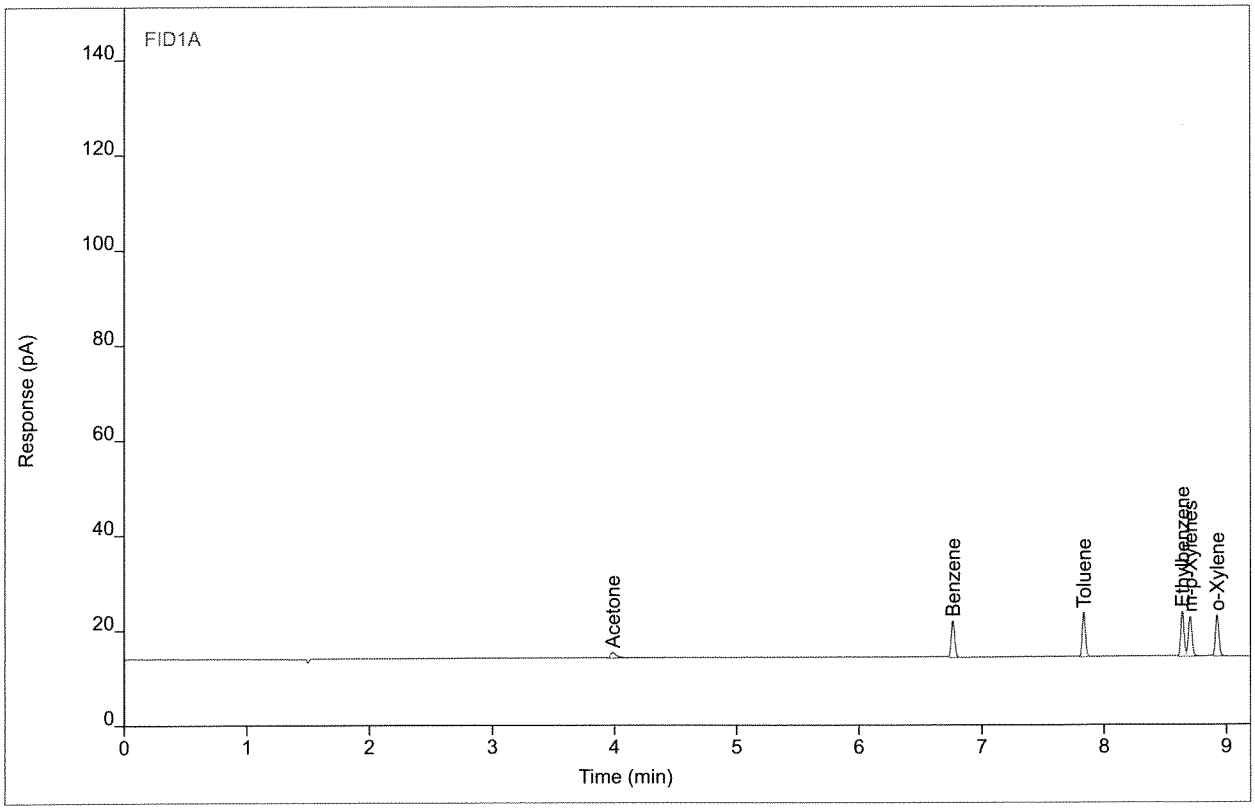


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	1.83826	0.48563	4.26221	1	4.26221	ppm
Benzene	BB	6.77	6.52935	3.29346	4.37575	1	4.37575	ppm
Toluene	BB	7.84	6.91214	3.85386	4.28751	1	4.28751	ppm
Ethylbenzene	BV	8.64	7.14467	3.77213	4.21455	1	4.21455	ppm
m-p-Xylenes	VB	8.70	6.82324	3.22530	4.14011	1	4.14011	ppm
o-Xylene	BB	8.93	6.79089	3.35488	4.18665	1	4.18665	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B3 ENV(1=900,6=100)	Sample Type	Calibration
Sequence Name	EDITHP725 ver.5	Vial Number	Vial 2
Data File	002F1003.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 3	Injection	3 of 5
Injection Date	9/13/2016 7:40 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	9/14/2016 11:46 AM	Analysis Method	EDITHP723F_BTEX.M
Instrument		Method Modified	9/14/2016 8:15 AM
Operator	Nicholas Traversa	Printed	9/15/2016 1:11 PM



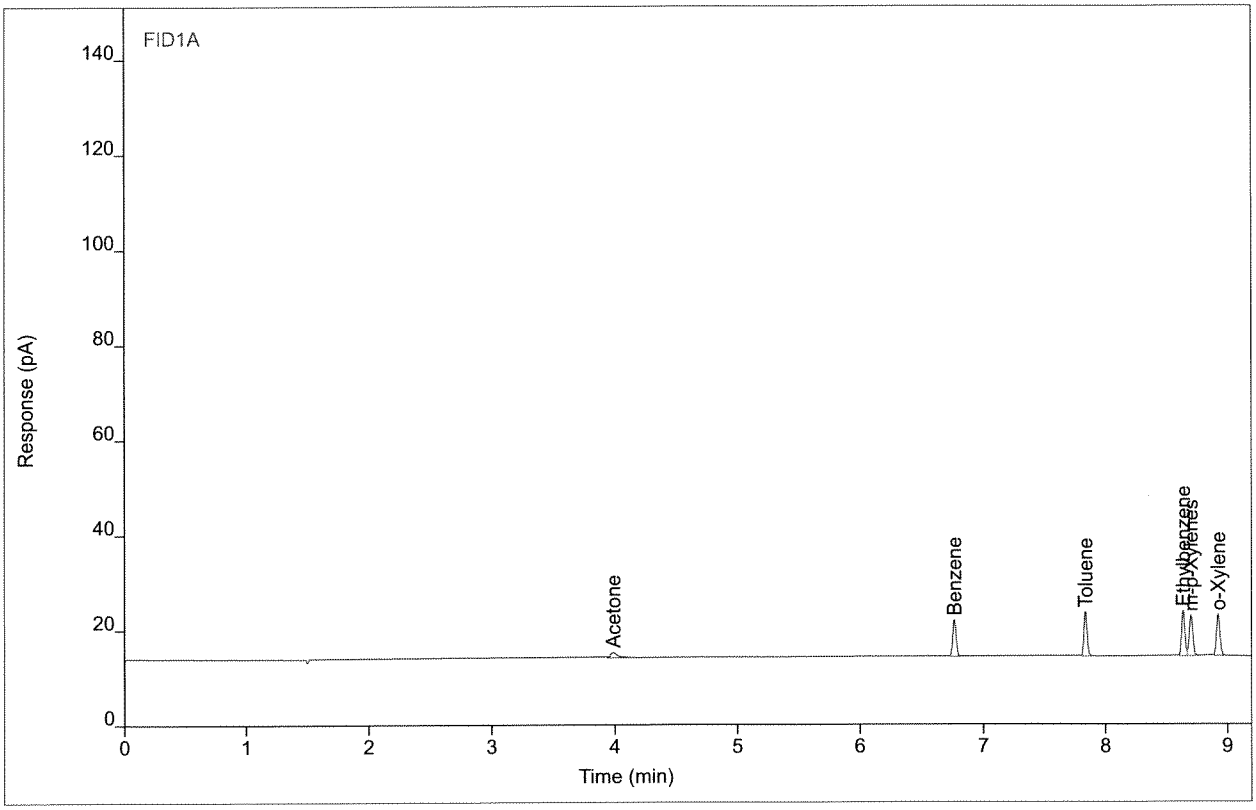
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	4.50116	1.21166	10.1294	1	10.1294	ppm
Benzene	BB	6.77	15.3758	7.74191	10.1825	1	10.1825	ppm
Toluene	BB	7.84	16.7956	9.38604	10.1067	1	10.1067	ppm
Ethylbenzene	BV	8.64	18.0582	9.53169	10.1811	1	10.1811	ppm
m-p-Xylenes	VB	8.70	17.7895	8.44378	10.1343	1	10.1343	ppm
o-Xylene	BB	8.93	17.3674	8.65031	10.1448	1	10.1448	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B3 ENV(1=900,6=100)
Sequence Name	EDITHP725 ver.5
Data File	002F1004.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 7:55 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



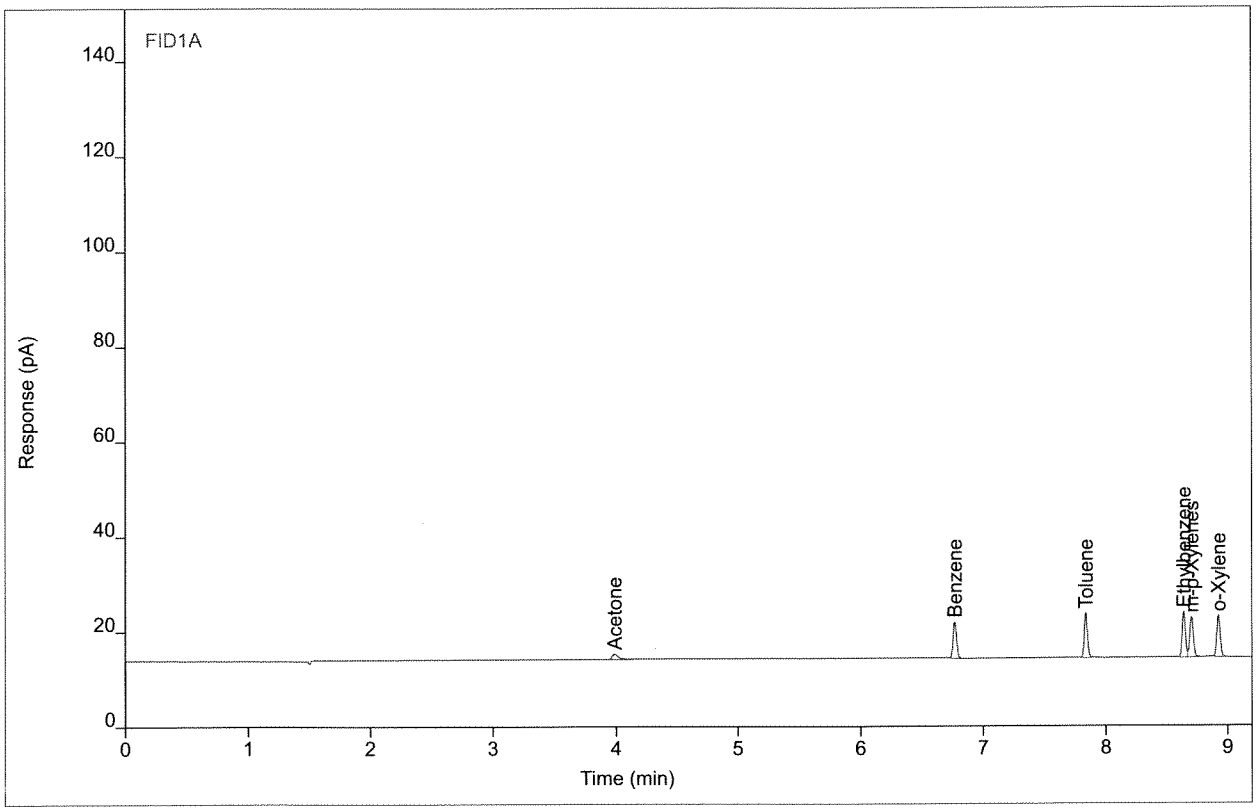
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	4.48674	1.21381	10.0976	1	10.0976	ppm
Benzene	BB	6.77	15.3421	7.75177	10.1604	1	10.1604	ppm
Toluene	BB	7.84	16.8164	9.36464	10.1189	1	10.1189	ppm
Ethylbenzene	BV	8.64	18.0132	9.53150	10.1565	1	10.1565	ppm
m-p-Xylenes	VB	8.70	17.8118	8.45537	10.1465	1	10.1465	ppm
o-Xylene	BB	8.93	17.4184	8.66255	10.1735	1	10.1735	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B3 ENV(1=900,6=100)
Sequence Name	EDITHP725 ver.5
Data File	002F1005.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 8:10 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	5 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



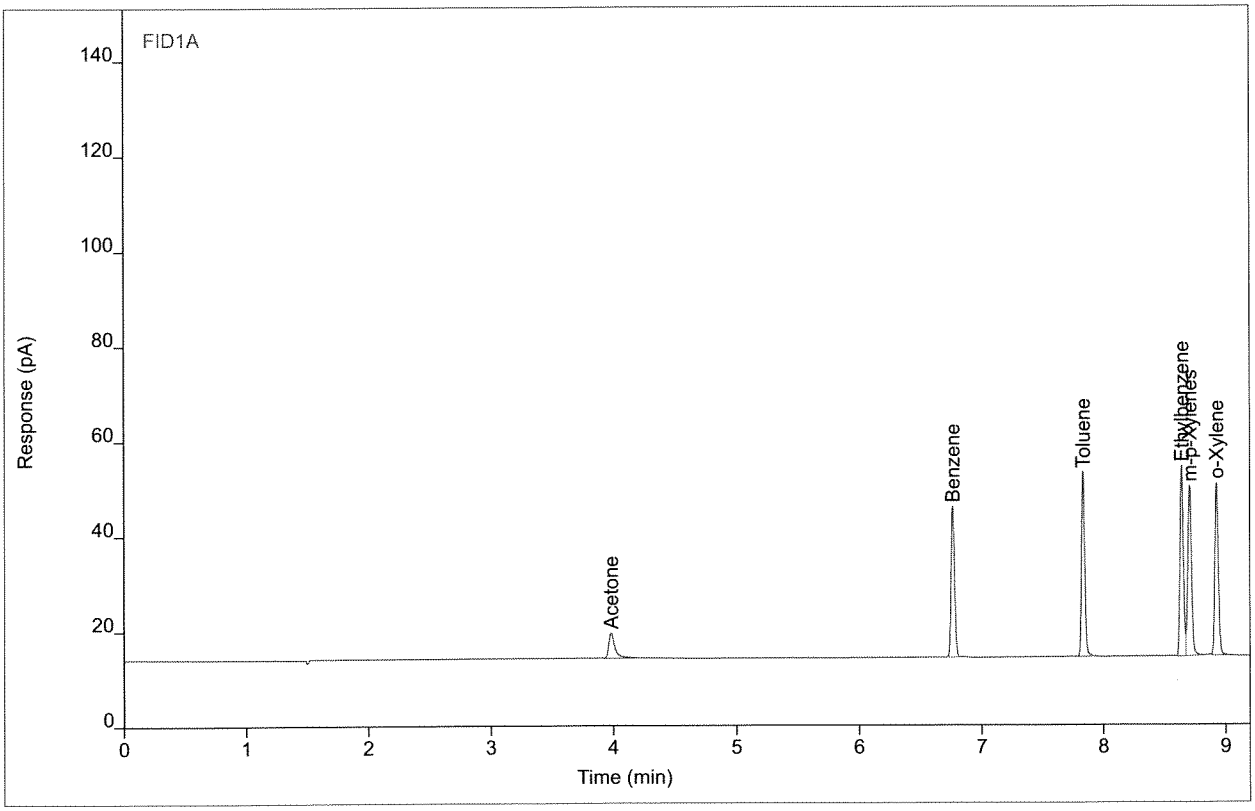
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.99	4.46167	1.21051	10.0424	1	10.0424	ppm
Benzene	BB	6.77	15.3815	7.76343	10.1862	1	10.1862	ppm
Toluene	BB	7.84	16.8731	9.44539	10.1524	1	10.1524	ppm
Ethylbenzene	BV	8.64	18.1104	9.62796	10.2096	1	10.2096	ppm
m-p-Xylenes	VB	8.70	17.8810	8.46510	10.1844	1	10.1844	ppm
o-Xylene	BB	8.93	17.4739	8.70086	10.2048	1	10.2048	ppm

Chromatogram Report

Sample Name	Edithp723 #B4 ENV(1=600,6=400)
Sequence Name	EDITHP725 ver.5
Data File	002F1103.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 8:54 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



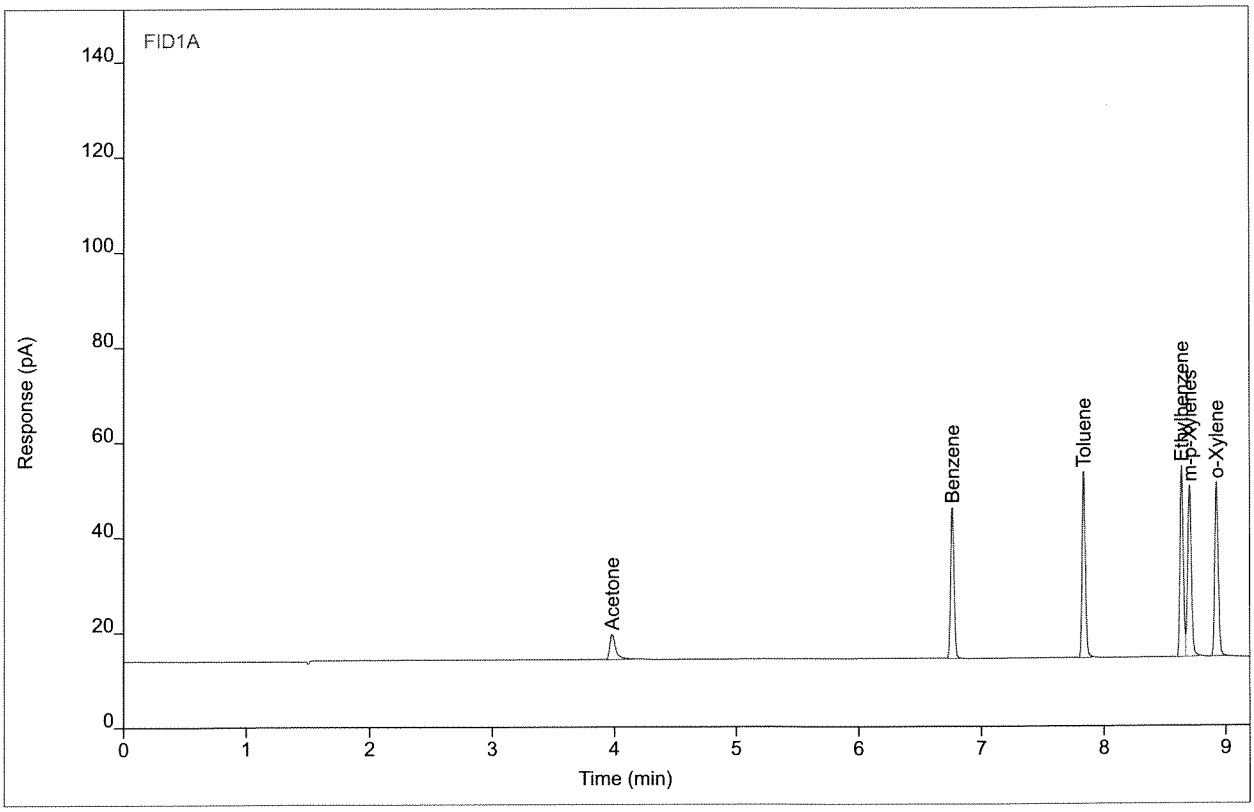
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.98	18.9395	5.33130	41.9415	1	41.9415	ppm
Benzene	BB	6.77	62.9546	31.7036	41.4129	1	41.4129	ppm
Toluene	BB	7.84	70.3437	38.7831	41.6350	1	41.6350	ppm
Ethylbenzene	BV	8.64	75.7685	40.0047	41.7321	1	41.7321	ppm
m-p-Xylenes	VB	8.70	75.9132	35.7423	41.9051	1	41.9051	ppm
o-Xylene	BB	8.93	73.5332	36.2651	41.7852	1	41.7852	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,6=400)
Sequence Name	EDITHP725 ver.5
Data File	002F1104.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 9:09 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



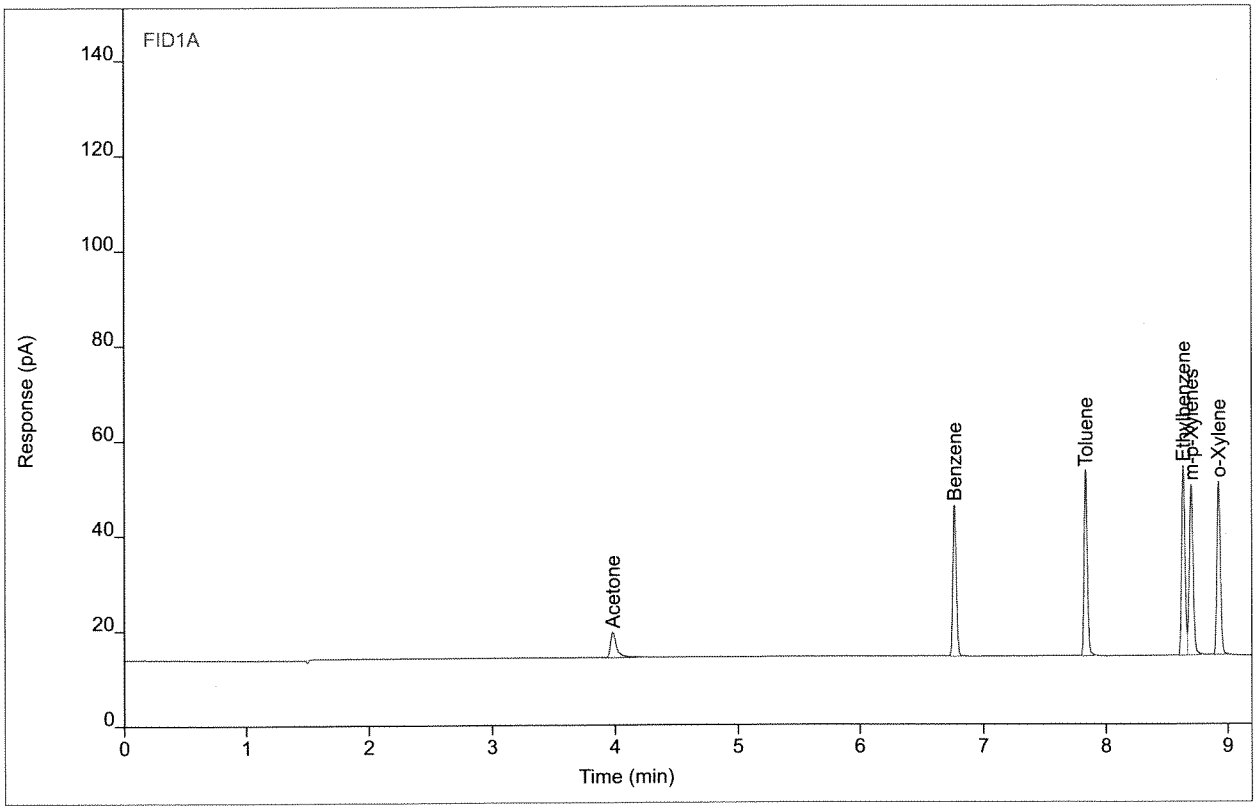
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.98	18.6552	5.34221	41.3152	1	41.3152	ppm
Benzene	BB	6.77	63.2174	31.8531	41.5854	1	41.5854	ppm
Toluene	BB	7.84	70.4698	39.1353	41.7092	1	41.7092	ppm
Ethylbenzene	BV	8.64	76.1115	40.1689	41.9197	1	41.9197	ppm
m-p-Xylenes	VB	8.70	76.2094	35.9102	42.0670	1	42.0670	ppm
o-Xylene	BB	8.93	73.7821	36.4588	41.9254	1	41.9254	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B4 ENV(1=600,6=400)
Sequence Name	EDITHP725 ver.5
Data File	002F1105.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 9:23 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	5 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



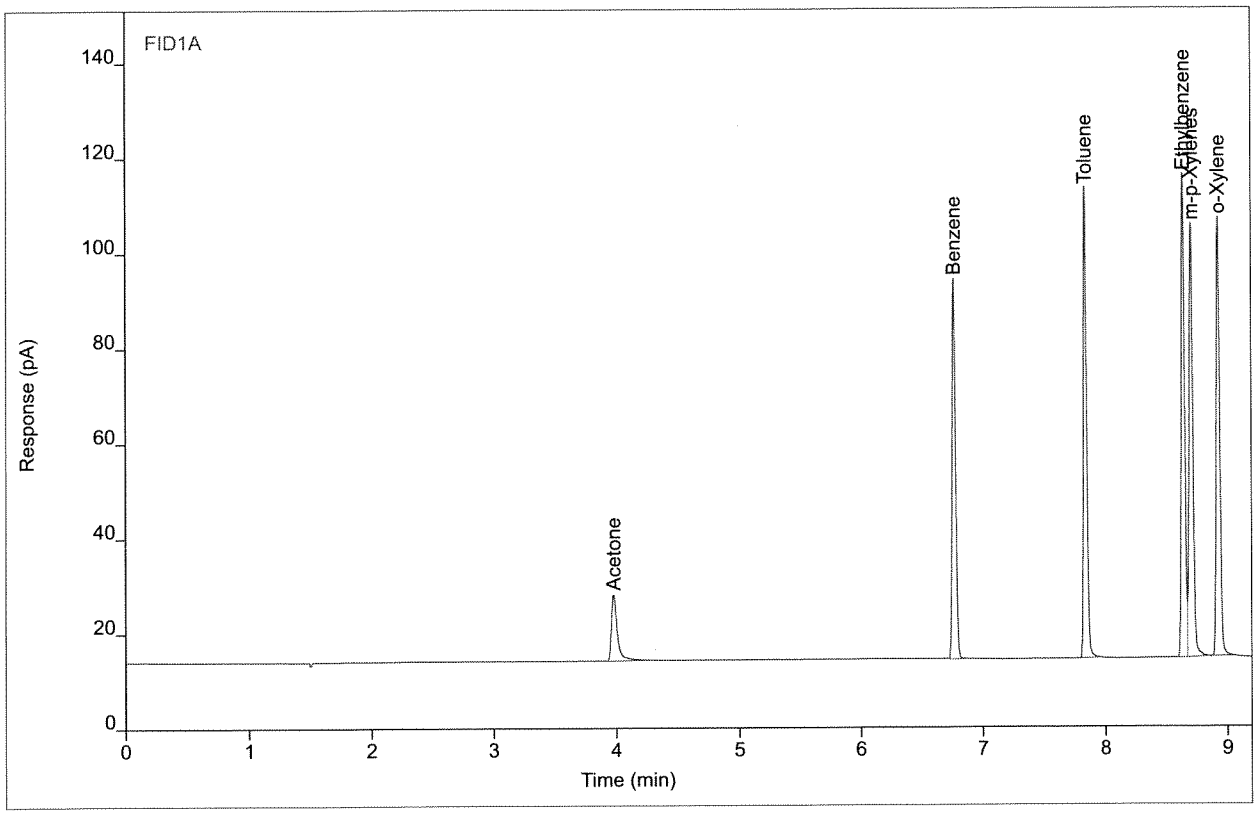
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.98	18.9481	5.34796	41.9604	1	41.9604	ppm
Benzene	BB	6.77	63.0047	31.8650	41.4458	1	41.4458	ppm
Toluene	BB	7.84	70.5137	38.9285	41.7351	1	41.7351	ppm
Ethylbenzene	BV	8.64	75.9803	39.8797	41.8480	1	41.8480	ppm
m-p-Xylenes	VB	8.70	76.0712	35.8343	41.9914	1	41.9914	ppm
o-Xylene	BB	8.93	73.5459	36.3690	41.7923	1	41.7923	ppm

Chromatogram Report

Sample Name	Edithp723 #B5 ENV(1=0,6=450)
Sequence Name	EDITHP725 ver.5
Data File	002F1203.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 10:08 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



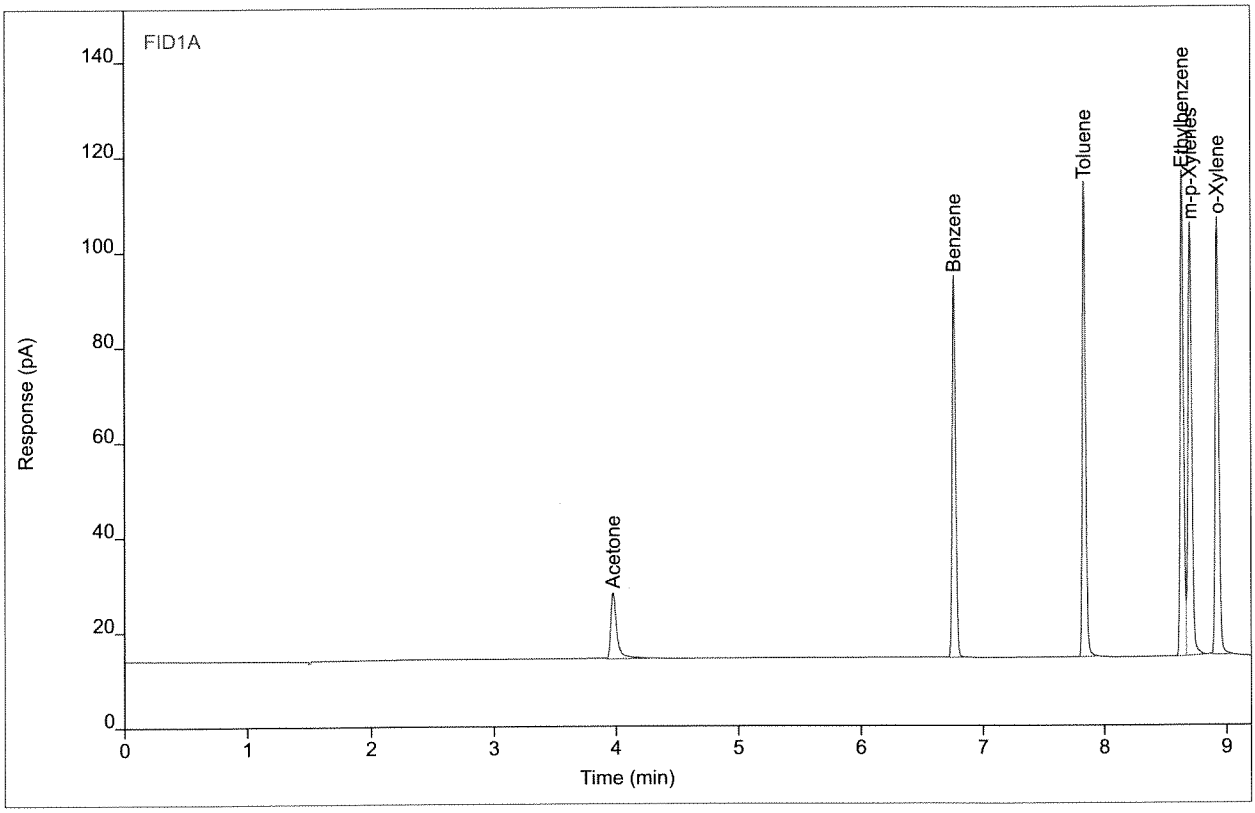
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.98	47.8934	14.0025	105.736	1	105.736	ppm
Benzene	BB	6.77	159.011	79.8862	104.464	1	104.464	ppm
Toluene	BB	7.84	178.882	98.7176	105.541	1	105.541	ppm
Ethylbenzene	BV	8.64	192.946	101.459	105.795	1	105.795	ppm
m-p-Xylenes	VB	8.70	194.484	90.9806	106.717	1	106.717	ppm
o-Xylene	BB	8.93	187.993	92.0785	106.265	1	106.265	ppm

Chromatogram Report

Sample Name	Edithp723 #B5 ENV(1=0,6=450)
Sequence Name	EDITHP725 ver.5
Data File	002F1204.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 10:22 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



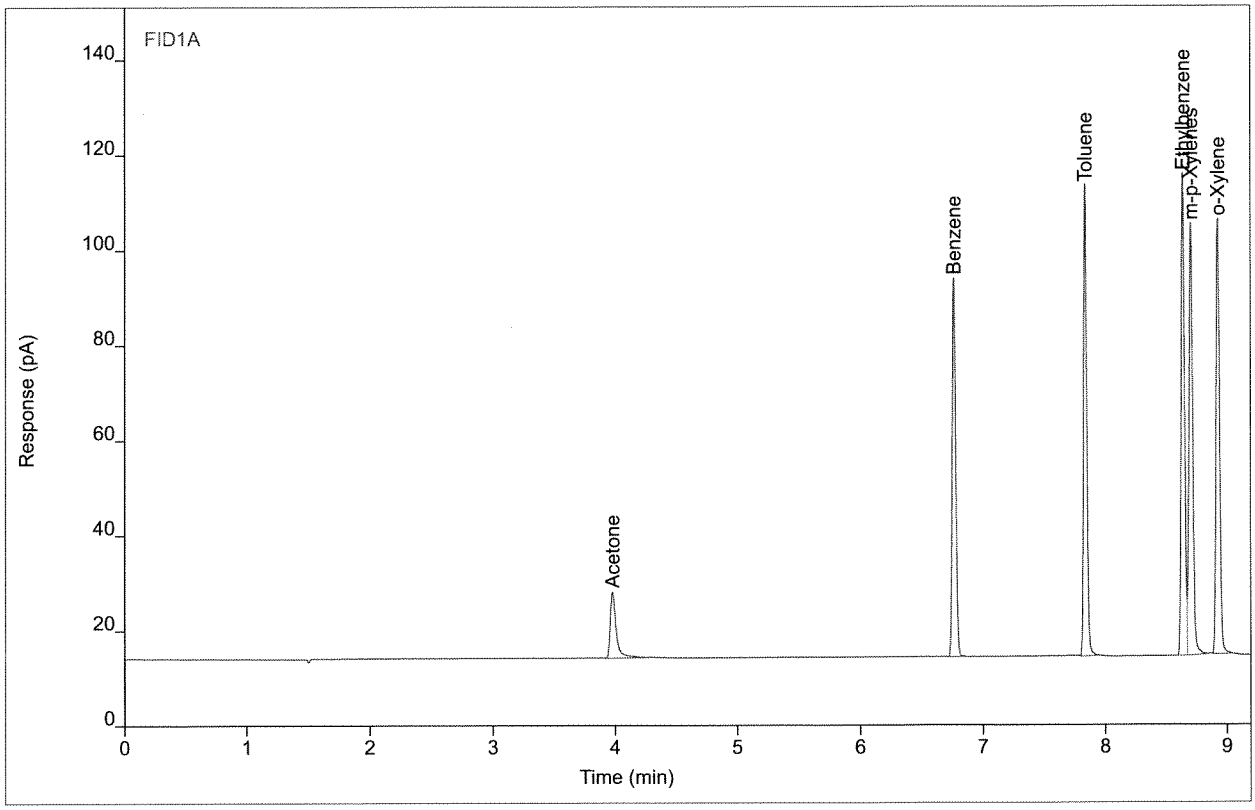
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.98	48.1508	13.9524	106.303	1	106.303	ppm
Benzene	BB	6.77	158.924	80.1440	104.406	1	104.406	ppm
Toluene	BB	7.84	178.902	99.5583	105.552	1	105.552	ppm
Ethylbenzene	BV	8.64	192.888	101.762	105.763	1	105.763	ppm
m-p-Xylenes	VB	8.70	194.178	90.7859	106.549	1	106.549	ppm
o-Xylene	BB	8.93	188.053	91.7389	106.299	1	106.299	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp723 #B5 ENV(1=0,6=450)
Sequence Name	EDITHP725 ver.5
Data File	002F1205.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/13/2016 10:37 PM
File Modified	9/14/2016 11:46 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	5 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP723F_BTEX.M
Method Modified	9/14/2016 8:15 AM
Printed	9/15/2016 1:11 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Acetone	BB	3.98	47.5586	13.9366	104.998	1	104.998	ppm
Benzene	BB	6.77	158.274	79.5304	103.980	1	103.980	ppm
Toluene	BB	7.84	178.269	98.8040	105.180	1	105.180	ppm
Ethylbenzene	BV	8.64	192.303	101.140	105.443	1	105.443	ppm
m-p-Xylenes	VB	8.70	193.694	90.6589	106.285	1	106.285	ppm
o-Xylene	BB	8.93	187.220	91.3030	105.829	1	105.829	ppm

ISO 9001:2008 Linde **SPECTRA** Environmental Gases, 80 Industrial Drive, Alpha, NJ 08865

THE LINDE GROUP

SHIPPED TO: Enthalpy Analytical Inc.
800 Capitola Dr Ste 1
Durham, NC 27713-4385

PAGE: 1 of 1

CERTIFICATE OF ANALYSIS

Sales#:	113402457	**Cylinder Size:**	2A (8" X 47.5")
Production#:	1357542	**Cylinder # :**	CC-20216
Certification Date:	Nov-20-2015	**Cylinder Pressure:**	1000 psig
P.O.# :	10201504	**Cylinder Valve:**	CGA 350 / Steel
Blend Type:	CERTIFIED	**Cylinder Volume:**	29.5 Liter
Material#:	24086389	**Cylinder Material:**	Aluminum
Traceability:	NIST by weight	**Gas Volume:**	2000 Liters
Expiration Date:	Nov-20-2016	**Blend Tolerance:**	5% Relative
Do NOT use under:	150 psig	**Analytical Accuracy:**	2% Relative

COMPONENT	CAS NUMBER	REQUESTED CONC	CERTIFIED CONC
Acetone	67-64-1	100 ppm	103 ppm
Benzene	71-43-2	100 ppm	103 ppm
Toluene	108-88-3	100 ppm	103 ppm
Ethylbenzene	100-41-4	100 ppm	103 ppm
p-Xylene	106-42-3	50.0 ppm	51.6 ppm
m-Xylene	108-38-3	50.0 ppm	51.6 ppm
o-Xylene	95-47-6	100 ppm	103 ppm
Nitrogen	7727-37-9	Balance	Balance

ANALYST: _____
Lou Lorenzetti

DATE: Nov-20-2015

Linde Gas North America LLC

(908) 329-9700 Main (908) 329-9740 Fax
www.Lindeus.com

Agilent 7890A

Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

7.5439 mL/min for 0 min	
Run Time	9.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Calibration Table

Calib. Data Modified : 9/27/2016 9:41:00 AM

Rel. Reference Window : 0.000 %
Abs. Reference Window : 0.100 min
Rel. Non-ref. Window : 0.000 %
Abs. Non-ref. Window : 0.050 min
Uncalibrated Peaks : Separately calculated (see below)
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: FID1 A, Front Signal
Uncalibrated Peaks : using compound Propane
Signal 2: FID3 B, Back Signal
Uncalibrated Peaks : not reported

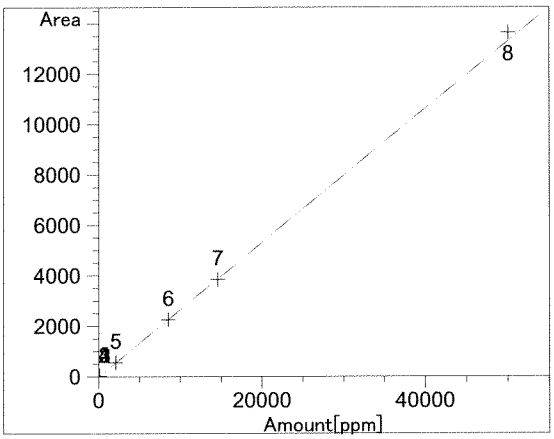
RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref	Grp	Name
1.527	1	1	5.00000	1.24523	4.01531			Methane
		2	20.00000	5.11775	3.90797			
		3	40.00000	10.40647	3.84376			
		4	100.00000	26.34627	3.79560			
		5	2073.00000	561.22530	3.69370			
		6	8524.00000	2257.69914	3.77553			
		7	1.45670e4	3854.73161	3.77899			
		8	5.00600e4	1.36410e4	3.66982			
1.665	1	1	5.00000	2.59503	1.92676			Ethane
		2	20.00000	10.20115	1.96056			
		3	40.00000	20.47167	1.95392			
		4	100.00000	51.69932	1.93426			
		5	2072.00000	1082.67851	1.91377			
		6	8519.00000	4353.15251	1.95697			
		7	1.45580e4	7432.60400	1.95867			
		8	5.00300e4	2.62806e4	1.90369			
1.994	1	1	5.00000	3.92909	1.27256			Propane
		2	20.00000	15.24554	1.31186			
		3	40.00000	30.75794	1.30048			
		4	100.00000	77.68890	1.28719			
		5	2072.00000	1621.69543	1.27768			
		6	8519.00000	6521.97721	1.30620			
		7	1.45580e4	1.11378e4	1.30708			
		8	5.00300e4	3.93981e4	1.26986			
2.907	1	1	5.00000	5.26084	9.50418e-1			Butane

RetTime [min]	Sig	Lvl	Amount [ppm]	Area	Amt/Area	Ref Grp	Name
		2	20.00000	20.20296	9.89954e-1		
		3	40.00000	40.62684	9.84571e-1		
		4	100.00000	102.72145	9.73506e-1		
		5	414.00000	430.28957	9.62143e-1		
		6	1703.00000	1733.93445	9.82159e-1		
		7	2910.00000	2964.44173	9.81635e-1		
		8	1.00000e4	1.05115e4	9.51336e-1		
4.465	1	1	5.15000	6.87926	7.48627e-1		Pentane
		2	20.60000	26.13299	7.88276e-1		
		3	41.20000	52.58876	7.83437e-1		
		4	103.00000	132.20841	7.79073e-1		
		5	207.20000	267.50307	7.74571e-1		
		6	852.00000	1082.24023	7.87256e-1		
		7	1456.00000	1853.30054	7.85625e-1		
		8	5003.00000	6573.36165	7.61102e-1		
6.040	1	1	5.05000	7.95434	6.34874e-1		Hexane
		2	20.20000	30.50312	6.62227e-1		
		3	40.40000	61.57380	6.56123e-1		
		4	101.00000	155.21520	6.50709e-1		
		5	165.90000	253.98077	6.53199e-1		
		6	682.00000	1032.59574	6.60471e-1		
		7	1166.00000	1767.63330	6.59639e-1		
		8	4006.00000	6277.03906	6.38199e-1		
7.204	1	1	5.00000	9.08186	5.50548e-1		Heptane
		2	20.00000	34.88089	5.73380e-1		
		3	40.00000	70.44879	5.67788e-1		
		4	100.00000	177.67182	5.62835e-1		
		8	251.00000	459.73308	5.45969e-1		

Peak Sum Table

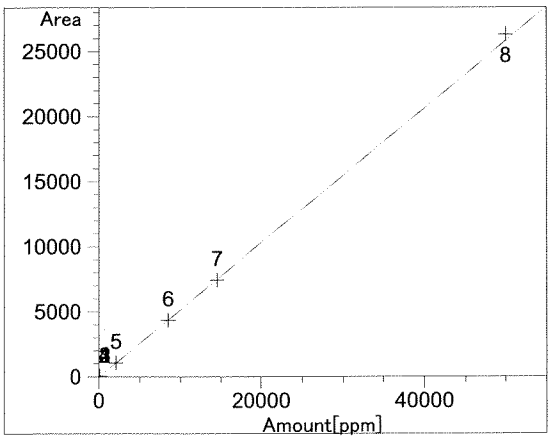
Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.550	1.855	None	1.9388	1.9388	None
as Propane	1.855	2.479	None	1.2916	1.2916	None
as Butane	2.479	3.714	None	9.7197e-1	0.9720	None
as Pentane	3.714	5.209	None	7.7600e-1	0.7760	None
as Hexane	5.209	6.650	None	6.5193e-1	0.6519	None
as Heptane	6.650	16.300	None	5.6011e-1	0.5601	None

Calibration Curves

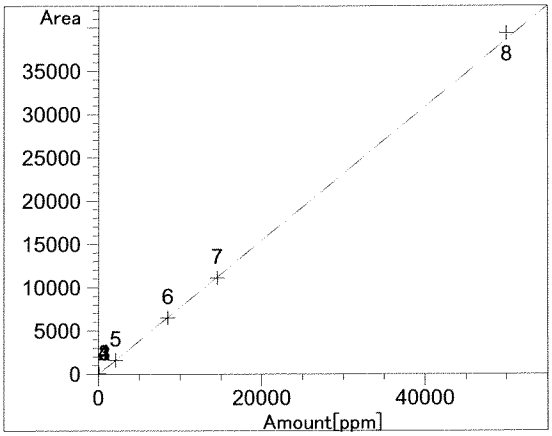


Methane at exp. RT: 1.527
FID1 A, Front Signal
Correlation: 0.99987
Residual Std. Dev.: 132.66368
Formula: y = mx + b
m: 2.66022e-1
b: -9.42011e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 5.81757e-006
Level 6 : 3.44075e-007
Level 7 : 1.17815e-007

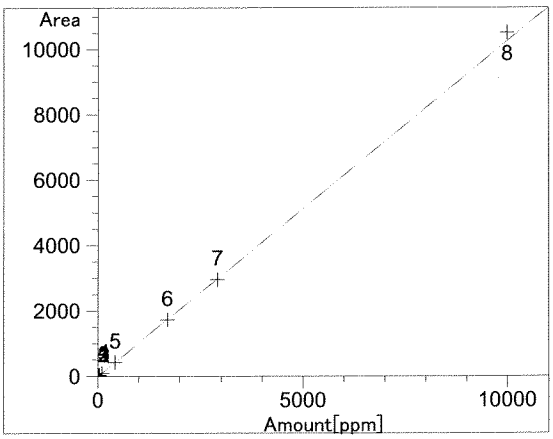
Level 8 : 9.97604e-009



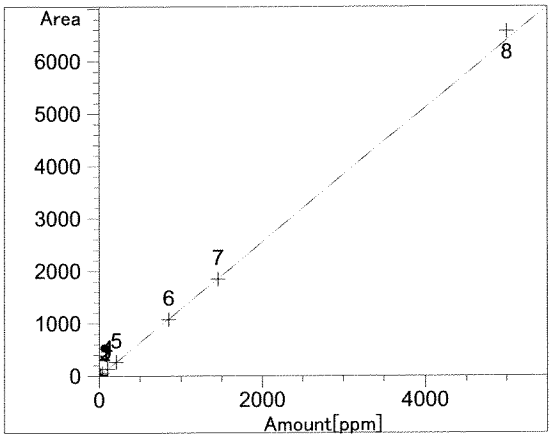
Ethane at exp. RT: 1.665
FID1 A, Front Signal
Correlation: 0.99992
Residual Std. Dev.: 200.20277
Formula: y = mx + b
m: 5.15644e-1
b: 7.24180e-3
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 5.82318e-006
Level 6 : 3.44479e-007
Level 7 : 1.1796e-007
Level 8 : 9.98801e-009



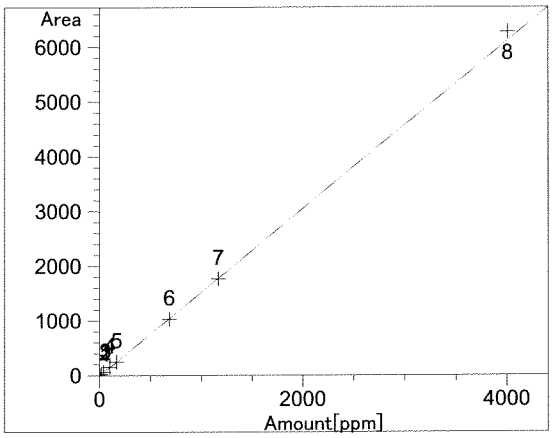
Propane at exp. RT: 1.994
FID1 A, Front Signal
Correlation: 0.99991
Residual Std. Dev.: 307.93752
Formula: y = mx + b
m: 7.72628e-1
b: 4.79983e-2
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 5.82318e-006
Level 6 : 3.44479e-007
Level 7 : 1.1796e-007
Level 8 : 9.98801e-009



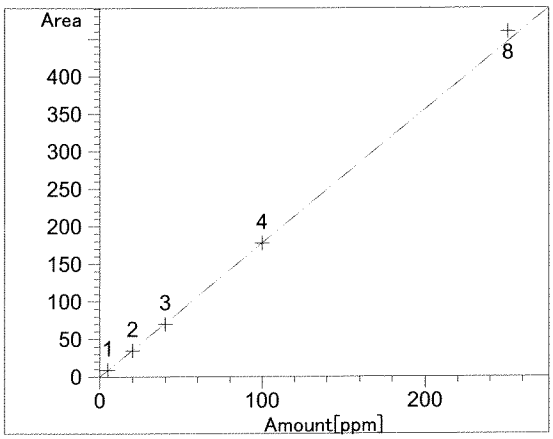
Butane at exp. RT: 2.907
FID1 A, Front Signal
Correlation: 0.99988
Residual Std. Dev.: 105.51569
Formula: y = mx + b
m: 1.02541
b: 1.01631e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000146
Level 6 : 8.62007e-006
Level 7 : 2.95226e-006
Level 8 : 2.5e-007



Pentane at exp. RT: 4.465
FID1 A, Front Signal
Correlation: 0.99989
Residual Std. Dev.: 69.01461
Formula: y = mx + b
m: 1.28016
b: 2.50753e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000618
Level 6 : 0.000037
Level 7 : 0.000013
Level 8 : 1.05963e-006



Hexane at exp. RT: 6.040
FID1 A, Front Signal
Correlation: 0.99990
Residual Std. Dev.: 65.98846
Formula: y = mx + b
m: 1.52669
b: 2.07685e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 5 : 0.000927
Level 6 : 0.000055
Level 7 : 0.000019
Level 8 : 1.58914e-006



Heptane at exp. RT: 7.204
FID1 A, Front Signal
Correlation: 0.99974
Residual Std. Dev.: 7.65483
Formula: y = mx + b
m: 1.77848
b: 1.29933e-1
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.0625
Level 3 : 0.015625
Level 4 : 0.0025
Level 8 : 0.000397

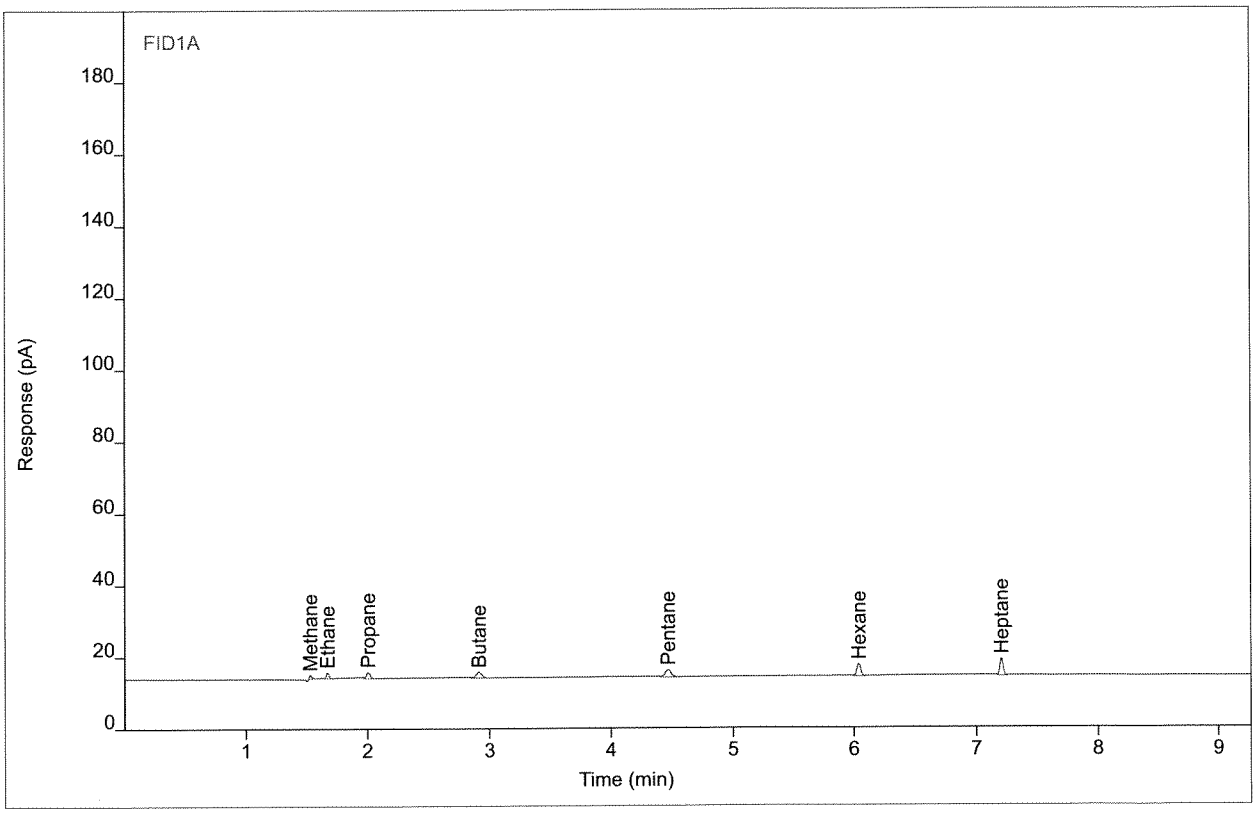
==========

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C1 ENV(1=3800,2=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1302.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 4:10 PM
File Modified	9/27/2016 9:18 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 10
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



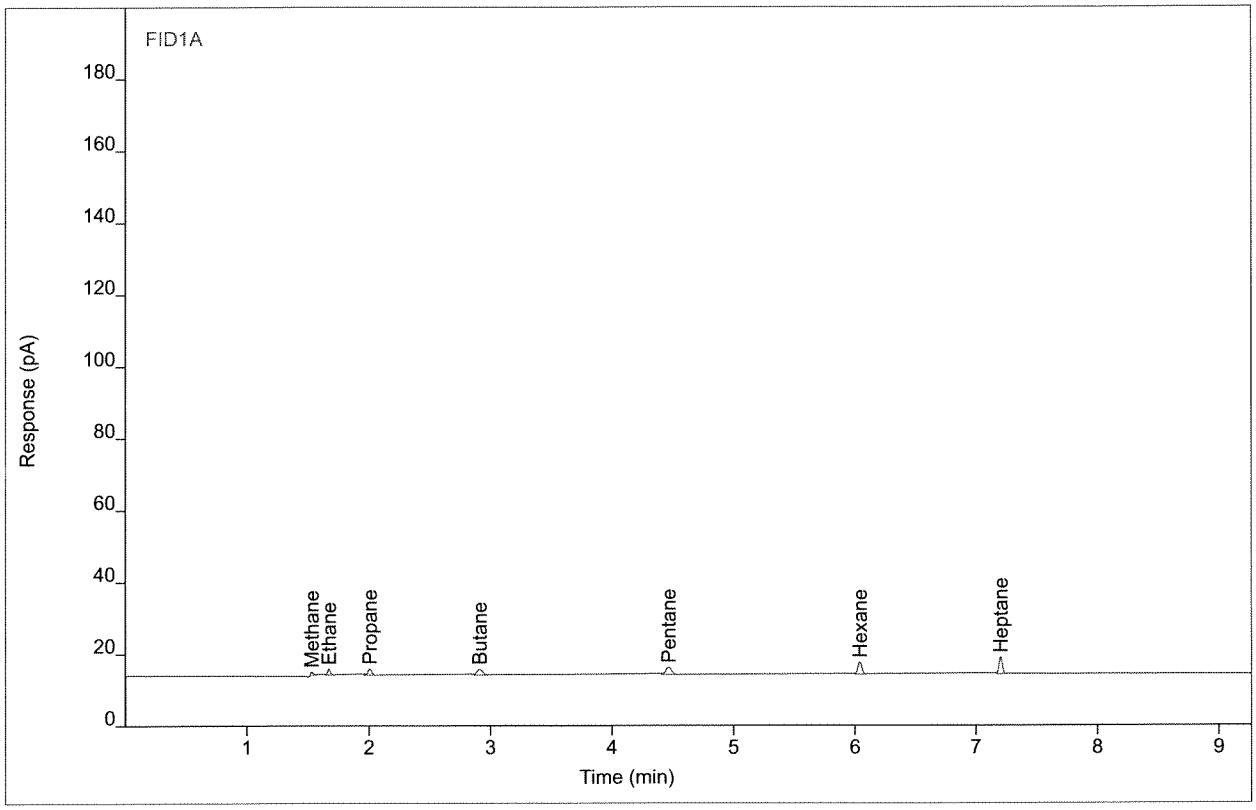
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	1.25738	0.97671	5.08069	1	5.08069	ppm
Ethane	BP	1.67	2.59394	1.69922	5.01644	1	5.01644	ppm
Propane	PB	2.01	3.94762	1.83868	5.04722	1	5.04722	ppm
Butane	BB	2.91	5.32860	1.72420	5.09745	1	5.09745	ppm
Pentane	BB	4.47	6.90751	2.12000	5.19993	1	5.19993	ppm
Hexane	BB	6.04	8.02530	3.46062	5.12061	1	5.12061	ppm
Heptane	BB	7.20	9.14444	4.76599	5.06865	1	5.06865	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C1 ENV(1=3800,2=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1303.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 4:25 PM
File Modified	9/27/2016 9:18 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 10
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



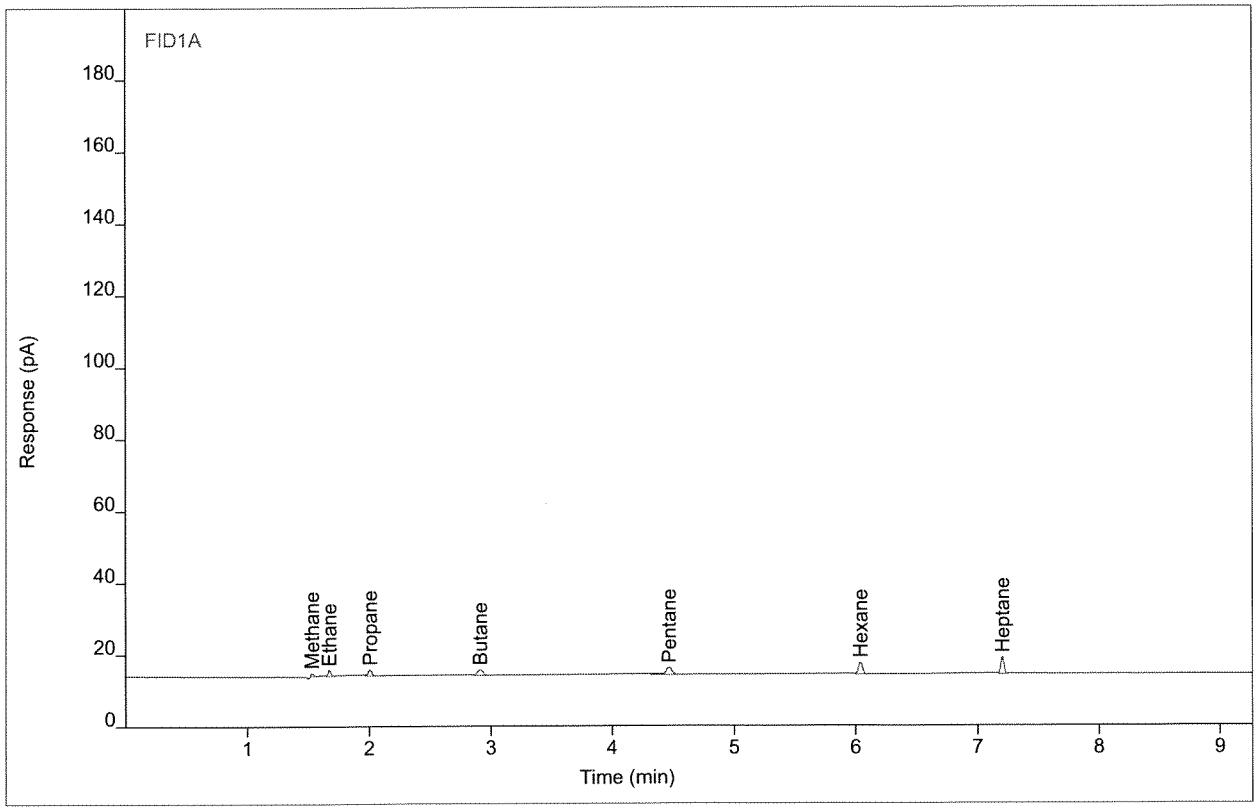
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	1.22340	0.97280	4.94940	1	4.94940	ppm
Ethane	BP	1.67	2.57368	1.68729	4.97722	1	4.97722	ppm
Propane	VB	2.01	3.93967	1.82644	5.03692	1	5.03692	ppm
Butane	BB	2.91	5.22991	1.70405	5.00121	1	5.00121	ppm
Pentane	BB	4.47	6.85265	2.11074	5.15708	1	5.15708	ppm
Hexane	BB	6.04	7.94928	3.44265	5.07082	1	5.07082	ppm
Heptane	BB	7.20	9.06647	4.73224	5.02481	1	5.02481	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C1 ENV(1=3800,2=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1304.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 4:40 PM
File Modified	9/27/2016 9:18 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 10
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



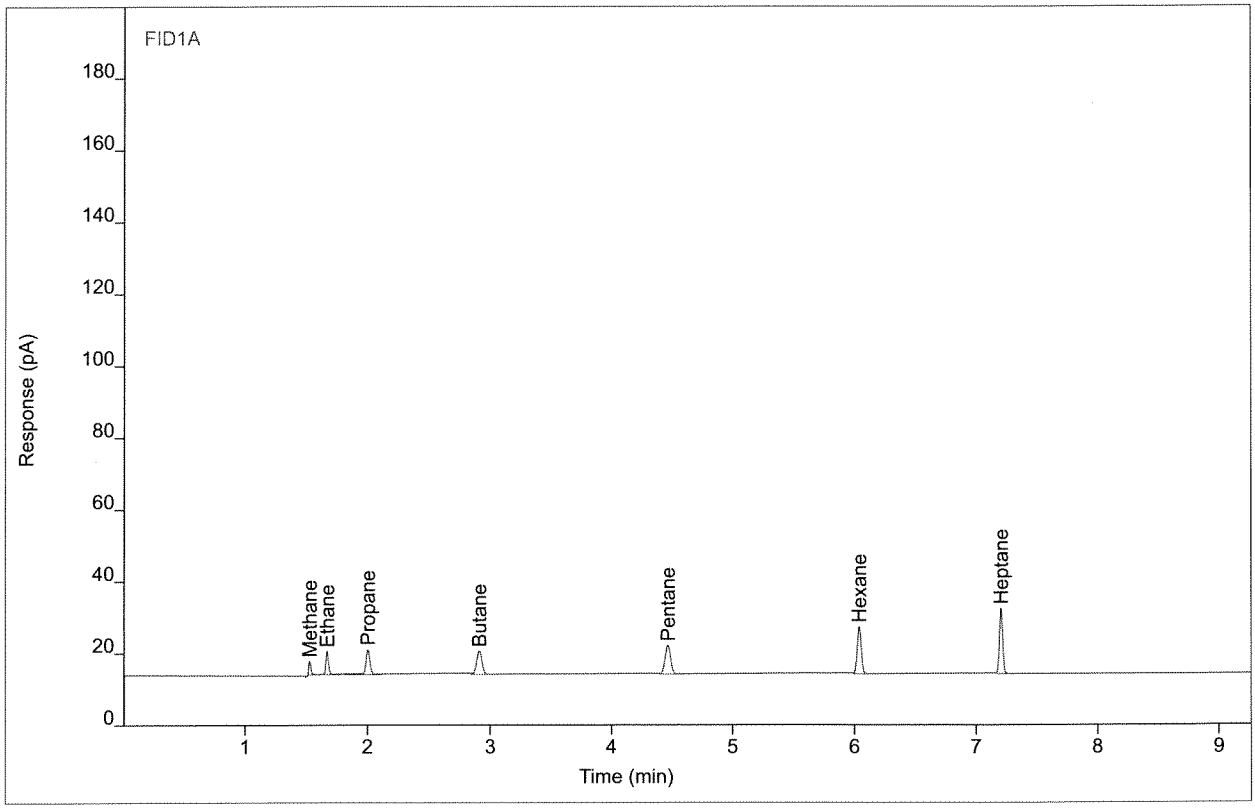
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	MM	1.53	1.25492	0.98533	5.07146	1	5.07146	ppm
Ethane	BB	1.67	2.61747	1.68119	5.06208	1	5.06208	ppm
Propane	BB	2.01	3.89998	1.80976	4.98573	1	4.98573	ppm
Butane	BB	2.91	5.22403	1.69197	4.99556	1	4.99556	ppm
Pentane	BB	4.47	6.87762	2.09426	5.17659	1	5.17659	ppm
Hexane	BB	6.04	7.88844	3.42014	5.03147	1	5.03147	ppm
Heptane	BB	7.20	9.03466	4.71034	5.00692	1	5.00692	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C2 ENV(1=800,2=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1402.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 6:40 PM
File Modified	9/27/2016 9:18 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



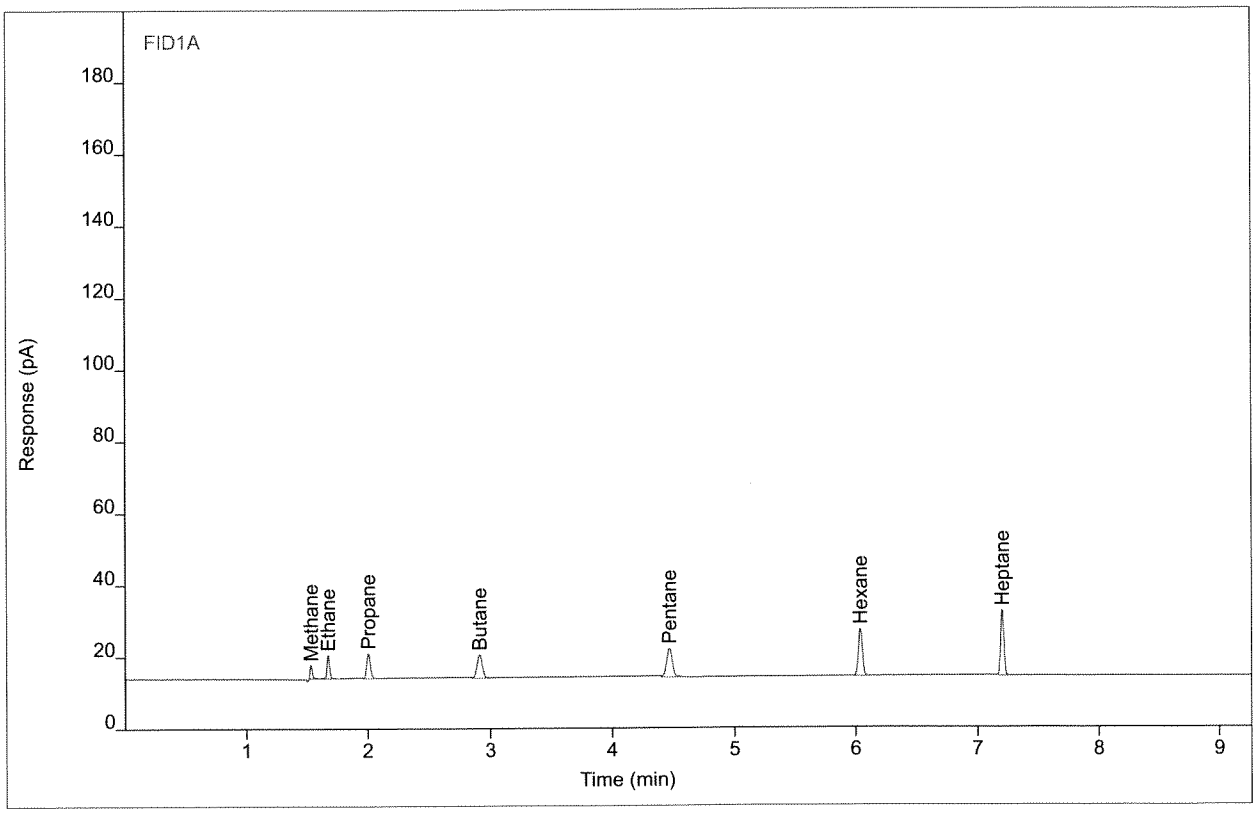
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	5.17497	3.80624	19.8073	1	19.8073	ppm
Ethane	BB	1.67	10.2947	6.50167	19.9507	1	19.9507	ppm
Propane	BB	2.01	15.3446	7.02413	19.7982	1	19.7982	ppm
Butane	BB	2.91	20.2189	6.54498	19.6188	1	19.6188	ppm
Pentane	BB	4.47	26.1365	8.03229	20.2207	1	20.2207	ppm
Hexane	BB	6.04	30.4601	13.1641	19.8156	1	19.8156	ppm
Heptane	BB	7.20	34.8227	18.2292	19.5069	1	19.5069	ppm

Chromatogram Report

Sample Name	Edithp730 #C2 ENV(1=800,2=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1403.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 6:55 PM
File Modified	9/27/2016 9:18 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



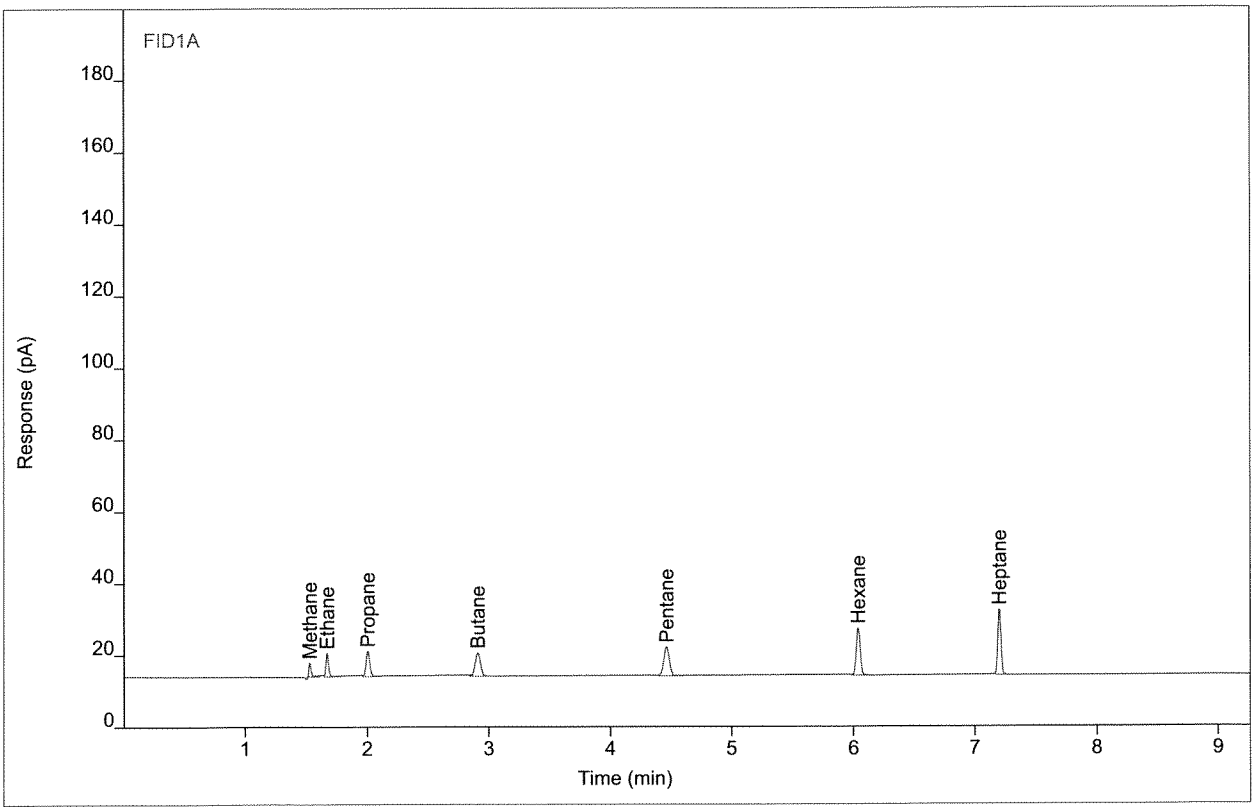
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	5.05994	3.80036	19.3748	1	19.3748	ppm
Ethane	PB	1.67	10.1573	6.50601	19.6843	1	19.6843	ppm
Propane	BB	2.01	15.1891	7.02127	19.5969	1	19.5969	ppm
Butane	BB	2.91	20.1877	6.54983	19.5884	1	19.5884	ppm
Pentane	BB	4.47	26.1340	8.05410	20.2187	1	20.2187	ppm
Hexane	BB	6.04	30.5082	13.1552	19.8471	1	19.8471	ppm
Heptane	BB	7.20	34.8852	18.2153	19.5421	1	19.5421	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C2 ENV(1=800,2=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1404.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 7:10 PM
File Modified	9/27/2016 9:18 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



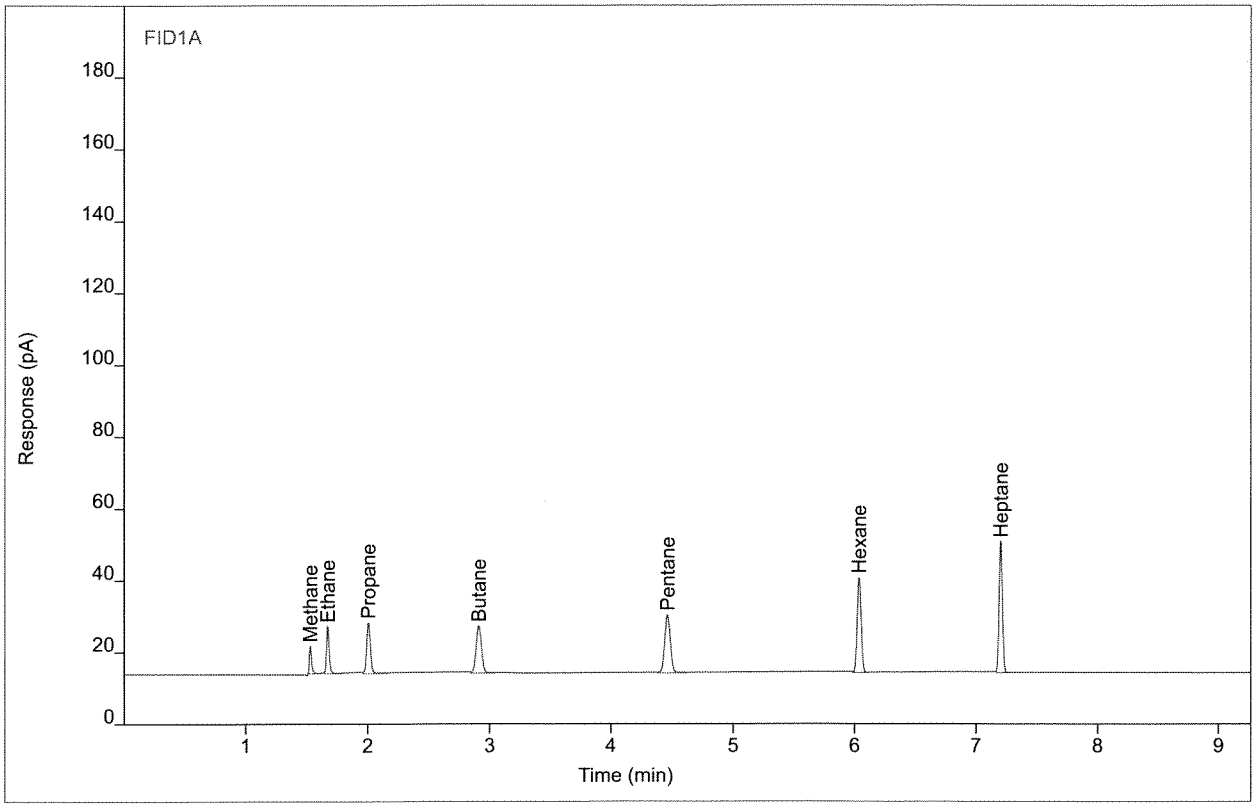
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	5.11833	3.81246	19.5943	1	19.5943	ppm
Ethane	BB	1.67	10.1514	6.50577	19.6728	1	19.6728	ppm
Propane	BB	2.01	15.2029	7.02903	19.6147	1	19.6147	ppm
Butane	BB	2.91	20.2023	6.55027	19.6026	1	19.6026	ppm
Pentane	BB	4.47	26.1284	8.05784	20.2144	1	20.2144	ppm
Hexane	BB	6.04	30.5411	13.1977	19.8687	1	19.8687	ppm
Heptane	BB	7.20	34.9348	18.2486	19.5700	1	19.5700	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1502.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 7:54 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



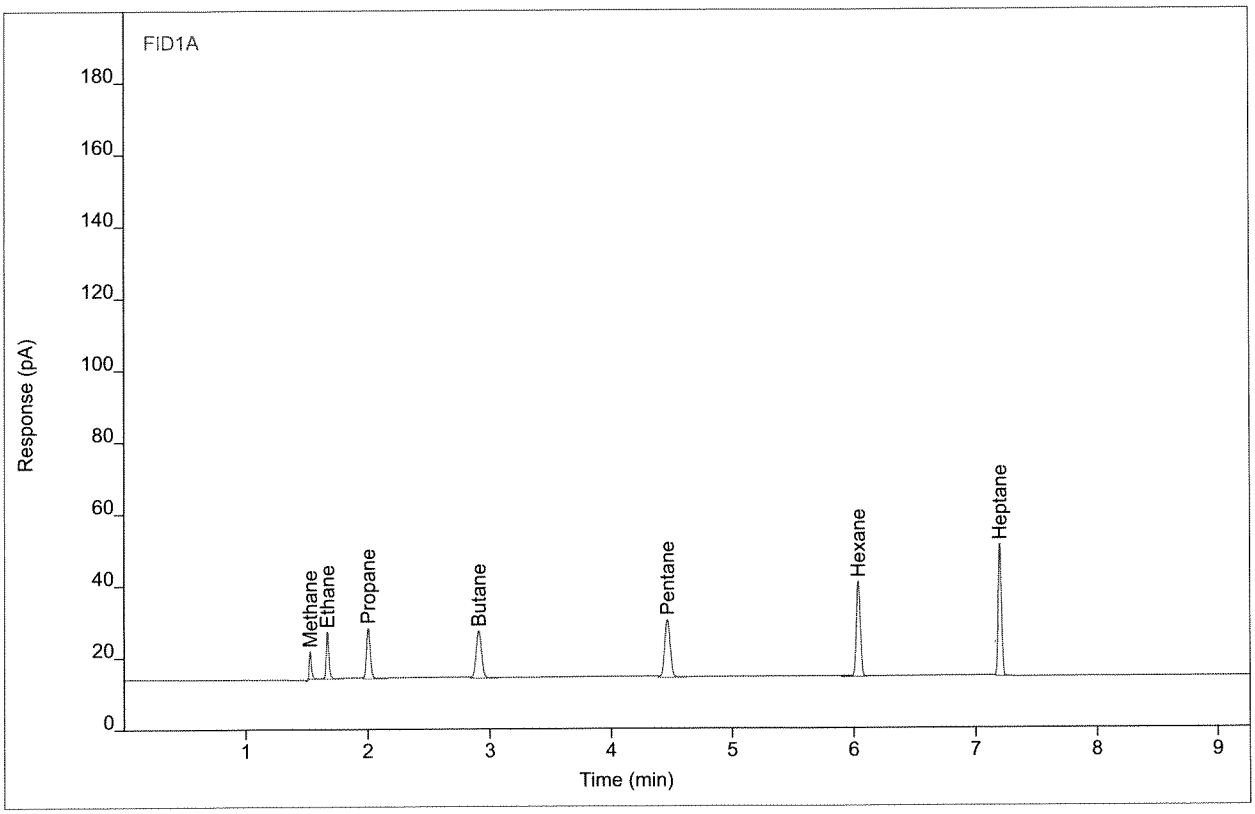
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.3539	7.66472	39.2751	1	39.2751	ppm
Ethane	BB	1.67	20.3996	13.0627	39.5475	1	39.5475	ppm
Propane	BB	2.01	30.7017	14.1345	39.6746	1	39.6746	ppm
Butane	BB	2.91	40.5251	13.1351	39.4219	1	39.4219	ppm
Pentane	BB	4.47	52.4794	16.1622	40.7985	1	40.7985	ppm
Hexane	BB	6.04	61.3748	26.4996	40.0651	1	40.0651	ppm
Heptane	BB	7.20	70.2368	36.5081	39.4195	1	39.4195	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1503.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 8:09 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



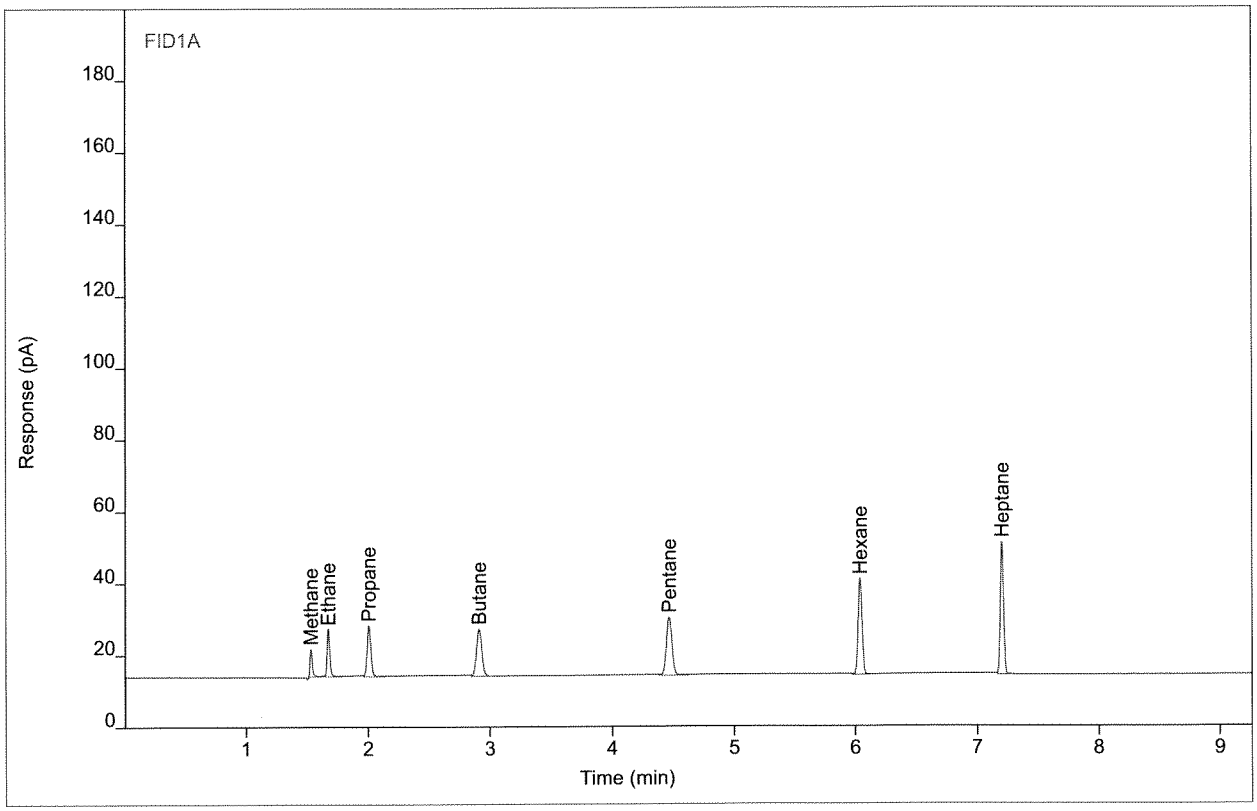
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	10.4372	7.67259	39.5884	1	39.5884	ppm
Ethane	VB	1.67	20.5421	13.0787	39.8238	1	39.8238	ppm
Propane	BB	2.01	30.7724	14.1633	39.7661	1	39.7661	ppm
Butane	BB	2.91	40.7350	13.1930	39.6266	1	39.6266	ppm
Pentane	BB	4.47	52.5999	16.1739	40.8927	1	40.8927	ppm
Hexane	VB	6.04	61.6986	26.4978	40.2772	1	40.2772	ppm
Heptane	BB	7.20	70.5527	36.6769	39.5971	1	39.5971	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C3 ENV(1=600,2=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1504.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 8:24 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



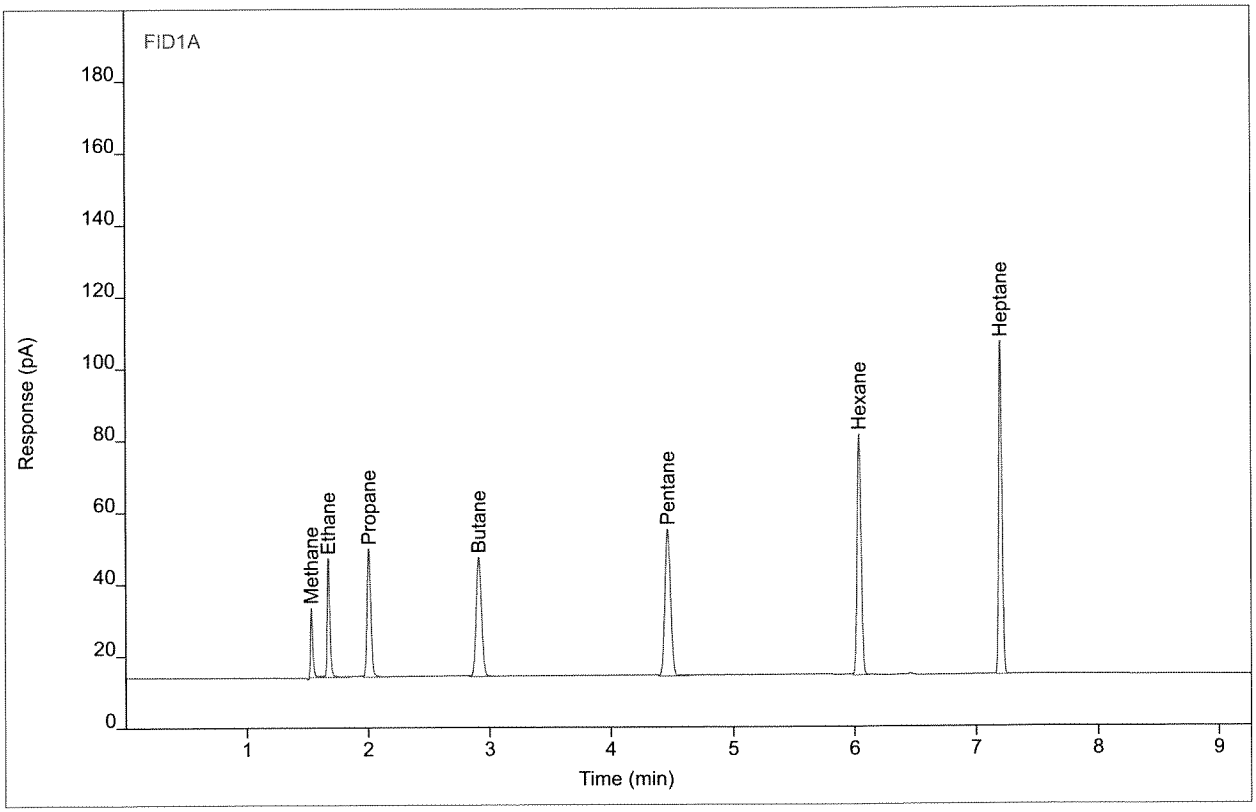
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PB	1.53	10.4284	7.68202	39.5551	1	39.5551	ppm
Ethane	BB	1.67	20.4733	13.1158	39.6902	1	39.6902	ppm
Propane	BB	2.01	30.7997	14.1547	39.8014	1	39.8014	ppm
Butane	BB	2.91	40.6204	13.2042	39.5148	1	39.5148	ppm
Pentane	BB	4.47	52.6870	16.2477	40.9606	1	40.9606	ppm
Hexane	BB	6.04	61.6480	26.7046	40.2440	1	40.2440	ppm
Heptane	BB	7.20	70.5569	36.8397	39.5995	1	39.5995	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C4 ENV(1=0,2=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1602.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 9:15 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



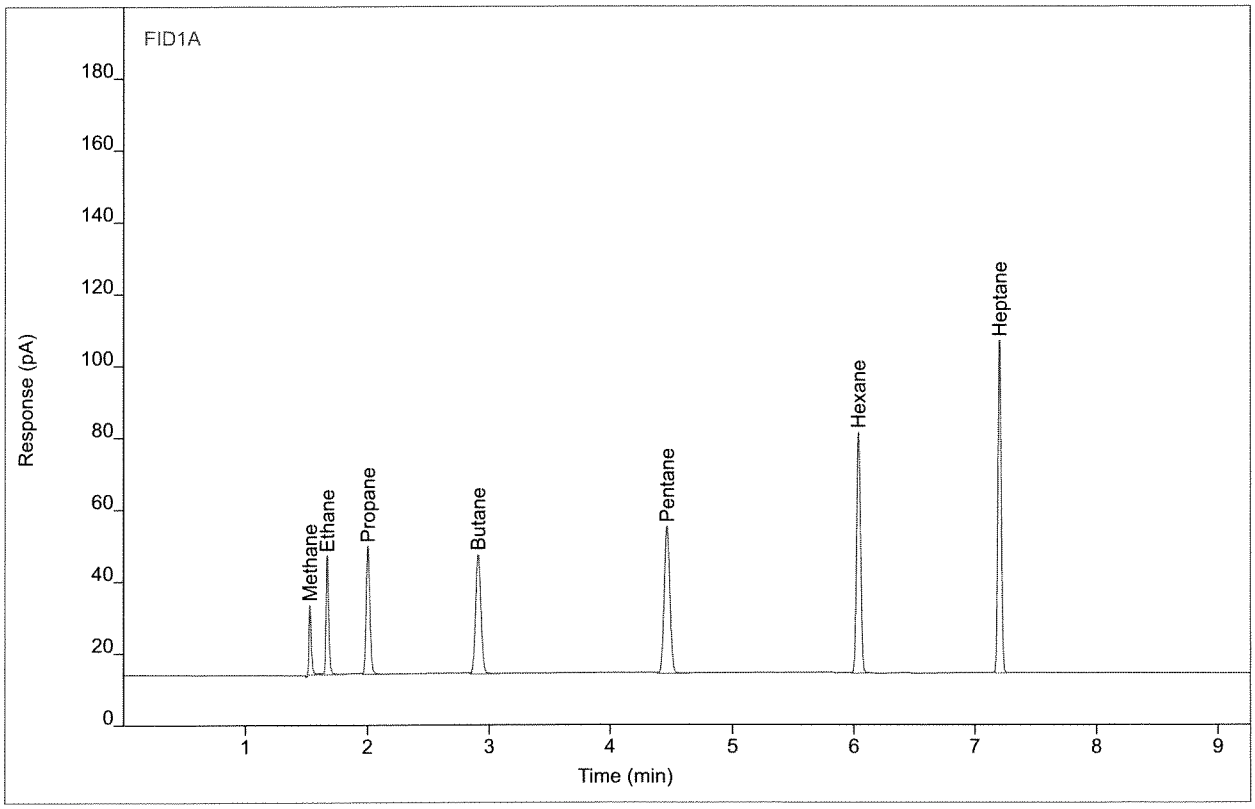
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	26.3382	19.3100	99.3616	1	99.3616	ppm
Ethane	VB	1.67	51.7127	32.9708	100.274	1	100.274	ppm
Propane	BB	2.01	77.6144	35.6266	100.393	1	100.393	ppm
Butane	BB	2.91	102.685	33.2284	100.042	1	100.042	ppm
Pentane	BB	4.47	132.156	40.8597	103.038	1	103.038	ppm
Hexane	BB	6.04	155.125	66.9865	101.472	1	101.472	ppm
Heptane	BB	7.20	177.578	92.5659	99.7750	1	99.7750	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C4 ENV(1=0,2=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1603.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 9:29 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



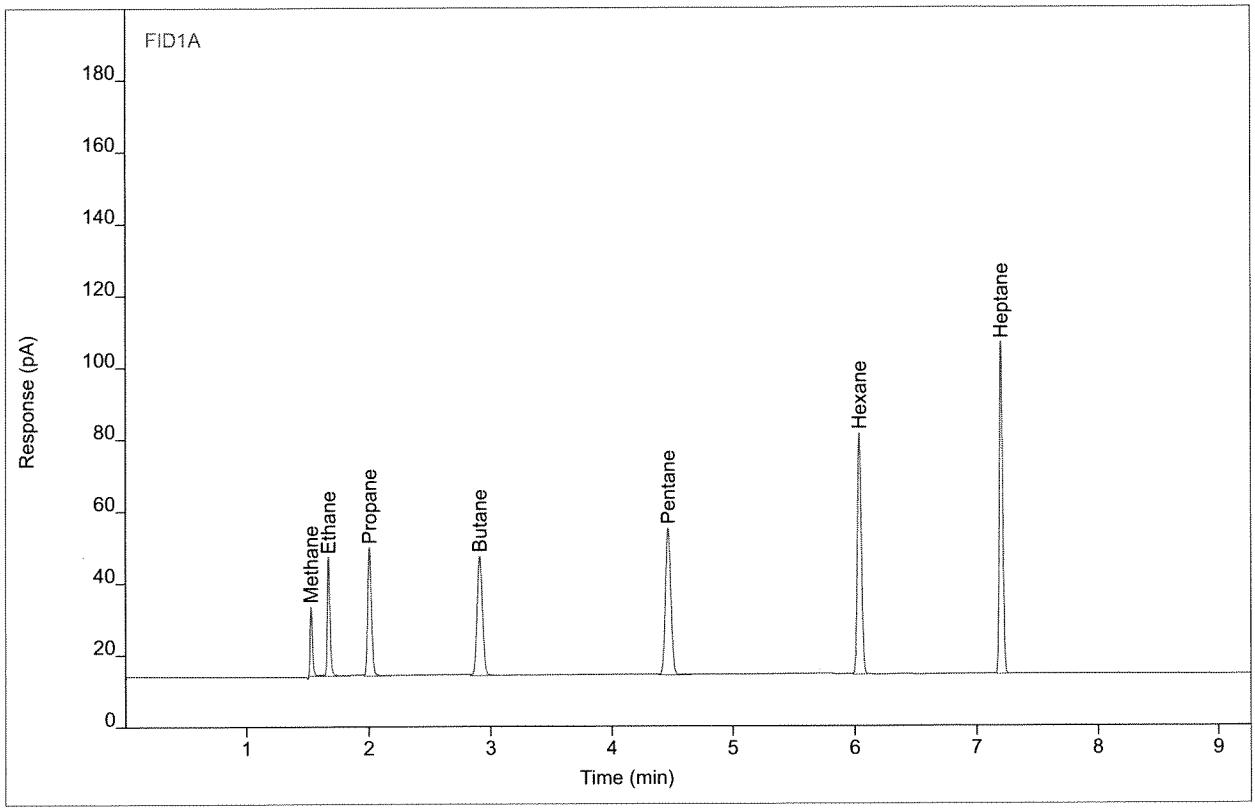
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	26.3630	19.3397	99.4547	1	99.4547	ppm
Ethane	VB	1.67	51.6909	32.9720	100.231	1	100.231	ppm
Propane	BB	2.01	77.7420	35.6761	100.558	1	100.558	ppm
Butane	BB	2.91	102.793	33.2637	100.147	1	100.147	ppm
Pentane	BB	4.47	132.387	40.9456	103.218	1	103.218	ppm
Hexane	BB	6.04	155.396	67.0256	101.650	1	101.650	ppm
Heptane	BB	7.20	177.821	92.5275	99.9115	1	99.9115	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C4 ENV(1=0,2=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1604.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 9:44 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



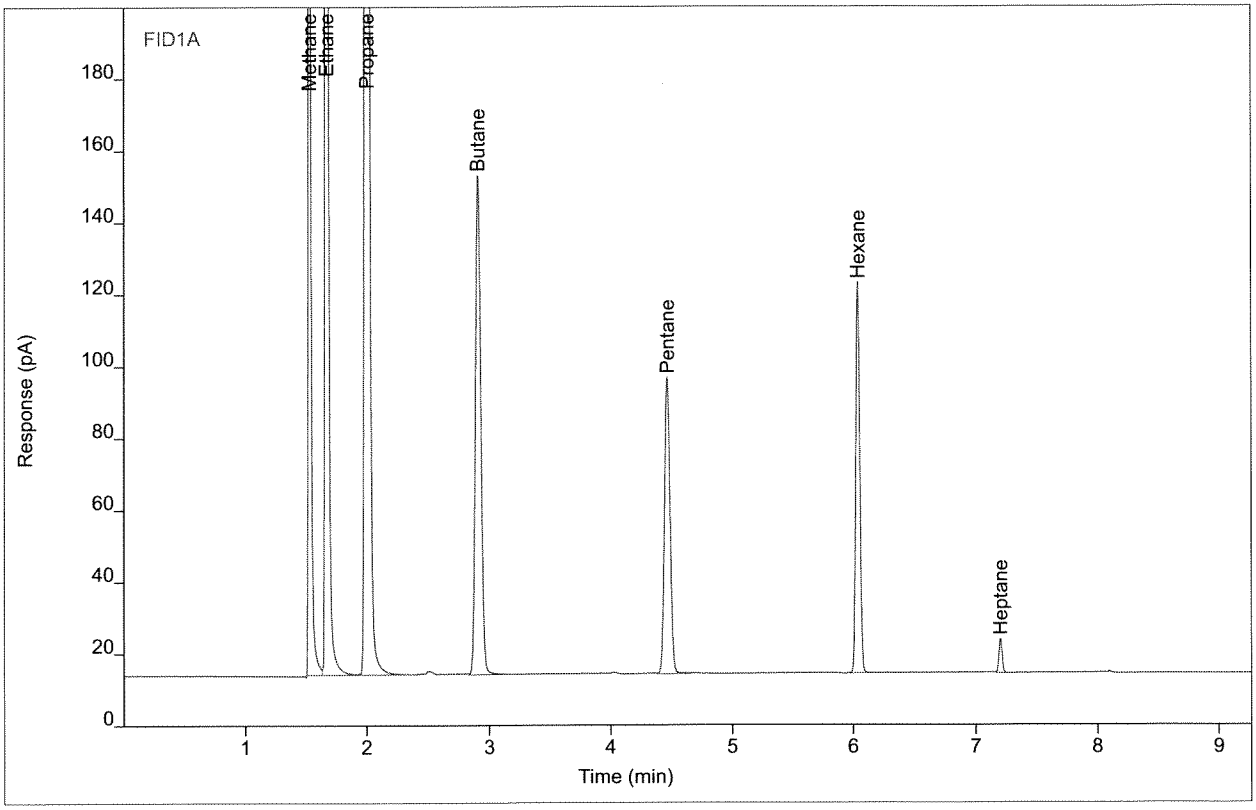
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	26.3376	19.3174	99.3594	1	99.3594	ppm
Ethane	VB	1.67	51.6944	32.9319	100.238	1	100.238	ppm
Propane	BB	2.01	77.7102	35.6454	100.517	1	100.517	ppm
Butane	BB	2.91	102.686	33.2016	100.043	1	100.043	ppm
Pentane	BB	4.47	132.083	40.8333	102.981	1	102.981	ppm
Hexane	BB	6.04	155.125	67.0748	101.472	1	101.472	ppm
Heptane	BB	7.20	177.617	92.1917	99.7967	1	99.7967	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C5 ENV(1=3800,3=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1702.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 10:28 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM

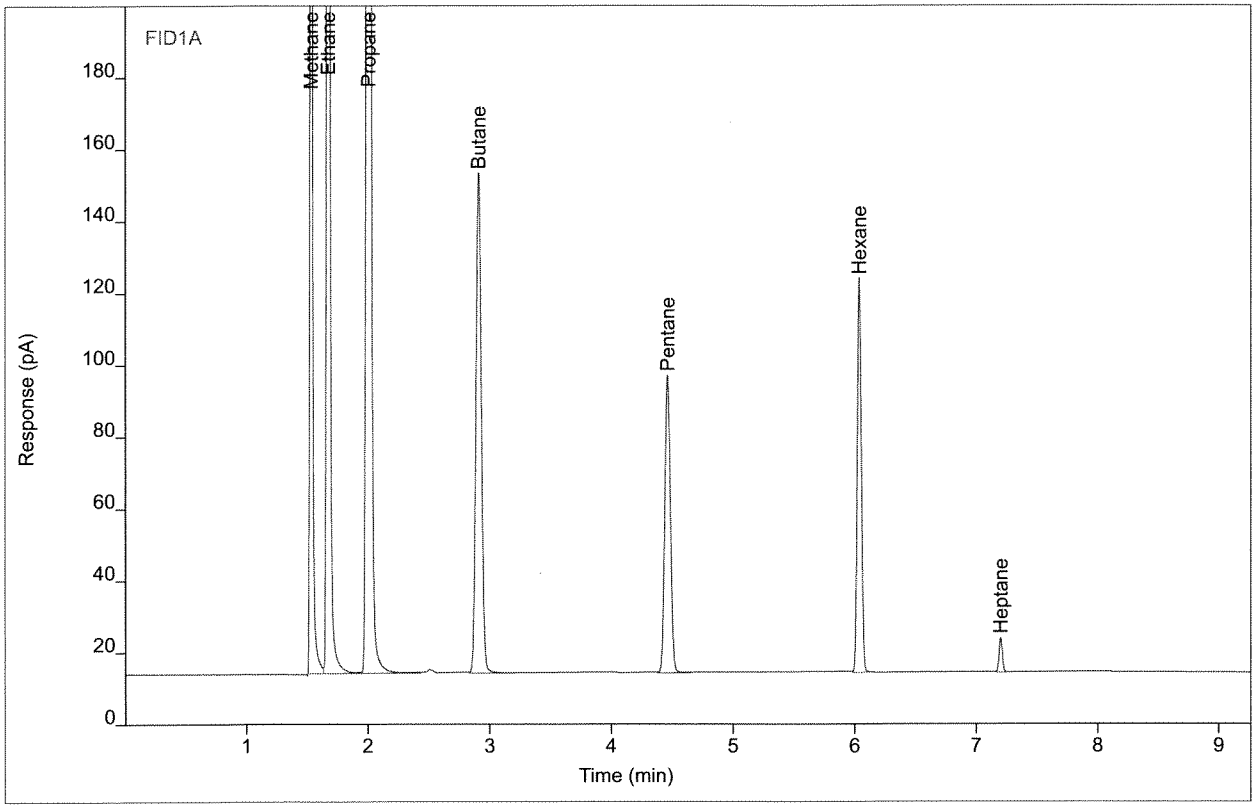


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	MF	1.53	562.993	415.594	2116.69	1	2116.69	ppm
Ethane	FM	1.67	1085.14	696.647	2104.43	1	2104.43	ppm
Propane	FM	2.01	1624.86	745.485	2102.96	1	2102.96	ppm
Butane	BB	2.91	430.744	138.863	419.972	1	419.972	ppm
Pentane	BB	4.47	267.192	82.4072	208.522	1	208.522	ppm
Hexane	BB	6.04	252.493	108.639	165.250	1	165.250	ppm
Heptane	BB	7.20	18.0951	9.43896	10.1014	1	10.1014	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C5 ENV(1=3800,3=200)	Sample Type	Calibration
Sequence Name	EDITHP730 ver.4	Vial Number	Vial 2
Data File	002F1703.D	Injection Volume	250
File Location	GC/2016/Edith/Quarter 3	Injection	3 of 5
Injection Date	9/16/2016 10:43 PM	Acquisition Method	AQ_EDITHP503_HRVOC.M
File Modified	9/27/2016 9:19 AM	Analysis Method	EDITHP730F_C1-C7.M
Instrument		Method Modified	9/27/2016 9:15 AM
Operator	Nicholas Traversa	Printed	9/27/2016 9:33 AM



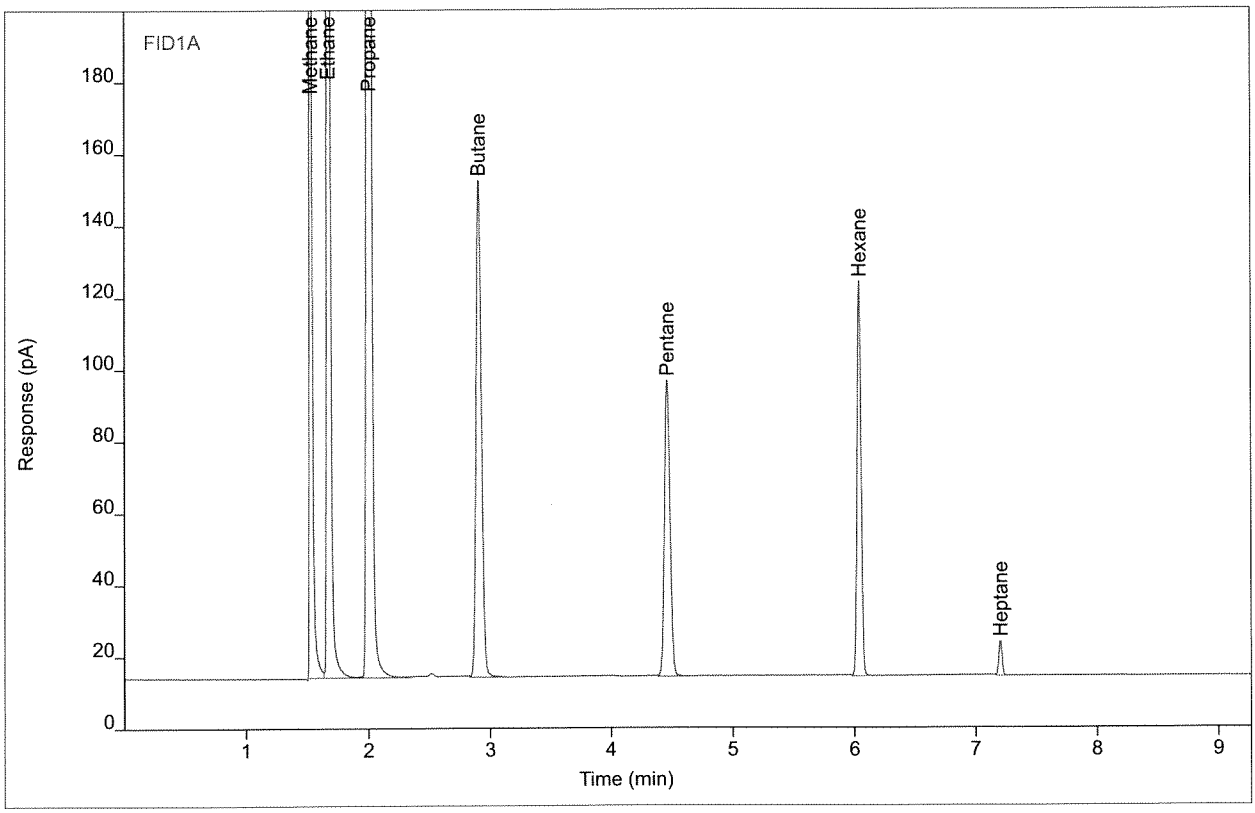
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	MF	1.53	563.268	416.513	2117.72	1	2117.72	ppm
Ethane	FM	1.67	1085.59	696.639	2105.30	1	2105.30	ppm
Propane	FM	2.01	1625.77	745.424	2104.14	1	2104.14	ppm
Butane	BB	2.91	431.166	139.193	420.383	1	420.383	ppm
Pentane	BB	4.47	268.238	82.8787	209.339	1	209.339	ppm
Hexane	BB	6.04	254.964	109.717	166.868	1	166.868	ppm
Heptane	BB	7.20	18.4567	9.63213	10.3047	1	10.3047	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C5 ENV(1=3800,3=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1704.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 10:57 PM
File Modified	9/27/2016 9:19 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



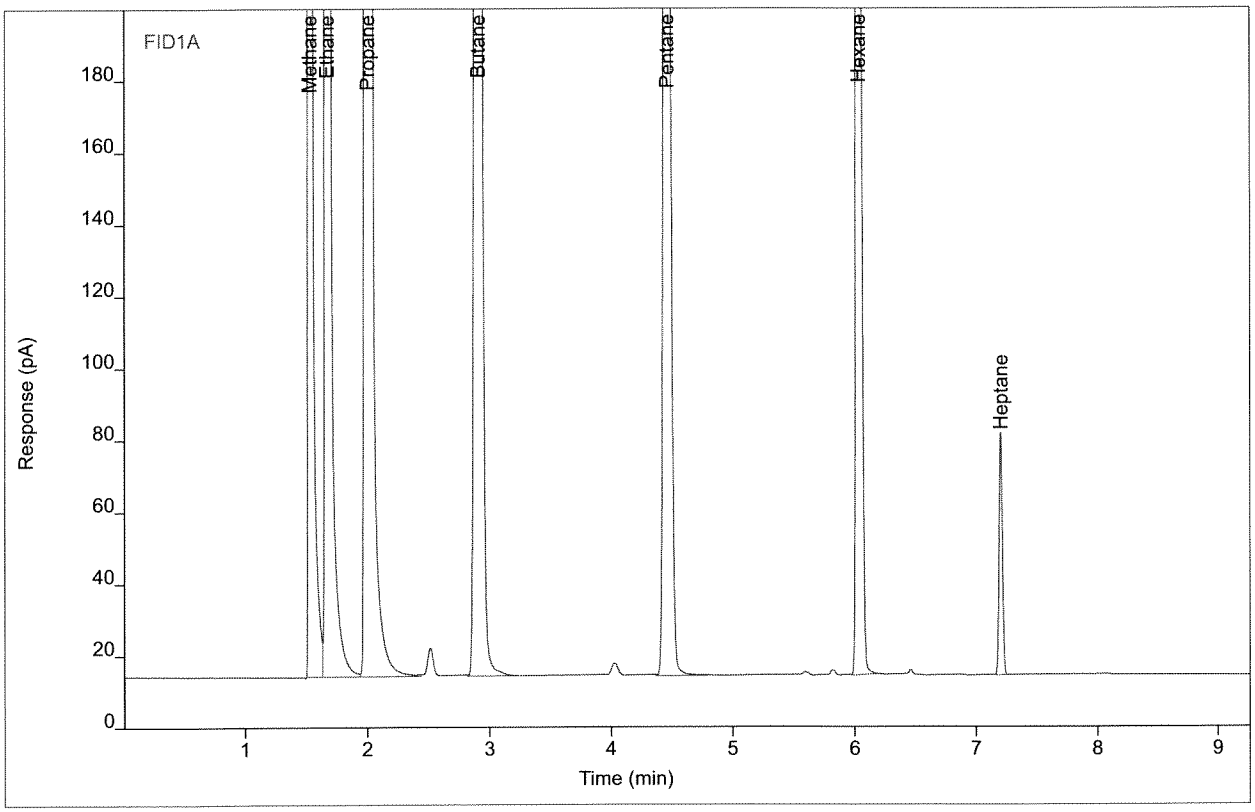
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	557.415	407.087	2095.72	1	2095.72	ppm
Ethane	VV	1.67	1077.30	683.639	2089.22	1	2089.22	ppm
Propane	VB	2.00	1614.46	737.648	2089.51	1	2089.51	ppm
Butane	BB	2.91	428.959	138.262	418.231	1	418.231	ppm
Pentane	BB	4.47	267.079	82.4565	208.433	1	208.433	ppm
Hexane	BB	6.04	254.485	109.890	166.554	1	166.554	ppm
Heptane	BB	7.20	18.5165	9.68164	10.3384	1	10.3384	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C7 ENV(1=800,3=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1802.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/16/2016 11:49 PM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



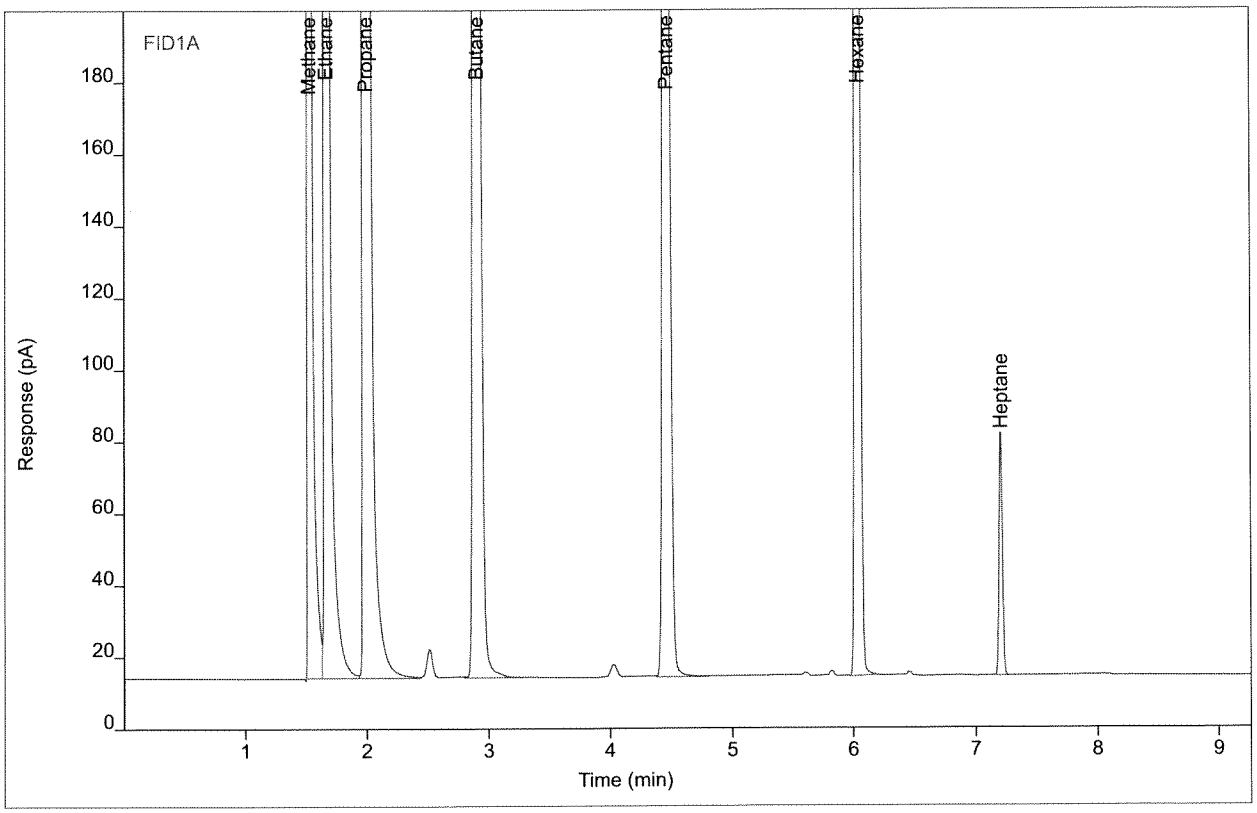
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	3834.73	2812.65	14415.4	1	14415.4	ppm
Ethane	VV	1.67	7398.11	4700.39	14347.3	1	14347.3	ppm
Propane	VV	2.00	11088.3	5022.62	14351.4	1	14351.4	ppm
Butane	BB	2.91	2951.28	949.782	2878.06	1	2878.06	ppm
Pentane	BB	4.47	1845.18	568.576	1441.17	1	1441.17	ppm
Hexane	BB	6.04	1759.22	760.166	1152.17	1	1152.17	ppm
Heptane	BB	7.20	128.683	67.1185	72.2827	1	72.2827	ppm

Chromatogram Report

Sample Name	Edithp730 #C7 ENV(1=800,3=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1803.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 12:04 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



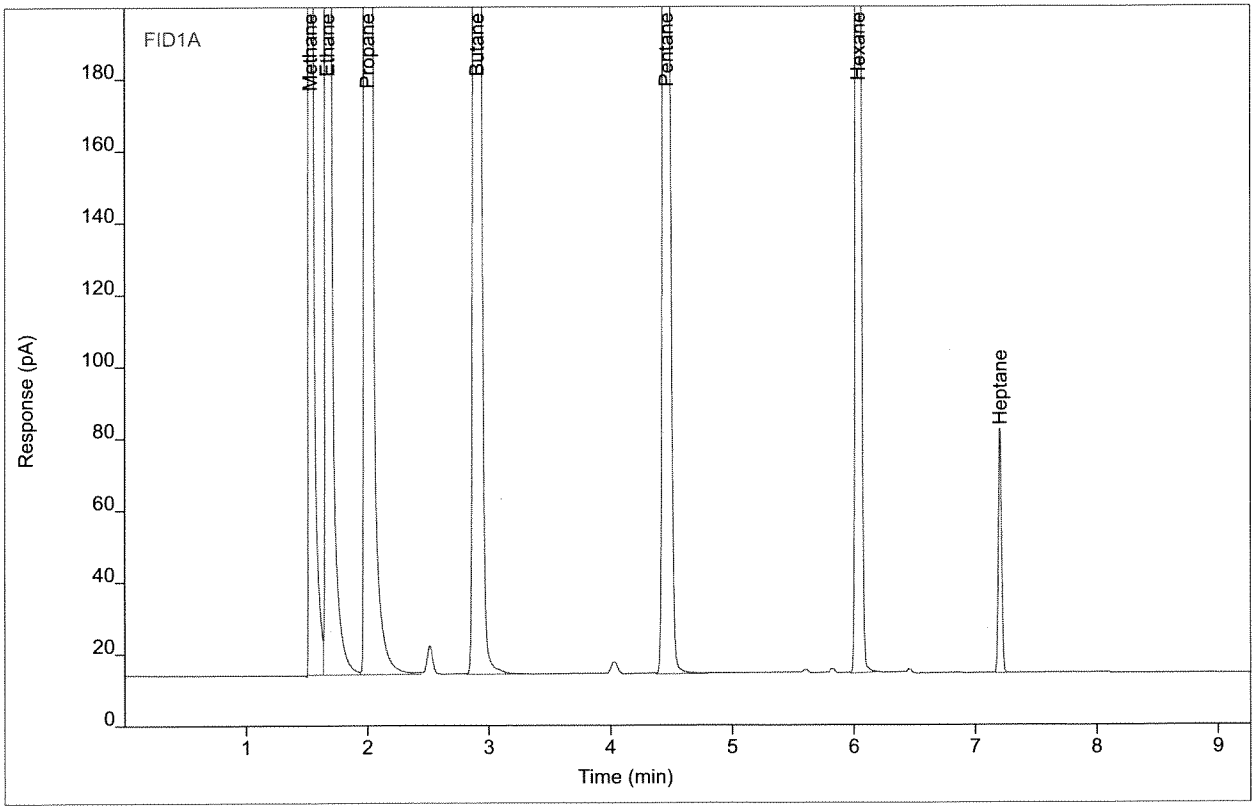
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	3866.73	2835.74	14535.7	1	14535.7	ppm
Ethane	VV	1.67	7454.47	4734.43	14456.6	1	14456.6	ppm
Propane	VV	2.00	11170.1	5062.06	14457.3	1	14457.3	ppm
Butane	BB	2.91	2973.21	957.206	2899.44	1	2899.44	ppm
Pentane	BB	4.47	1858.70	572.096	1451.73	1	1451.73	ppm
Hexane	BB	6.04	1773.11	766.404	1161.27	1	1161.27	ppm
Heptane	BB	7.20	129.634	67.4334	72.8170	1	72.8170	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C7 ENV(1=800,3=400)
Sequence Name	EDITHP730 ver.4
Data File	002F1804.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 12:18 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



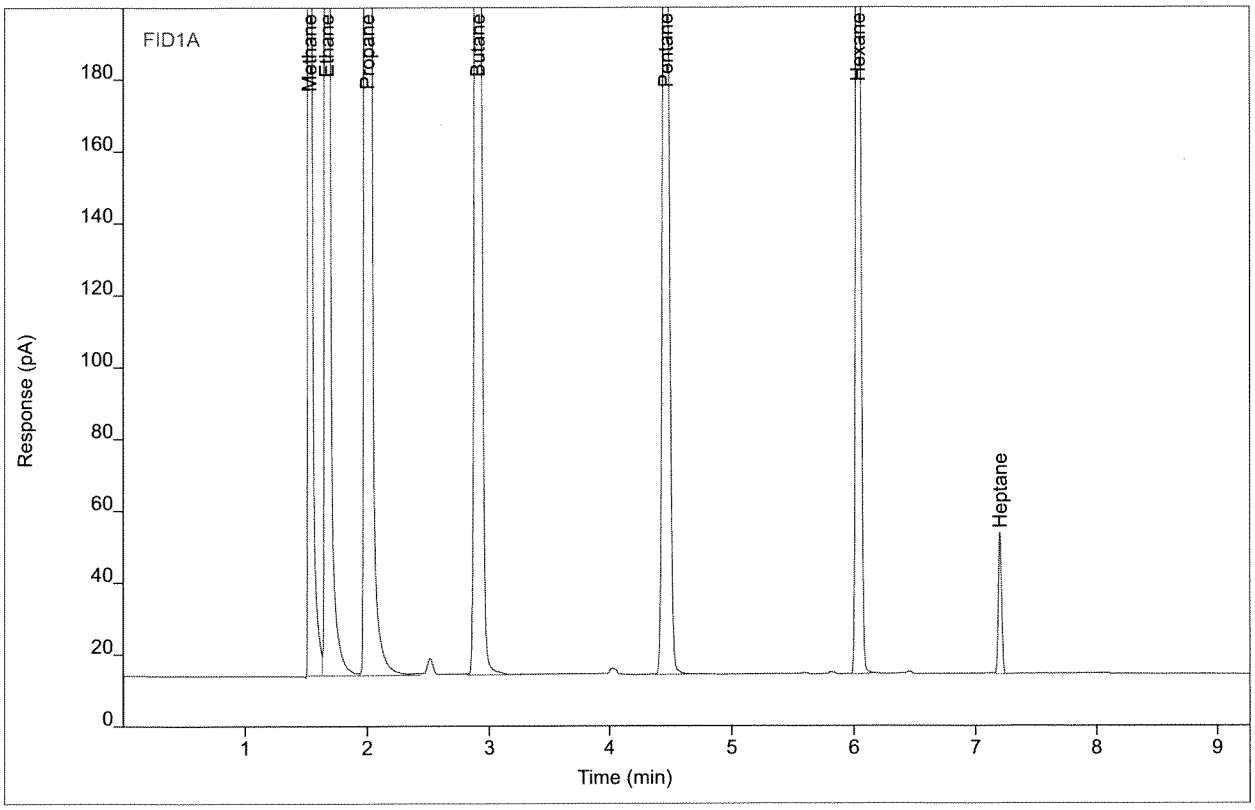
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	3862.74	2835.79	14520.7	1	14520.7	ppm
Ethane	VV	1.67	7445.23	4730.90	14438.7	1	14438.7	ppm
Propane	VV	2.00	11155.0	5055.75	14437.7	1	14437.7	ppm
Butane	BB	2.91	2968.83	956.379	2895.17	1	2895.17	ppm
Pentane	BB	4.47	1856.02	571.947	1449.63	1	1449.63	ppm
Hexane	BB	6.04	1770.57	761.392	1159.61	1	1159.61	ppm
Heptane	BB	7.20	129.468	67.8116	72.7236	1	72.7236	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C6 ENV(1=800,3=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1902.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 1:02 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



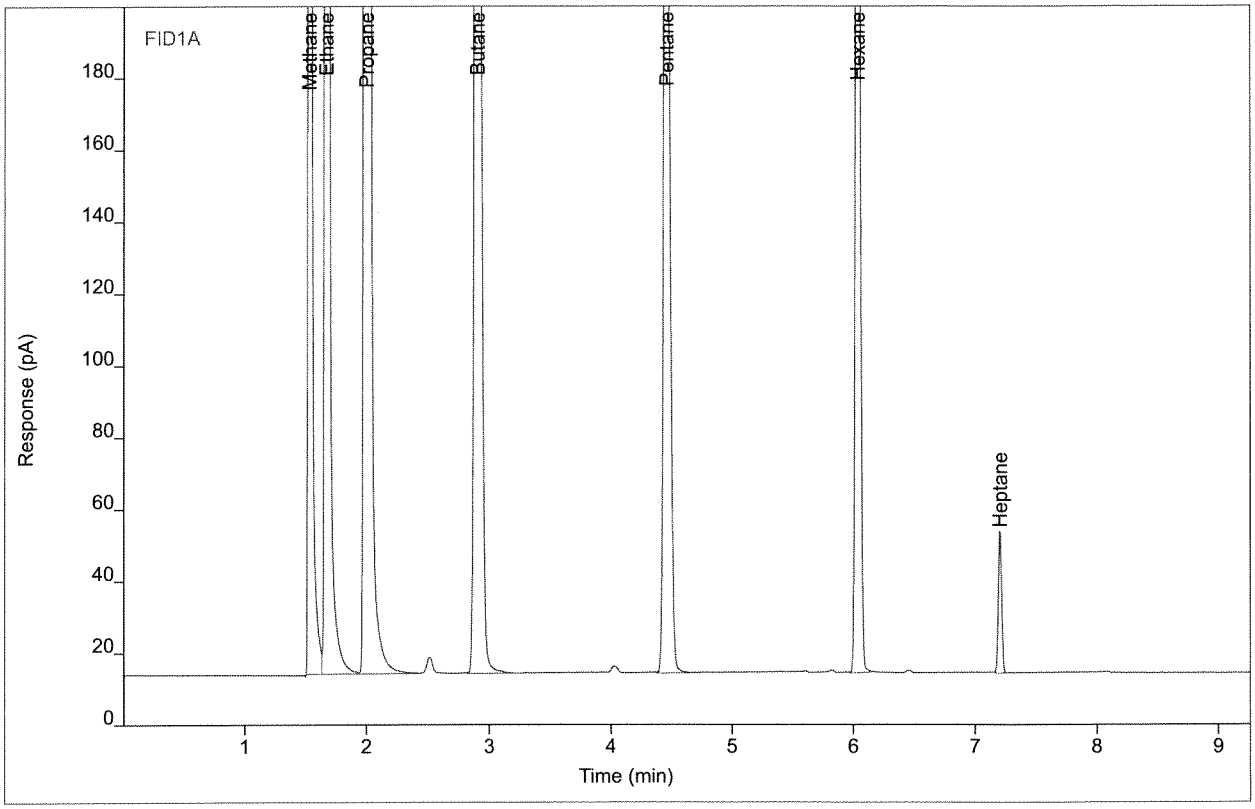
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	2257.17	1651.39	8485.25	1	8485.25	ppm
Ethane	VV	1.67	4352.00	2767.30	8439.92	1	8439.92	ppm
Propane	VV	2.00	6519.92	2958.58	8438.57	1	8438.57	ppm
Butane	BB	2.91	1733.43	558.466	1690.38	1	1690.38	ppm
Pentane	BB	4.47	1081.81	333.393	844.860	1	844.860	ppm
Hexane	BB	6.04	1032.45	446.536	676.129	1	676.129	ppm
Heptane	BB	7.20	75.4116	39.4122	42.3292	1	42.3292	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C6 ENV(1=800,3=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1903.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 1:17 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



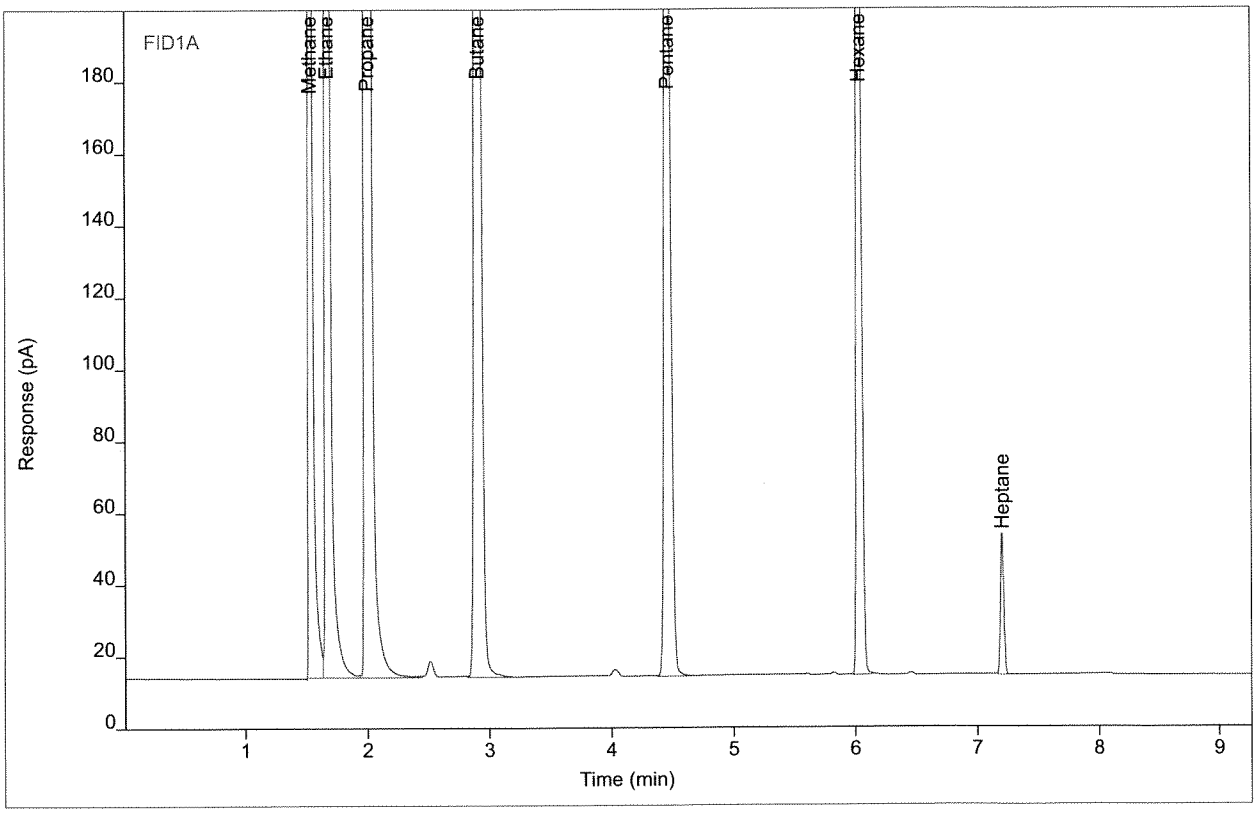
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	2257.48	1652.14	8486.40	1	8486.40	ppm
Ethane	VV	1.67	4352.85	2767.46	8441.58	1	8441.58	ppm
Propane	VV	2.00	6521.64	2963.29	8440.79	1	8440.79	ppm
Butane	BB	2.91	1733.68	558.839	1690.62	1	1690.62	ppm
Pentane	BB	4.47	1082.24	333.424	845.198	1	845.198	ppm
Hexane	BB	6.04	1032.51	444.464	676.165	1	676.165	ppm
Heptane	BB	7.20	75.3985	39.4401	42.3218	1	42.3218	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C6 ENV(1=800,3=200)
Sequence Name	EDITHP730 ver.4
Data File	002F1904.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 1:32 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



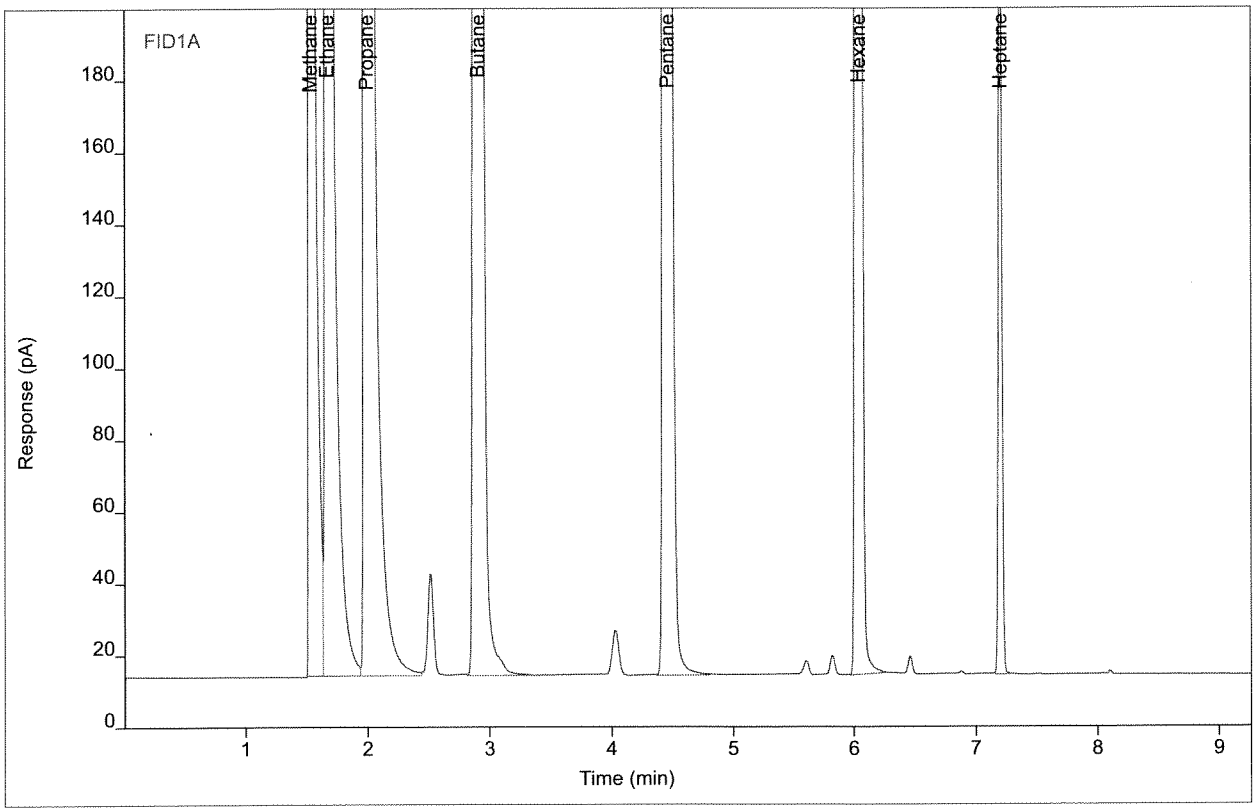
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	2258.45	1652.54	8490.04	1	8490.04	ppm
Ethane	VV	1.67	4354.60	2769.96	8444.97	1	8444.97	ppm
Propane	VV	2.00	6524.37	2963.20	8444.32	1	8444.32	ppm
Butane	BB	2.91	1734.70	558.857	1691.62	1	1691.62	ppm
Pentane	BB	4.47	1082.67	333.521	845.535	1	845.535	ppm
Hexane	BB	6.04	1032.83	444.274	676.379	1	676.379	ppm
Heptane	BB	7.20	75.4717	39.2811	42.3630	1	42.3630	ppm

Chromatogram Report

Enthalpy Analytical

Sample Name	Edithp730 #C8 ENV(1=0,3=400)
Sequence Name	EDITHP730 ver.4
Data File	002F2002.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 2:16 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	2 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



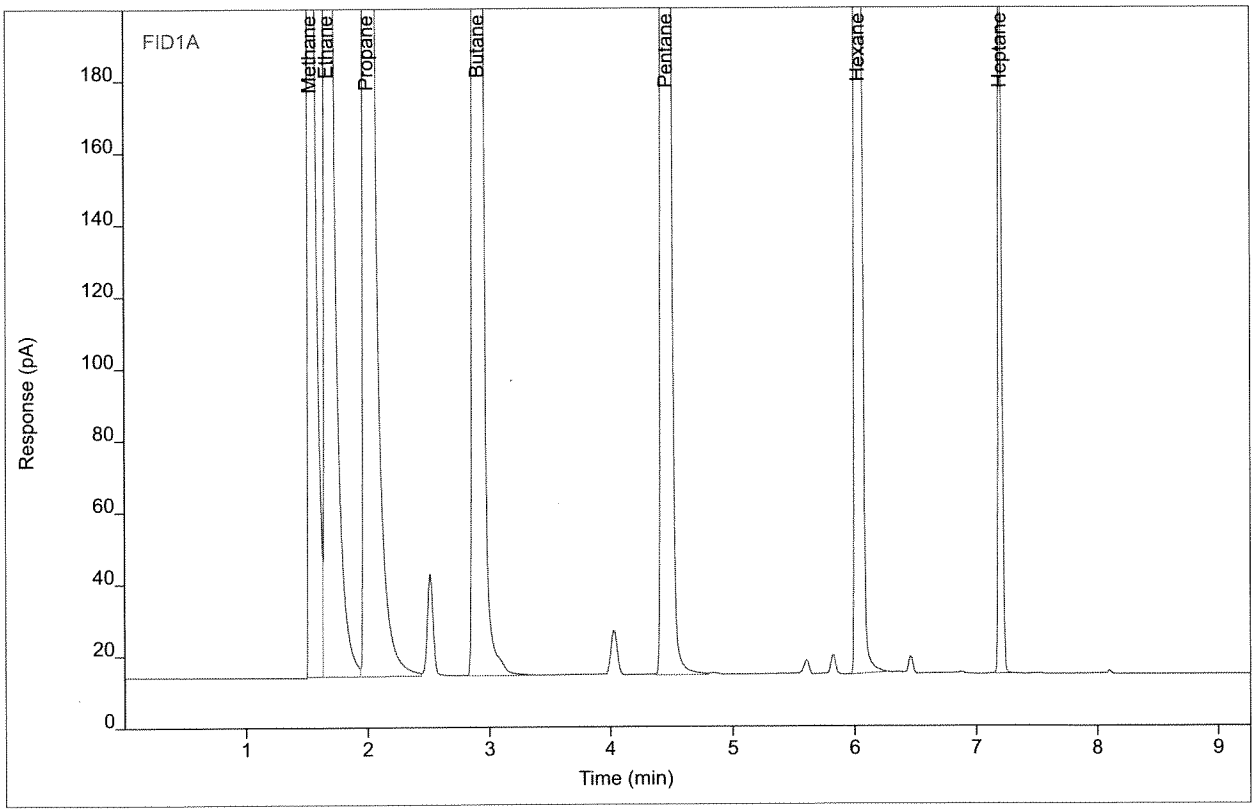
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	13650.7	10107.0	51314.3	1	51314.3	ppm
Ethane	VV	1.67	26300.1	16356.7	51004.4	1	51004.4	ppm
Propane	VV	1.99	39428.0	17177.1	51030.9	1	51030.9	ppm
Butane	BB	2.91	10519.3	3371.92	10258.5	1	10258.5	ppm
Pentane	BB	4.46	6577.94	2028.06	5138.17	1	5138.17	ppm
Hexane	BB	6.04	6280.68	2702.32	4113.77	1	4113.77	ppm
Heptane	BB	7.20	459.873	239.933	258.503	1	258.503	ppm

Chromatogram Report

Sample Name	Edithp730 #C8 ENV(1=0,3=400)
Sequence Name	EDITHP730 ver.4
Data File	002F2003.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 2:31 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	3 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



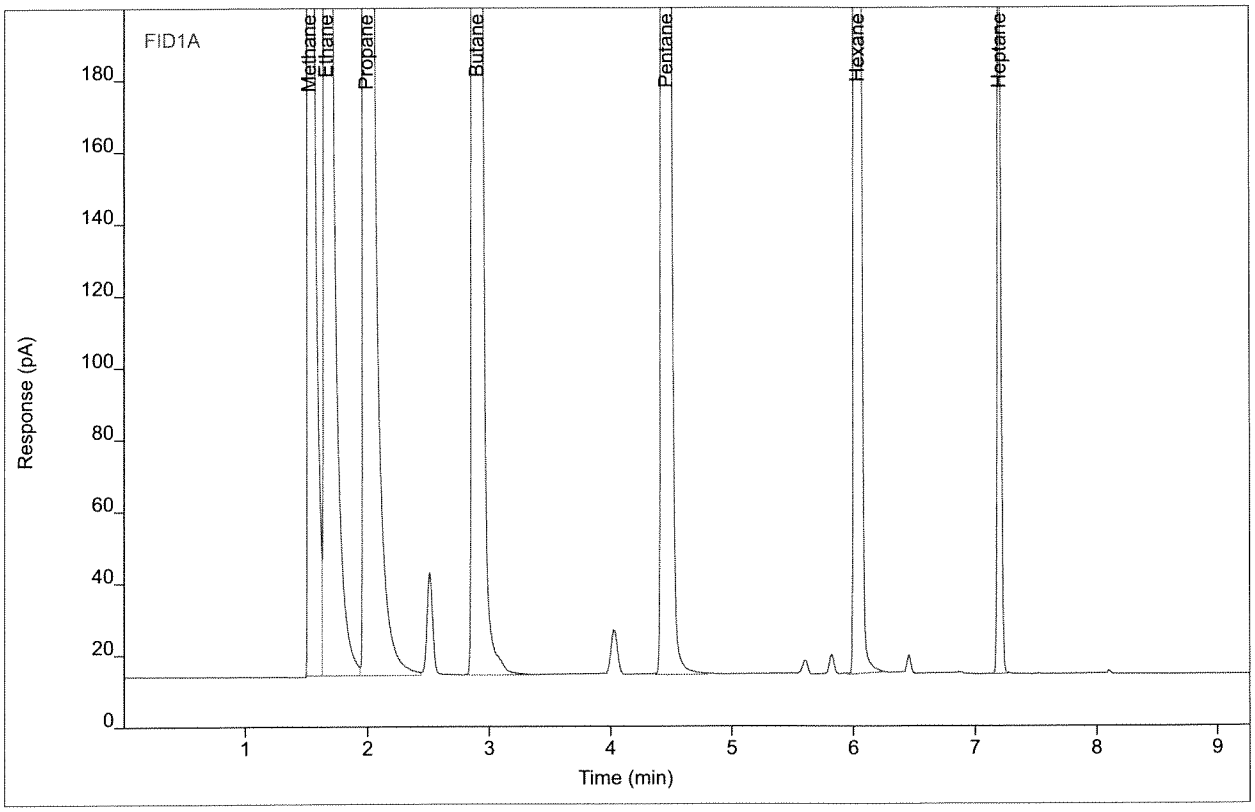
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	13621.8	10091.5	51205.9	1	51205.9	ppm
Ethane	VV	1.67	26243.2	16338.3	50894.0	1	50894.0	ppm
Propane	VV	1.99	39342.7	17147.7	50920.5	1	50920.5	ppm
Butane	BB	2.91	10496.8	3364.44	10236.6	1	10236.6	ppm
Pentane	BV	4.46	6564.15	2018.59	5127.40	1	5127.40	ppm
Hexane	VB	6.04	6268.73	2695.15	4105.94	1	4105.94	ppm
Heptane	BB	7.20	459.186	239.567	258.117	1	258.117	ppm

Chromatogram Report

Sample Name	Edithp730 #C8 ENV(1=0,3=400)
Sequence Name	EDITHP730 ver.4
Data File	002F2004.D
File Location	GC/2016/Edith/Quarter 3
Injection Date	9/17/2016 2:46 AM
File Modified	9/27/2016 9:20 AM
Instrument	
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 2
Injection Volume	250
Injection	4 of 5
Acquisition Method	AQ_EDITHP503_HRVOC.M
Analysis Method	EDITHP730F_C1-C7.M
Method Modified	9/27/2016 9:15 AM
Printed	9/27/2016 9:33 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	PV	1.53	13650.6	10095.2	51313.9	1	51313.9	ppm
Ethane	VV	1.67	26298.5	16347.4	51001.2	1	51001.2	ppm
Propane	VV	1.99	39423.7	17153.5	51025.4	1	51025.4	ppm
Butane	BB	2.91	10518.6	3371.34	10257.8	1	10257.8	ppm
Pentane	BV	4.46	6577.99	2023.19	5138.21	1	5138.21	ppm
Hexane	VB	6.04	6281.71	2702.16	4114.45	1	4114.45	ppm
Heptane	BB	7.20	460.141	239.162	258.654	1	258.654	ppm

Method Information

Method: C:\GC\2016\EDITH\METHODS\AQ_EDITHP503_HRVOC.M
Modified: 2/5/2016 at 4:56:13 PM

Agilent 7890A

Oven
Equilibration Time 0.3 min
Max Temperature 200 degrees C
Slow Fan Disabled
Oven Program On
35 °C for 2.2 min
#1 then 15 °C/min to 70 °C for 0.07 min
#2 then 30 °C/min to 180 °C for 1 min
Run Time 9.27 min

Sample Overlap
Sample overlap is not enabled

Front SS Inlet H2
Mode Split
Heater On 200 °C
Pressure On 5.1931 psi
Total Flow On 15.6 mL/min
Septum Purge Flow On 3 mL/min
Gas Saver Off
Split Ratio 5 :1
Split Flow 10.5 mL/min

Back SS Inlet H2
Mode Split
Heater On 200 °C
Pressure On 14.935 psi
Total Flow On 25.632 mL/min
Septum Purge Flow On 3 mL/min
Gas Saver Off
Split Ratio 2 :1
Split Flow 15.088 mL/min

Column #1
Restek 10198Rtx-1 S/N 806941
280 °C: 30 m x 320 µm x 4 µm
In: Front SS Inlet H2
Out: Front Detector FID

Airgas

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Part Number:	X08NI99C15A0079	Reference Number:	141-124544672-1
Cylinder Number:	CC16105	Cylinder Volume:	144.4 CF
Laboratory:	ASG - Conley Stryker - OH	Cylinder Pressure:	2015 PSIG
Analysis Date:	Mar 28, 2016	Valve Outlet:	350
Lot Number:	141-124544672-1		

Expiration Date: Mar 28, 2019

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
ETHANE	100.0 PPM	100.0 PPM	+/- 2%
HEXANE	100.0 PPM	101.0 PPM	+/- 2%
METHANE	100.0 PPM	100.0 PPM	+/- 2%
N BUTANE	100.0 PPM	100.0 PPM	+/- 2%
N HEPTANE	100.0 PPM	100.0 PPM	+/- 2%
N PENTANE	100.0 PPM	103.0 PPM	+/- 2%
PROPANE	100.0 PPM	100.0 PPM	+/- 2%
NITROGEN	Balance		

Rebecca J Engelhard

Approved for Release

Airgas

Airgas USA, LLC
616 Miller Cut Off Road
Laporte, TX 77571
281-842-6900
Airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED HYDROCARBON

Customer:	MONTROSE ENVIRONMETAL GROUP - MORRISVILLE , NC		
Part Number:	X08NI83C15AC015	Reference Number:	126-400736189-1
Cylinder Number:	CC425315	Cylinder Volume:	15.8 CF
Laboratory:	ASG - LaPorte Mix (SAP) - TX	Cylinder Pressure:	204 PSIG
Analysis Date:	Jul 11, 2016	Valve Outlet:	350
Lot Number:	126-400736189-1	Expiration Date:	Jul 11, 2019

Traceability Statement: Hydrocarbon Process standards are NIST traceable either directly by weight or by comparison to Airgas laboratory standards that are directly NIST traceable by weight.

CERTIFIED CONCENTRATIONS

Component	Requested Concentration	Reported Mole %	Accuracy
N HEPTANE	250.0 PPM	251.0 PPM	+/- 2%
HEXANE	0.4000 %	0.4006 %	+/- 2%
N PENTANE	0.5000 %	0.5003 %	+/- 2%
N BUTANE	1.000 %	1.000 %	+/- 2%
ETHANE	5.000 %	5.003 %	+/- 2%
METHANE	5.000 %	5.006 %	+/- 2%
PROPANE	5.000 %	5.003 %	+/- 2%
NITROGEN	Balance	Balance	

Notes:
MONTROSE ENVIRONMETAL GROUP

Approved for Release

(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min

Column #2
Restek 19757Rt-Alumina BOND/Na2SO4
200 °C: 30 m x 320 µm x 5 µm
In: Back SS Inlet H2
Out: Back Detector FID

(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On
7.5439 mL/min for 0 min	
Run Time	9.27 min

Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On

Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On

Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min

Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min

Valve Box
Heater On 150 °C

Signals
Signal #1: Front Signal Save On
20 Hz

Signal #2: Test Plot Save Off
50 Hz

Signal #3: Back Signal Save On
20 Hz

Signal #4: Test Plot Save Off
50 Hz

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Agilent 7890A

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Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 8 min	
Run Time	16.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	16.27 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

7.5439 mL/min for 0 min	
Run Time	16.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Agilent 7890A

Oven

Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
then 15 °C/min to 70 °C for 0.07 min	
Run Time	4.6033 min

Sample Overlap

Sample overlap is not enabled

Front SS Inlet H2

Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min

Back SS Inlet H2

Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min

Column #1

Restek 10198Rtx-1 S/N 806941

280 °C: 30 m x 320 µm x 4 µm

In: Front SS Inlet H2

Out: Front Detector FID

(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	4.6033 min

Column #2

Restek 19757Rt-Alumina BOND/Na2SO4

200 °C: 30 m x 320 µm x 5 µm

In: Back SS Inlet H2

Out: Back Detector FID

(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On
7.5439 mL/min for 0 min	

Run Time	4.6033 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Unknown
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

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Agilent 7890A

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Oven	
Equilibration Time	0.3 min
Max Temperature	200 degrees C
Slow Fan	Disabled
Oven Program	On
35 °C for 2.2 min	
#1 then 15 °C/min to 70 °C for 0.07 min	
#2 then 30 °C/min to 180 °C for 1 min	
Run Time	9.27 min
Sample Overlap	
Sample overlap is not enabled	
Front SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 5.1931 psi
Total Flow	On 15.6 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	5 :1
Split Flow	10.5 mL/min
Back SS Inlet H2	
Mode	Split
Heater	On 200 °C
Pressure	On 14.935 psi
Total Flow	On 25.632 mL/min
Septum Purge Flow	On 3 mL/min
Gas Saver	Off
Split Ratio	2 :1
Split Flow	15.088 mL/min
Column #1	
Restek 10198Rtx-1 S/N 806941	
280 °C: 30 m x 320 µm x 4 µm	
In: Front SS Inlet H2	
Out: Front Detector FID	
(Initial)	35 °C
Pressure	5.1931 psi
Flow	2.1 mL/min
Average Velocity	39.91 cm/sec
Holdup Time	1.2528 min
Flow Program	On
2.1 mL/min for 0 min	
Run Time	9.27 min
Column #2	
Restek 19757Rt-Alumina BOND/Na2SO4	
200 °C: 30 m x 320 µm x 5 µm	
In: Back SS Inlet H2	
Out: Back Detector FID	
(Initial)	35 °C
Pressure	14.935 psi
Flow	7.5439 mL/min
Average Velocity	110 cm/sec
Holdup Time	0.45455 min
Flow Program	On

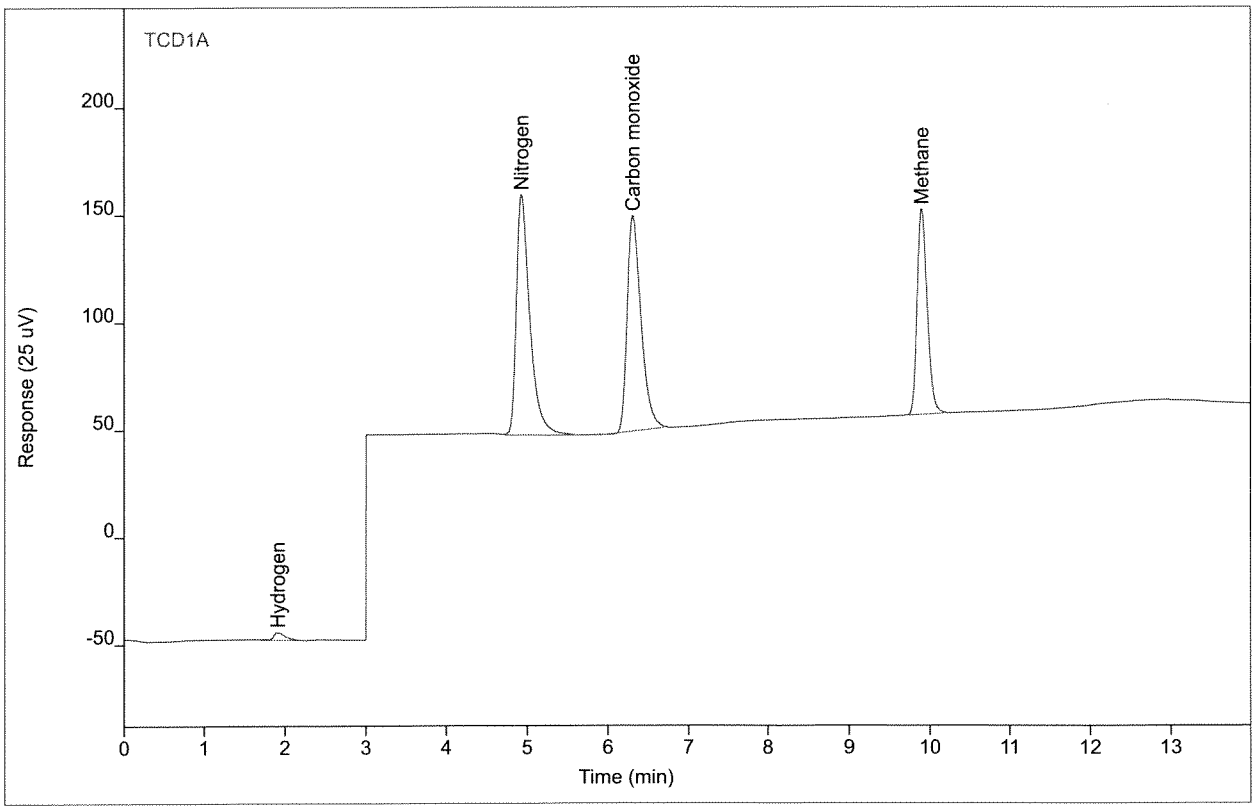
7.5439 mL/min for 0 min	
Run Time	9.27 min
Front Detector FID	
Heater	On 300 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Back Detector FID	
Heater	On 200 °C
H2 Flow	On 50 mL/min
Air Flow	On 450 mL/min
Makeup Flow	On 35 mL/min
Const Col + Makeup	Off
Flame	On
Electrometer	On
Valve 1	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve 2	
Gas Sampling Valve	Off
GSV Loop Volume	0.25 mL
Load Time	1.5 min
Inject Time	0.5 min
Valve Box	
Heater	On 150 °C
Signals	
Signal #1: Front Signal	Save On 20 Hz
Signal #2: Test Plot	Save Off 50 Hz
Signal #3: Back Signal	Save On 20 Hz
Signal #4: Test Plot	Save Off 50 Hz

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP462 1 ver.14
Data File	009F1401.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 1:07 AM
File Modified	10/18/2016 11:12 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	8/12/2016 4:02 PM
Printed	10/25/2016 12:59 PM



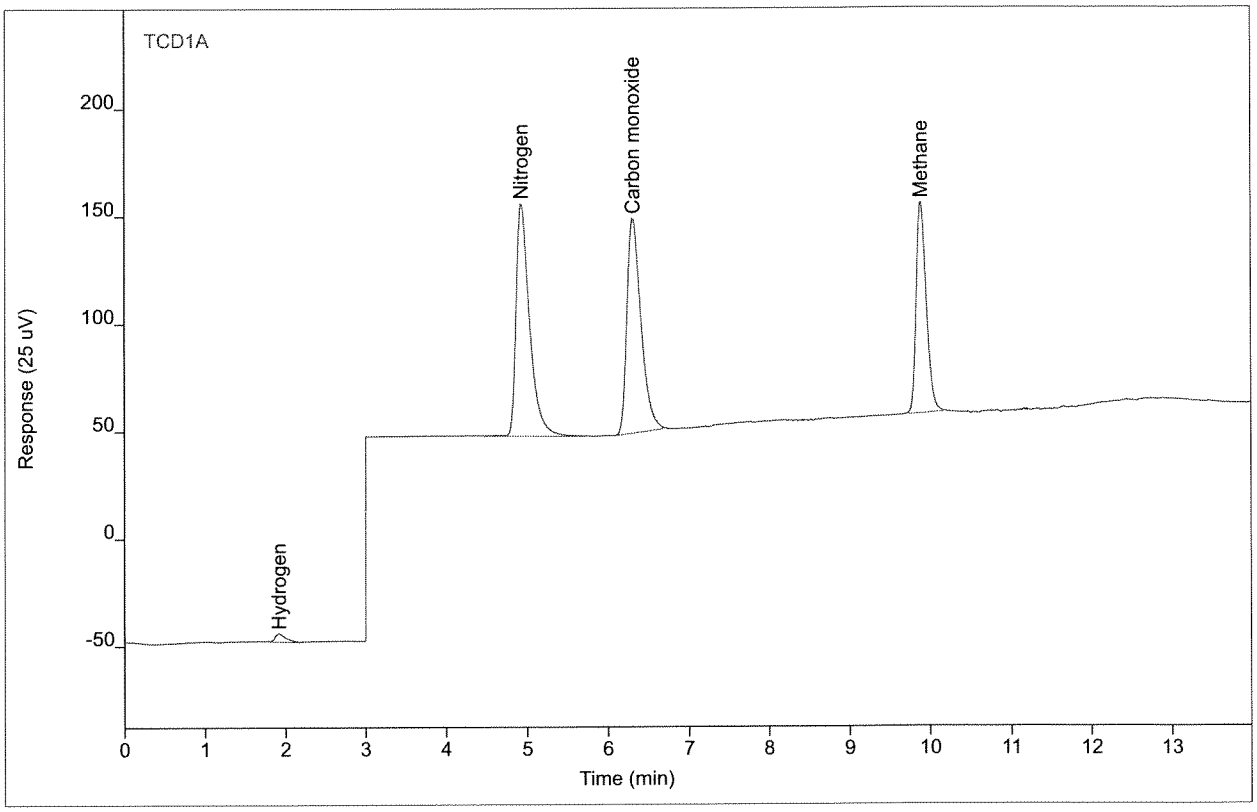
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.91	37.4940	3.95254	2.55824	1	2.55824	%
Nitrogen	VB	4.93	1298.49	112.029	3.26821	1	3.26821	%
Carbon monoxide	BB	6.32	1190.36	100.313	3.07248	1	3.07248	%
Methane	BB	9.90	840.026	95.6954	2.50710	1	2.50710	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP462 1 ver.14
Data File	009F1402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 1:30 AM
File Modified	10/18/2016 11:12 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	8/12/2016 4:02 PM
Printed	10/25/2016 12:59 PM



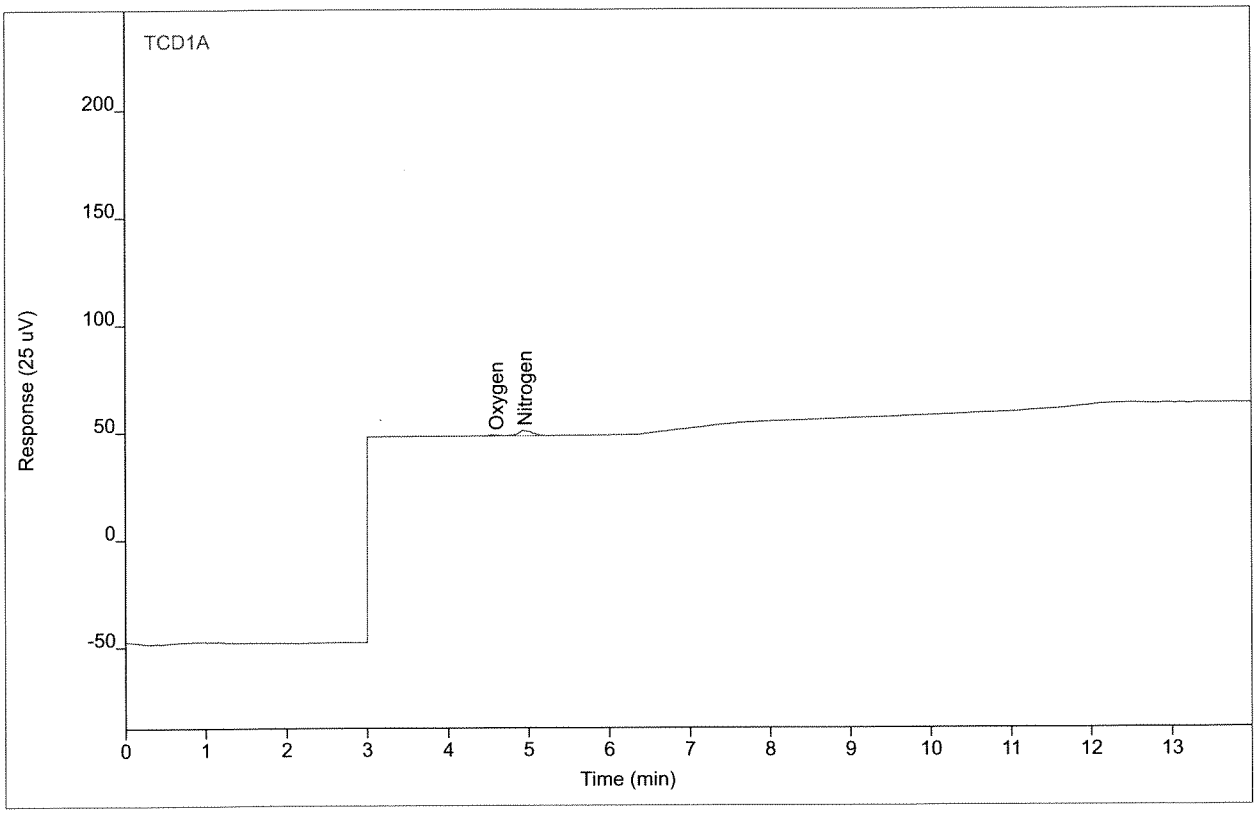
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BV	1.92	38.3435	4.03142	2.61720	1	2.61720	%
Nitrogen	BB	4.94	1262.67	108.441	3.17471	1	3.17471	%
Carbon monoxide	BB	6.32	1198.11	100.097	3.09271	1	3.09271	%
Methane	BB	9.90	859.810	98.0015	2.56727	1	2.56727	%

Chromatogram Report

Sample Name	Bettyp374 Method Blank-1
Sequence Name	BETTYP464 ver.3
Data File	001F0401.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 1:41 PM
File Modified	10/17/2016 1:11 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



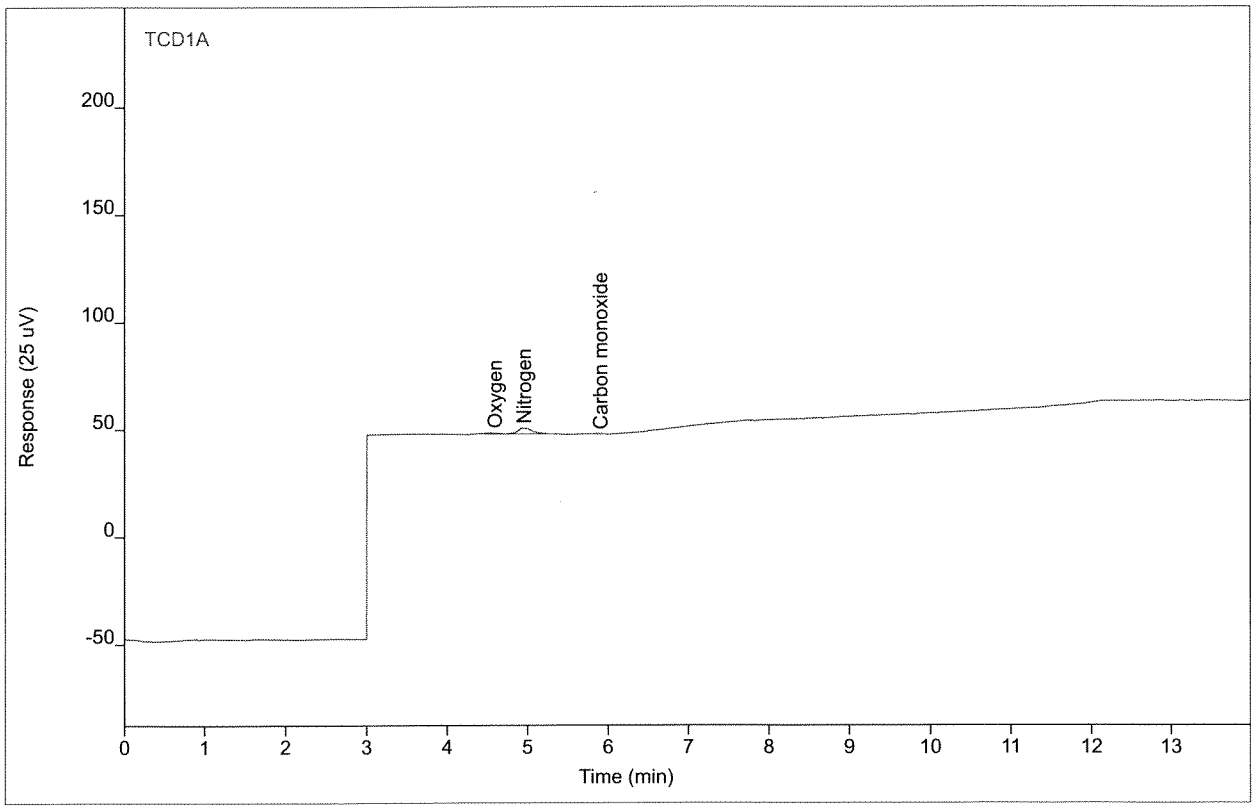
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	BV	4.61	8.08272	0.81585	0.01958	1	0.01958	%
Nitrogen	VB	4.96	32.2475	2.77312	0.06375	1	0.06375	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Sample Name	Bettyp374 Method Blank-1
Sequence Name	BETTYP464 ver.3
Data File	001F0402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 2:03 PM
File Modified	10/17/2016 1:11 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 1
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM

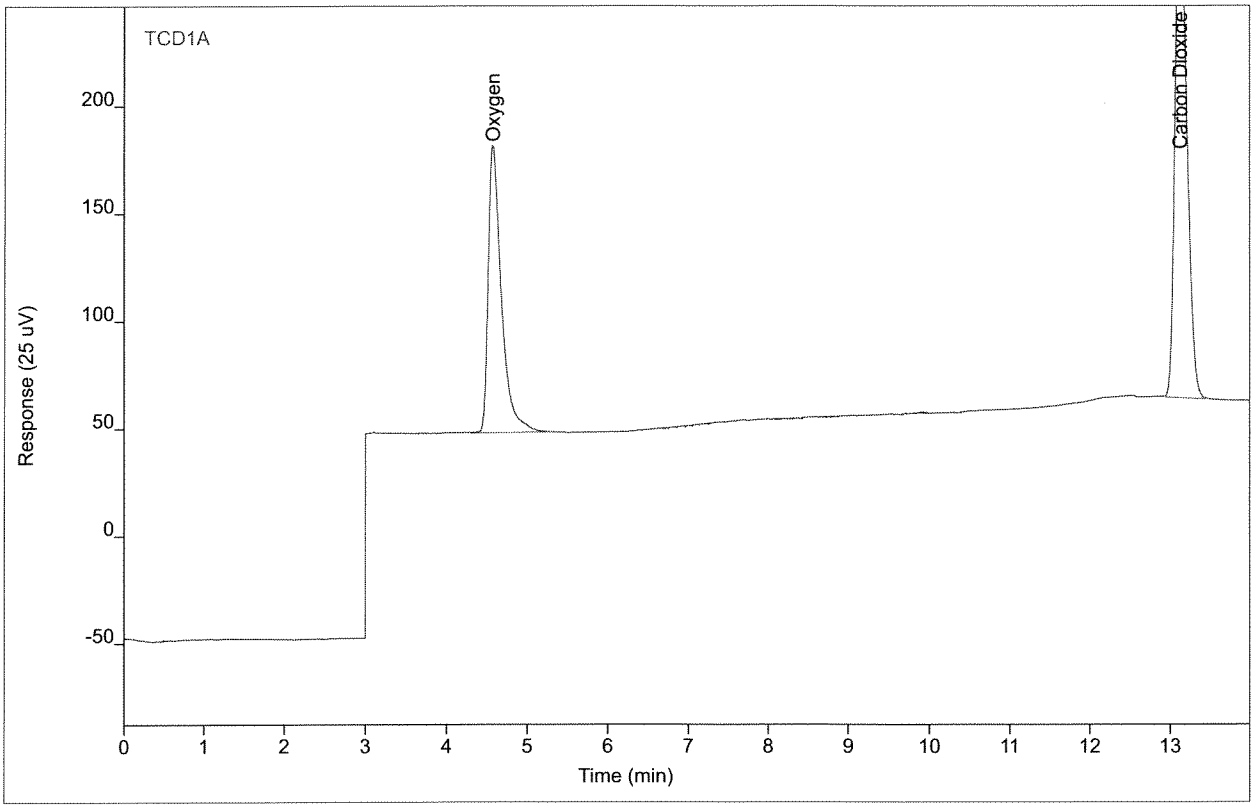


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	BV	4.59	6.93910	0.74046	0.01681	1	0.01681	%
Nitrogen	VB	4.96	35.4077	2.93173	0.07000	1	0.07000	%
Carbon monoxide	BV	5.91	1.22726	0.24780	0.00292	1	0.00292	%
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP462 1 ver.14	Vial Number	Vial 9
Data File	009F1501.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	1 of 2
Injection Date	10/13/2016 1:53 AM	Acquisition Method	GC142P133_CAL.M
File Modified	10/18/2016 11:12 AM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	8/12/2016 4:02 PM
Operator	Nicholas Traversa	Printed	10/25/2016 12:59 PM



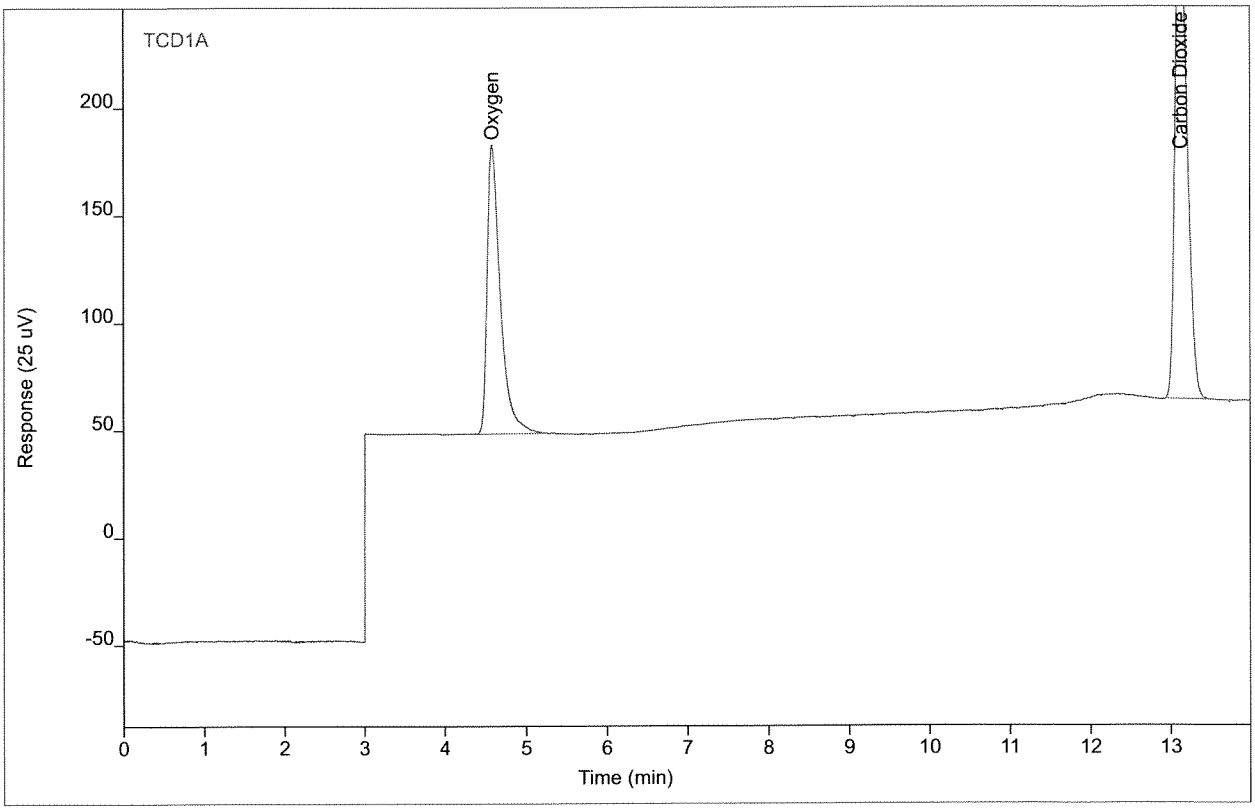
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VB	4.58	1532.47	133.397	4.40553	1	4.40553	%
Carbon Dioxide	BB	13.12	2385.23	236.005	4.49542	1	4.49542	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP462 1 ver.14
Data File	009F1502.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 2:16 AM
File Modified	10/18/2016 11:12 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	8/12/2016 4:02 PM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	4.58	1543.69	134.836	4.43864	1	4.43864	%
Carbon Dioxide	BB	13.13	2367.28	233.935	4.46092	1	4.46092	%

Analyst Peak Integration Comments

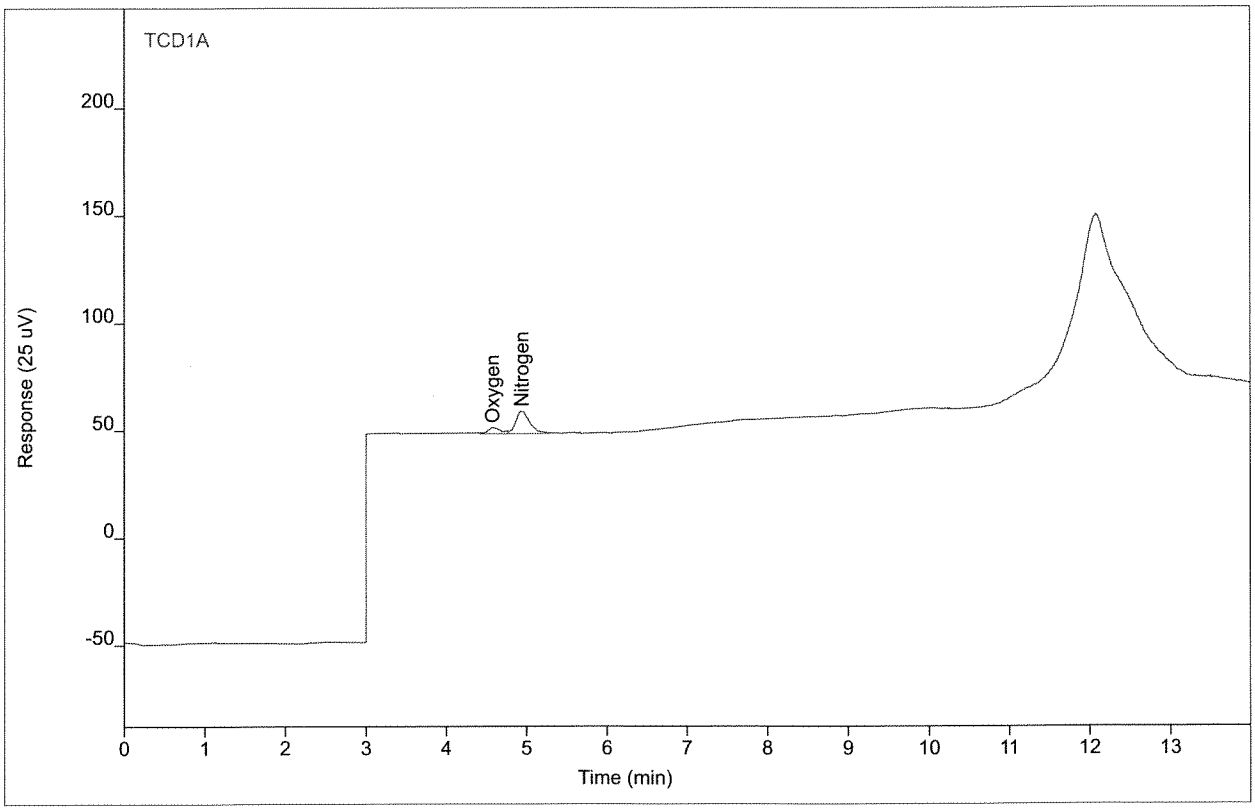
07:40:15 10/13/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.Can
Sequence Name	BETTYP463 ver.6
Data File	008F0501.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 5:53 PM
File Modified	10/24/2016 1:55 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Sample
Vial Number	Vial 8
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	MF	4.58	31.7895	3.12222	0.07700	1	0.07700	%
Nitrogen	FM	4.94	126.832	10.7361	0.25073	1	0.25073	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

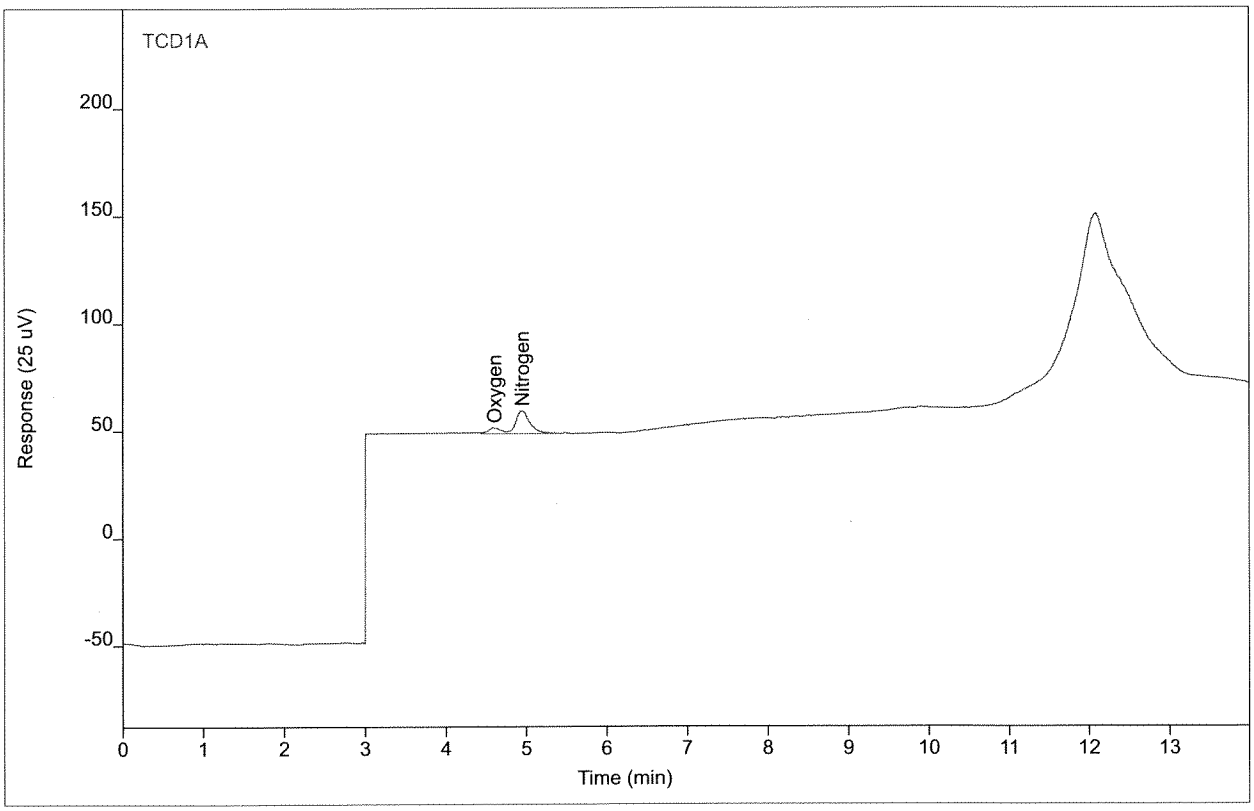
Analyst Peak Integration Comments

13:38:03 10/24/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C1-Primary Can1648.Can	Sample Type	Sample
Sequence Name	BETTYP463 ver.6	Vial Number	Vial 8
Data File	008F0502.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 3
Injection Date	10/13/2016 6:14 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/24/2016 1:55 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	10/14/2016 10:09 AM
Operator	Nicholas Traversa	Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	MF	4.60	31.3181	3.02066	0.07586	1	0.07586	%
Nitrogen	FM	4.95	131.917	10.8801	0.26079	1	0.26079	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Analyst Peak Integration Comments

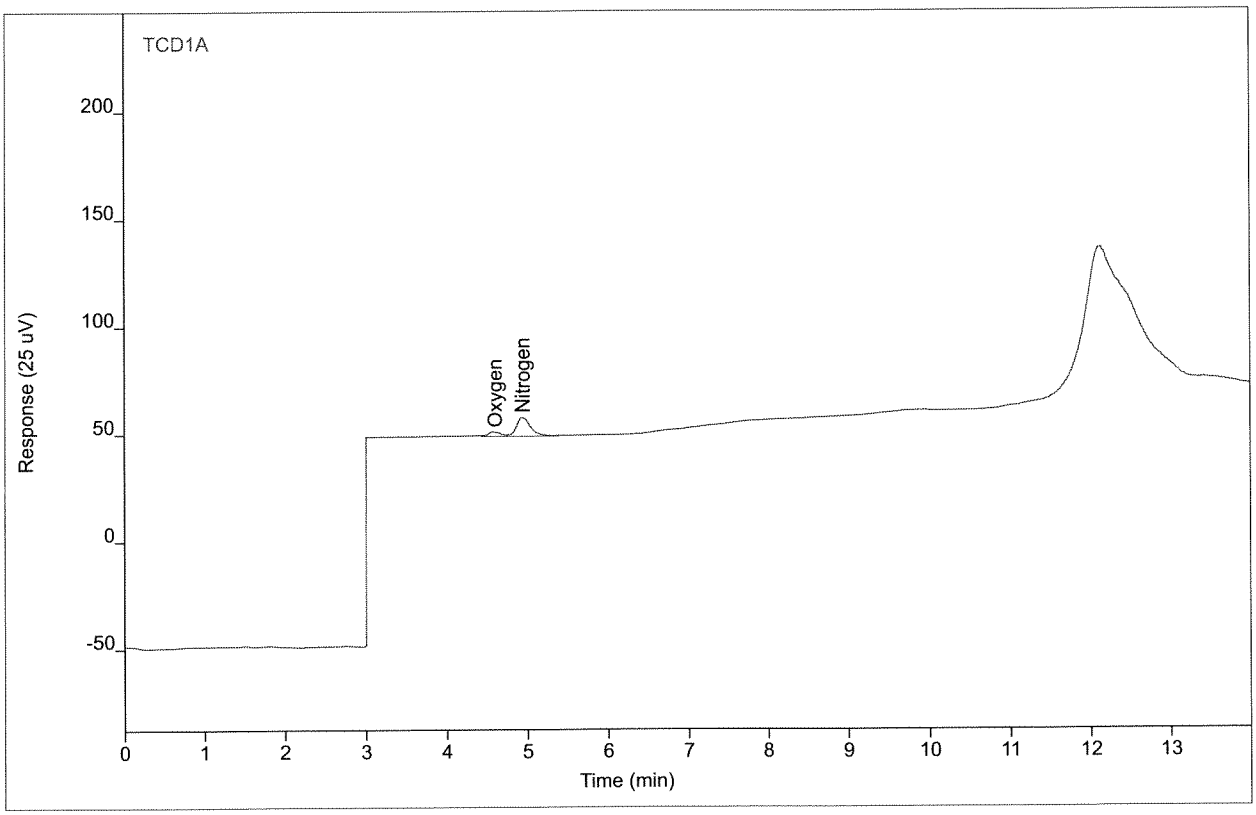
13:38:17 10/24/16 Justin Guenzler II
13:38:29 10/24/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	BETTYP463 ver.6
Data File	010F0601.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 6:55 PM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	MF	4.61	25.1555	2.36058	0.06093	1	0.06093	%
Nitrogen	FM	4.95	107.214	9.14632	0.21195	1	0.21195	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Analyst Peak Integration Comments

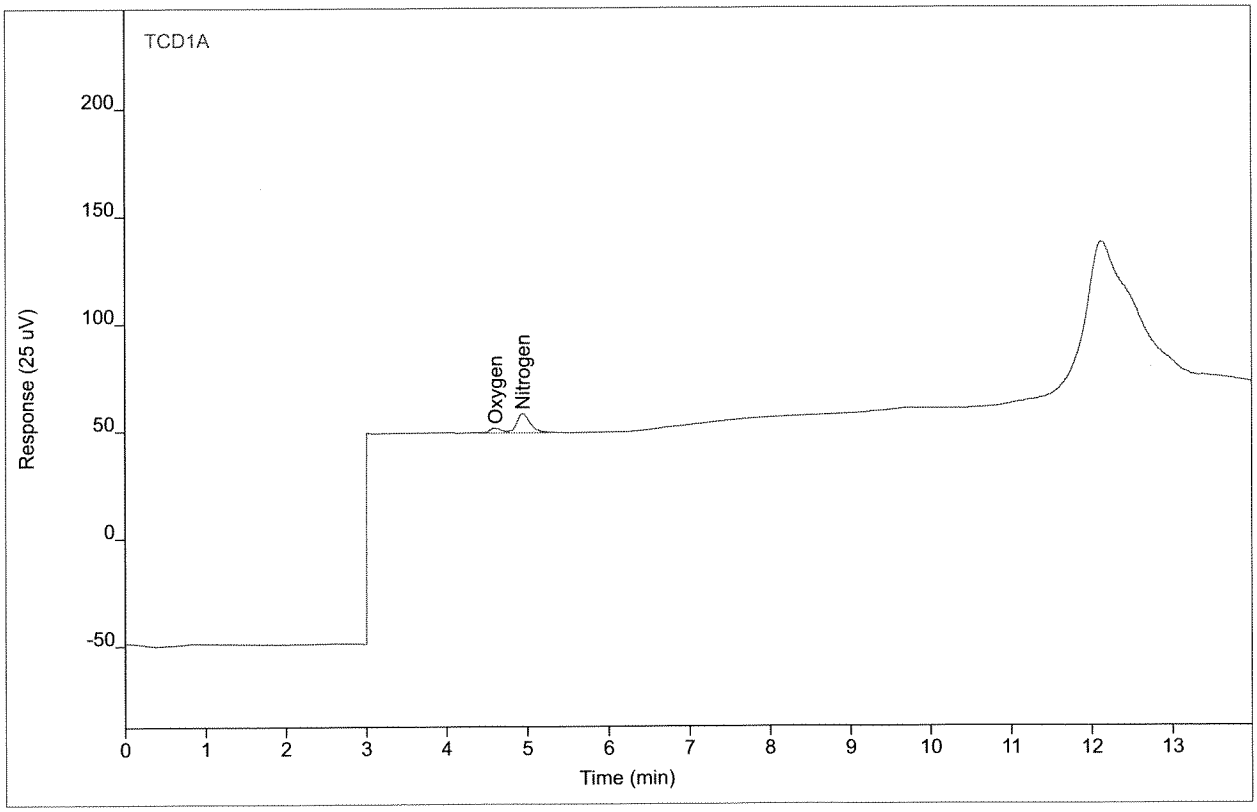
13:39:04 10/24/16 Justin Guenzler II

Chromatogram Report

Sample Name	0816-140.U2-C2-Primary Can1649.Can
Sequence Name	BETTYP463 ver.6
Data File	010F0602.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 7:16 PM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 10
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	BV	4.61	23.9427	2.23582	0.05799	1	0.05799	%
Nitrogen	VB	4.95	104.040	8.93764	0.20568	1	0.20568	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Analyst Peak Integration Comments

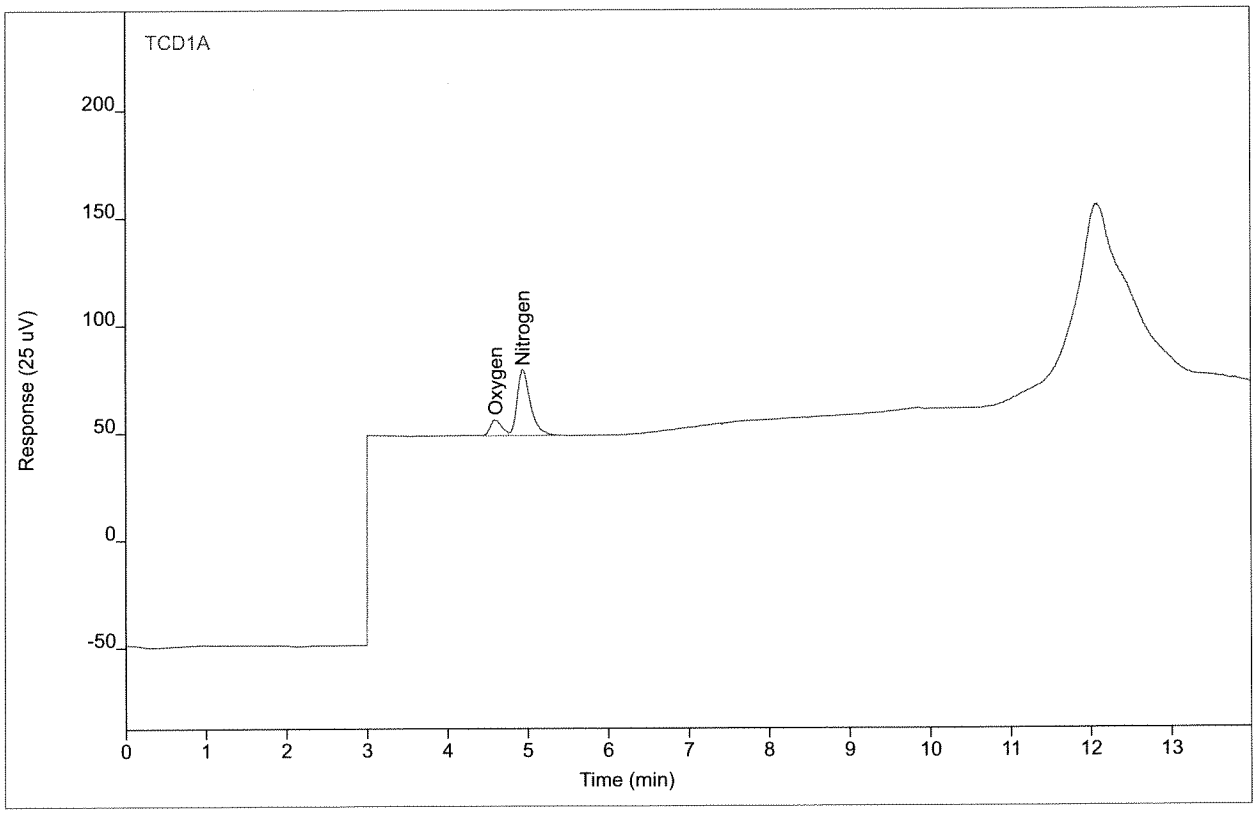
13:39:24 10/24/16 Justin Guenzler II

Chromatogram Report

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	BETTYP463 ver.6
Data File	012F0801.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 8:59 PM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 12
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	BV	4.60	77.9413	7.67523	0.18879	1	0.18879	%
Nitrogen	VB	4.94	354.357	30.7120	0.80330	1	0.80330	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Analyst Peak Integration Comments

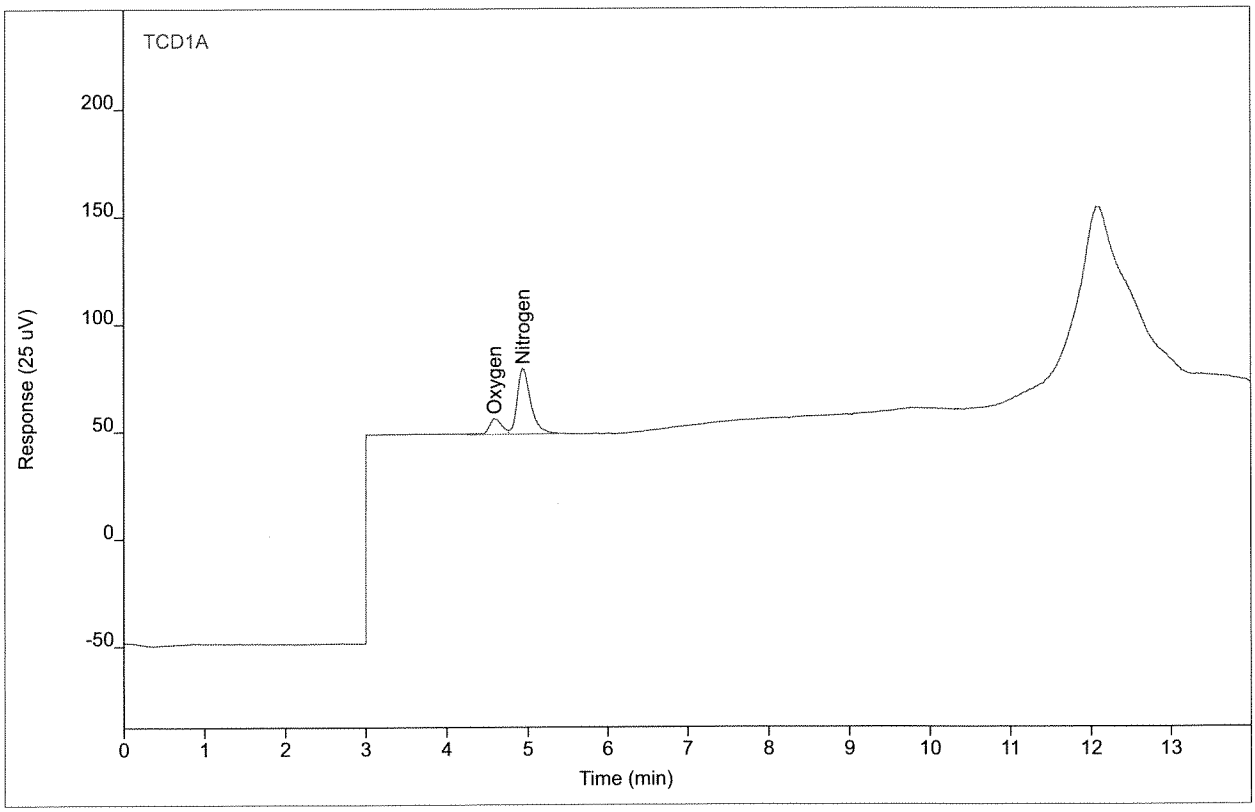
13:40:12 10/24/16 Justin Guenzler II

Chromatogram Report

Sample Name	0816-140.U2-C4-Primary Can1111.Can
Sequence Name	BETTYP463 ver.6
Data File	012F0802.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/13/2016 9:20 PM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Sample
Vial Number	Vial 12
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



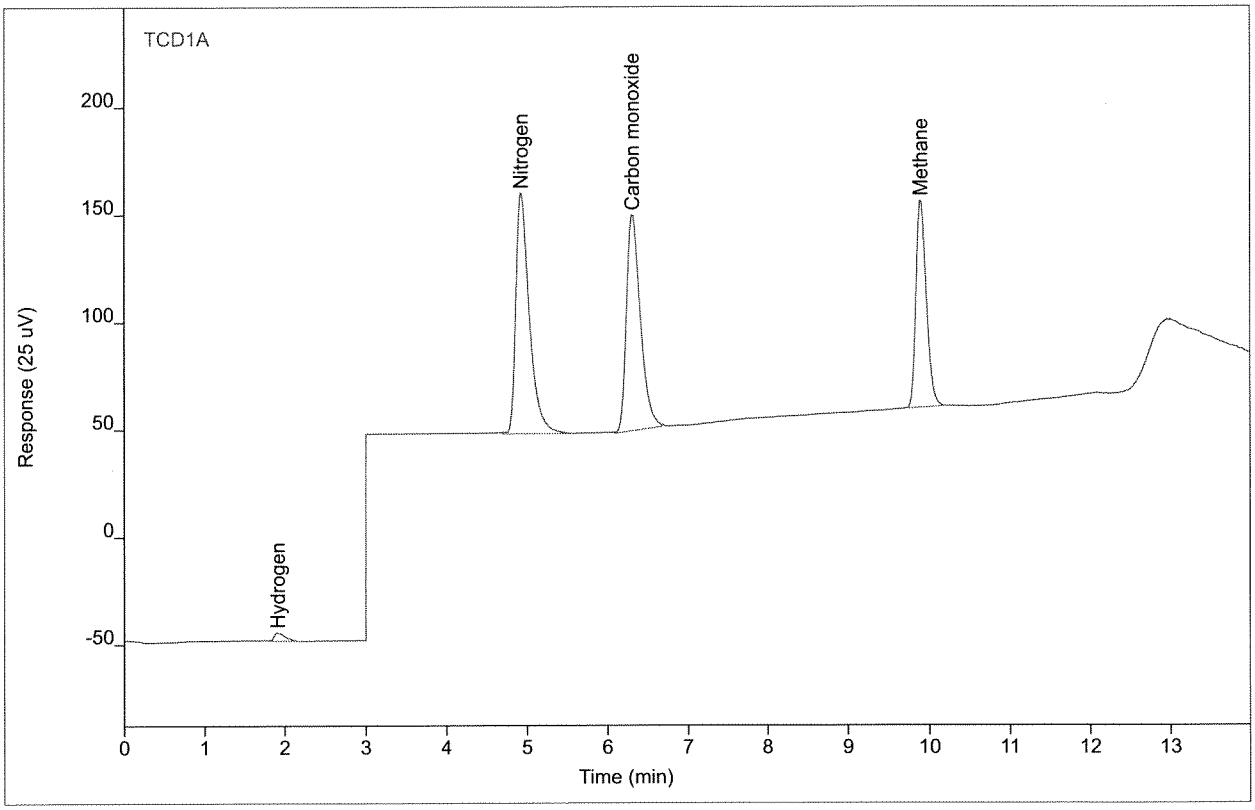
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.87)				1		
Oxygen	VV	4.59	79.4530	7.47501	0.19245	1	0.19245	%
Nitrogen	VB	4.94	356.428	30.5743	0.80871	1	0.80871	%
Carbon monoxide		(6.30)				1		
Methane		(9.86)				1		
Carbon Dioxide		(13.19)				1		

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP463 ver.6
Data File	009F1001.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/14/2016 1:07 AM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



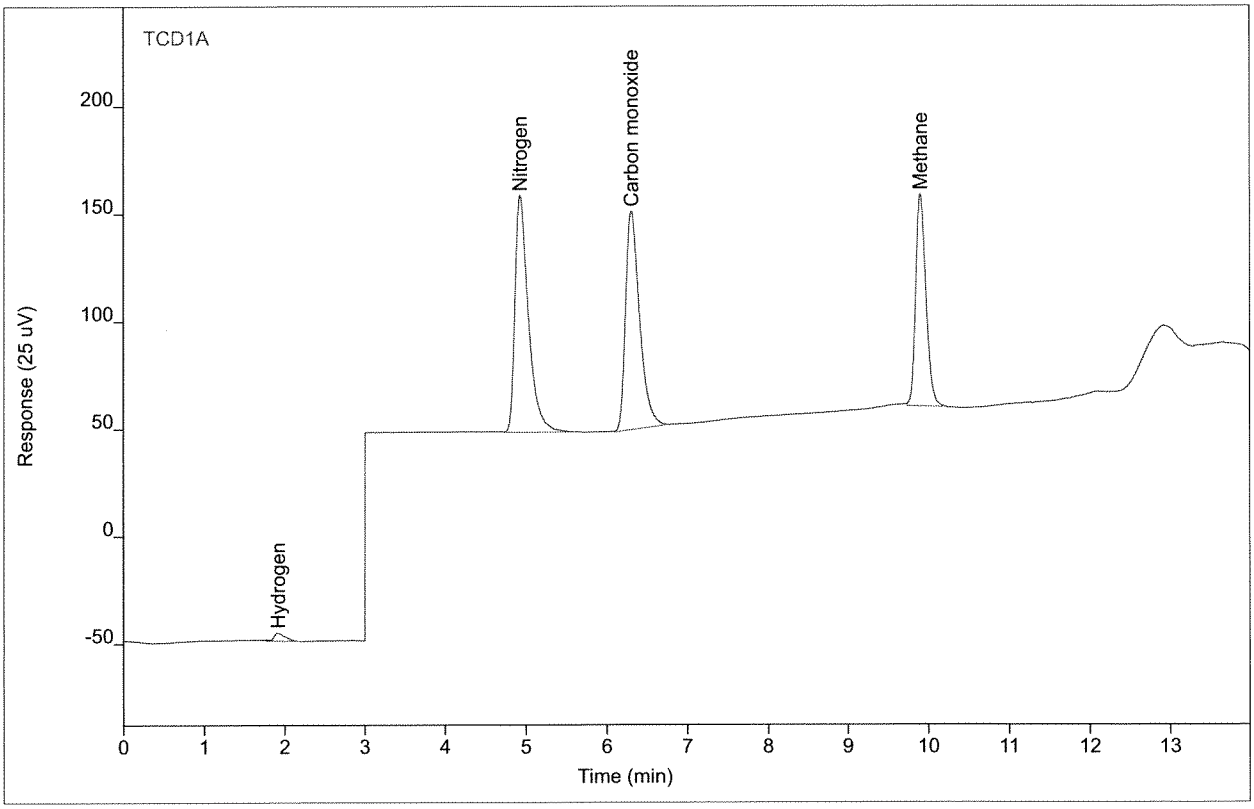
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.91	37.3746	4.02996	2.54995	1	2.54995	%
Nitrogen	VB	4.93	1291.62	112.076	3.25029	1	3.25029	%
Carbon monoxide	BB	6.31	1210.61	100.557	3.12538	1	3.12538	%
Methane	BB	9.90	845.661	96.3792	2.52424	1	2.52424	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP463 ver.6
Data File	009F1002.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/14/2016 1:30 AM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



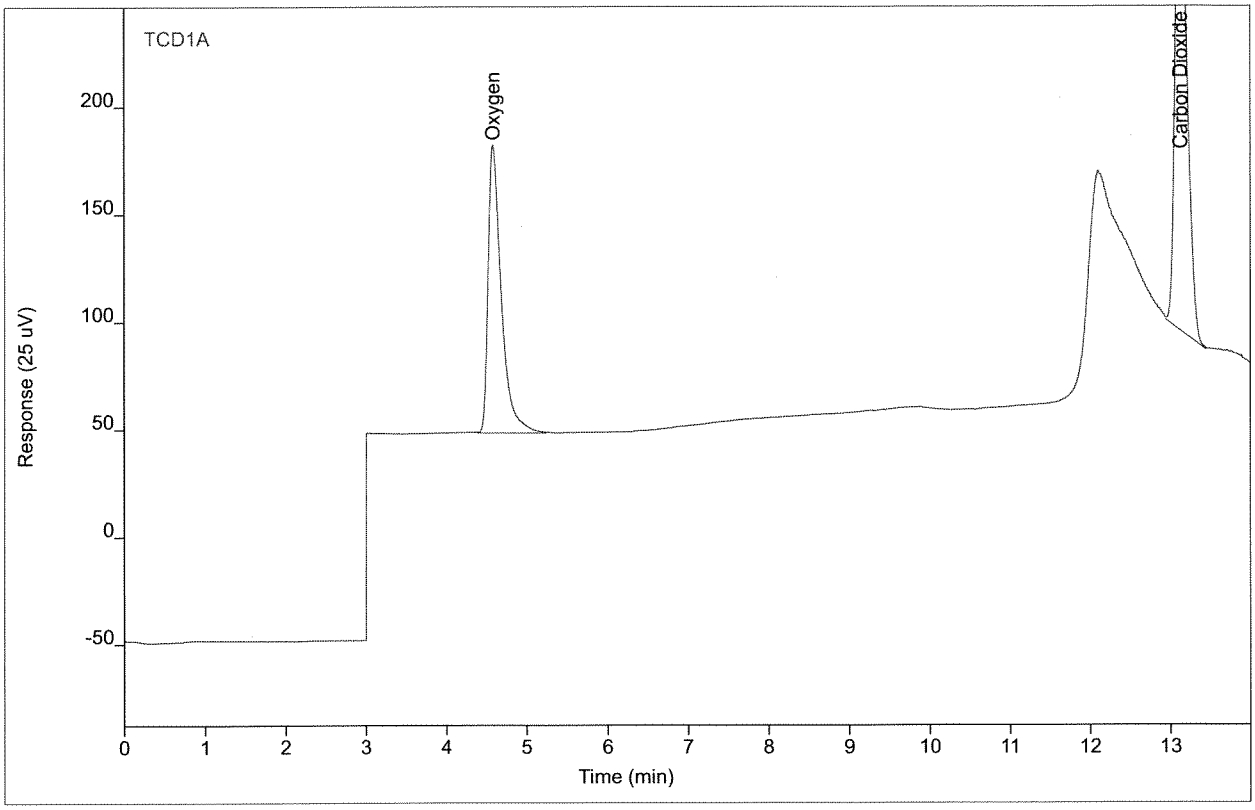
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.92	38.1202	4.01456	2.60170	1	2.60170	%
Nitrogen	BB	4.93	1272.11	110.267	3.19935	1	3.19935	%
Carbon monoxide	BB	6.32	1229.72	101.774	3.17532	1	3.17532	%
Methane	BB	9.90	868.086	98.6111	2.59244	1	2.59244	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP463 ver.6
Data File	009F1101.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/14/2016 1:53 AM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	4.58	1540.22	134.146	4.42841	1	4.42841	%
Carbon Dioxide	MM	13.13	2274.41	230.108	4.28247	1	4.28247	%

Analyst Peak Integration Comments

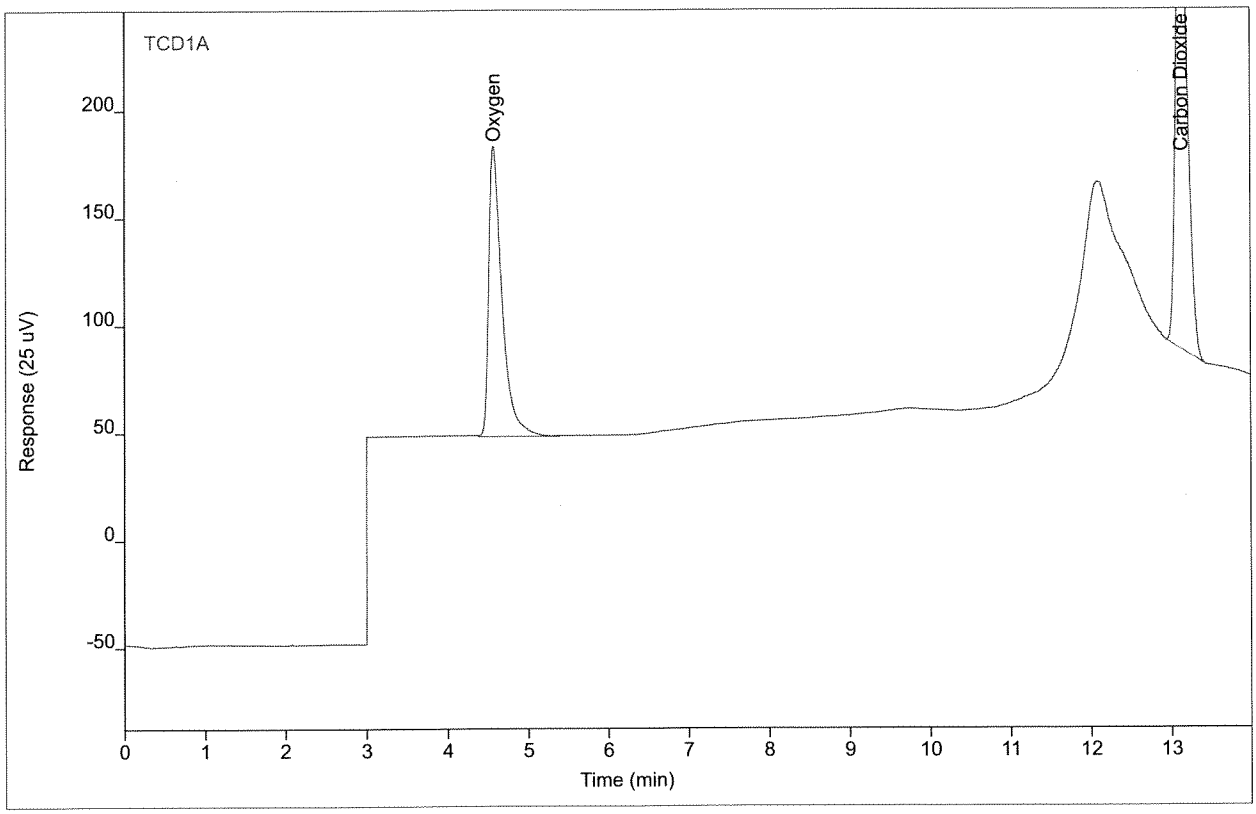
13:53:00 10/24/16 Justin Guenzler II
13:54:26 10/24/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP463 ver.6
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/14/2016 2:16 AM
File Modified	10/24/2016 1:56 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	4.58	1565.25	135.136	4.50230	1	4.50230	%
Carbon Dioxide	MM	13.13	2307.02	230.161	4.34513	1	4.34513	%

Analyst Peak Integration Comments

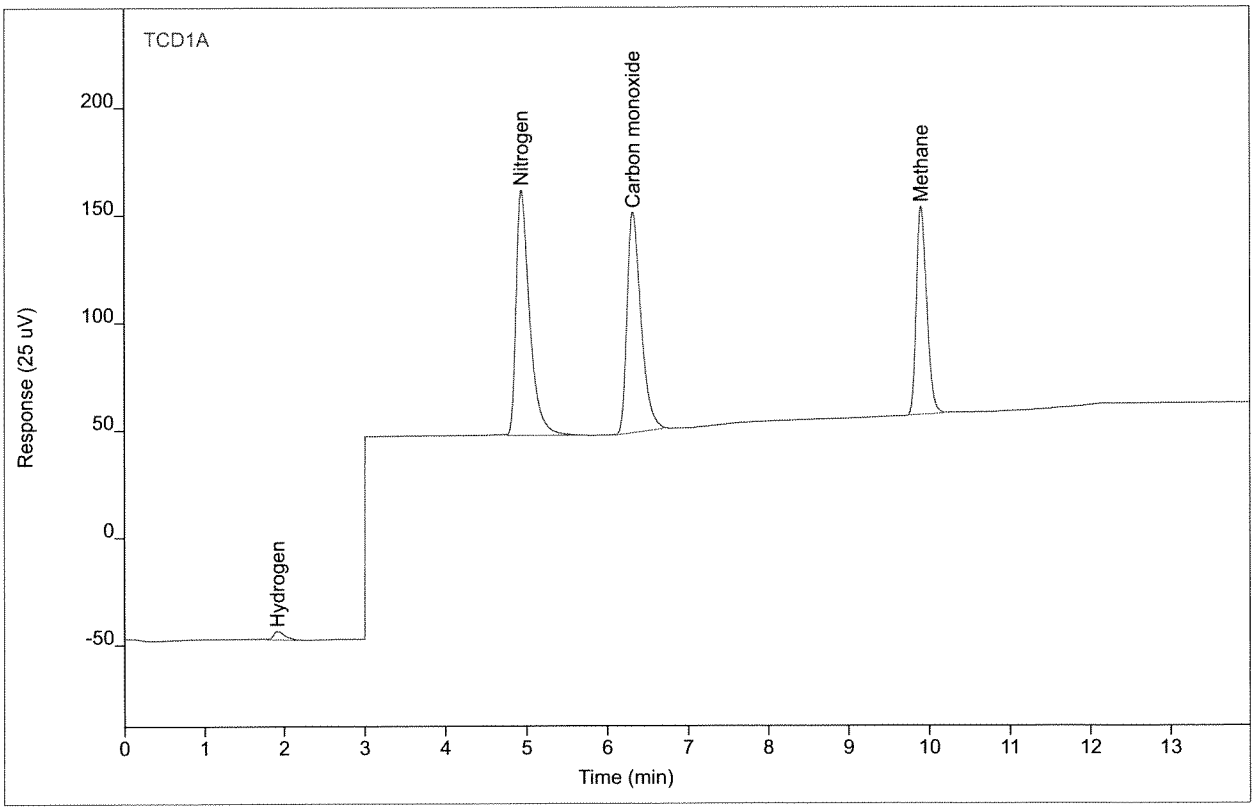
13:53:21 10/24/16 Justin Guenzler II
13:54:37 10/24/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP464 ver.3
Data File	009F0201.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 12:10 PM
File Modified	10/20/2016 11:01 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BV	1.91	40.0896	4.08455	2.73838	1	2.73838	%
Nitrogen	MM	4.94	1319.46	114.226	3.32296	1	3.32296	%
Carbon monoxide	BB	6.32	1234.10	102.591	3.18674	1	3.18674	%
Methane	BB	9.91	846.894	96.7458	2.52799	1	2.52799	%

Analyst Peak Integration Comments

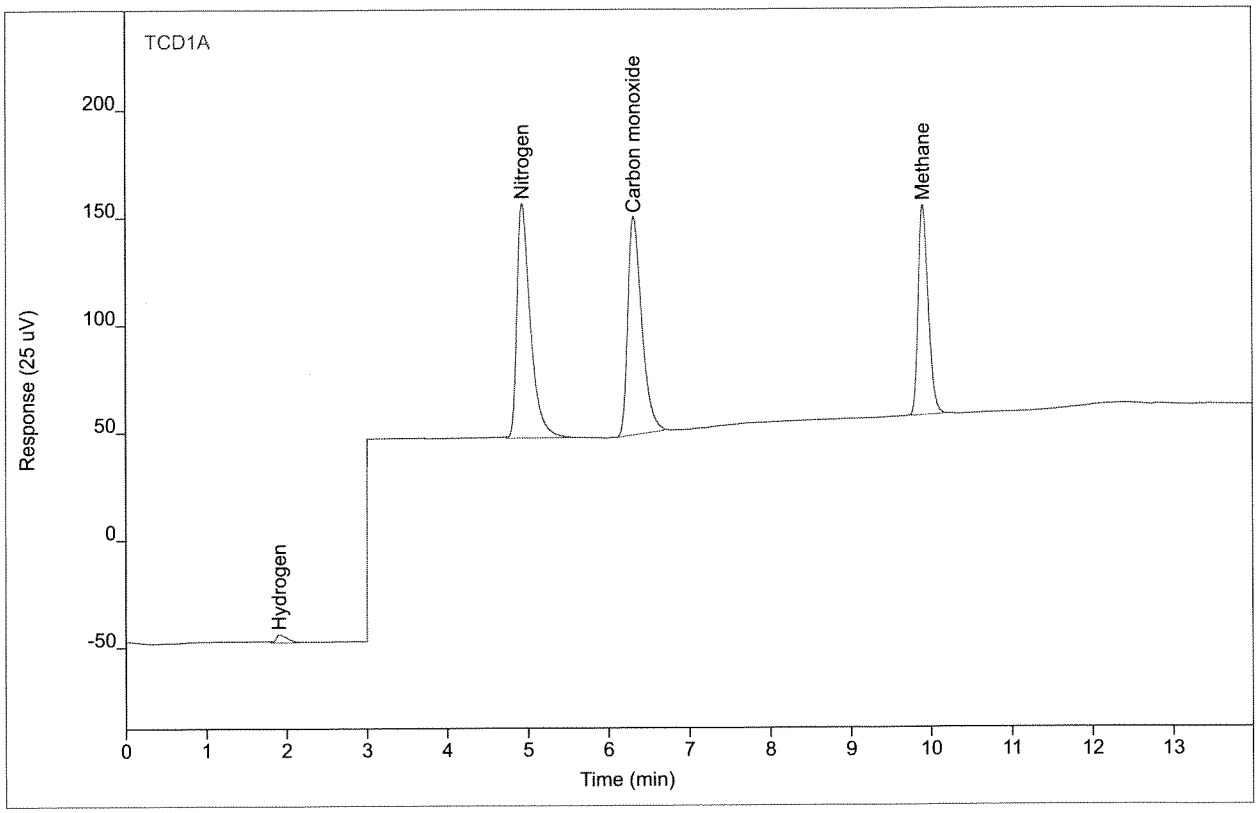
11:01:21 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP464 ver.3
Data File	009F0202.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 12:33 PM
File Modified	10/20/2016 11:01 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.90	37.4058	4.00415	2.55211	1	2.55211	%
Nitrogen	VB	4.94	1263.30	109.138	3.17634	1	3.17634	%
Carbon monoxide	BB	6.32	1218.46	101.351	3.14590	1	3.14590	%
Methane	BB	9.91	856.493	97.7616	2.55718	1	2.55718	%

Analyst Peak Integration Comments

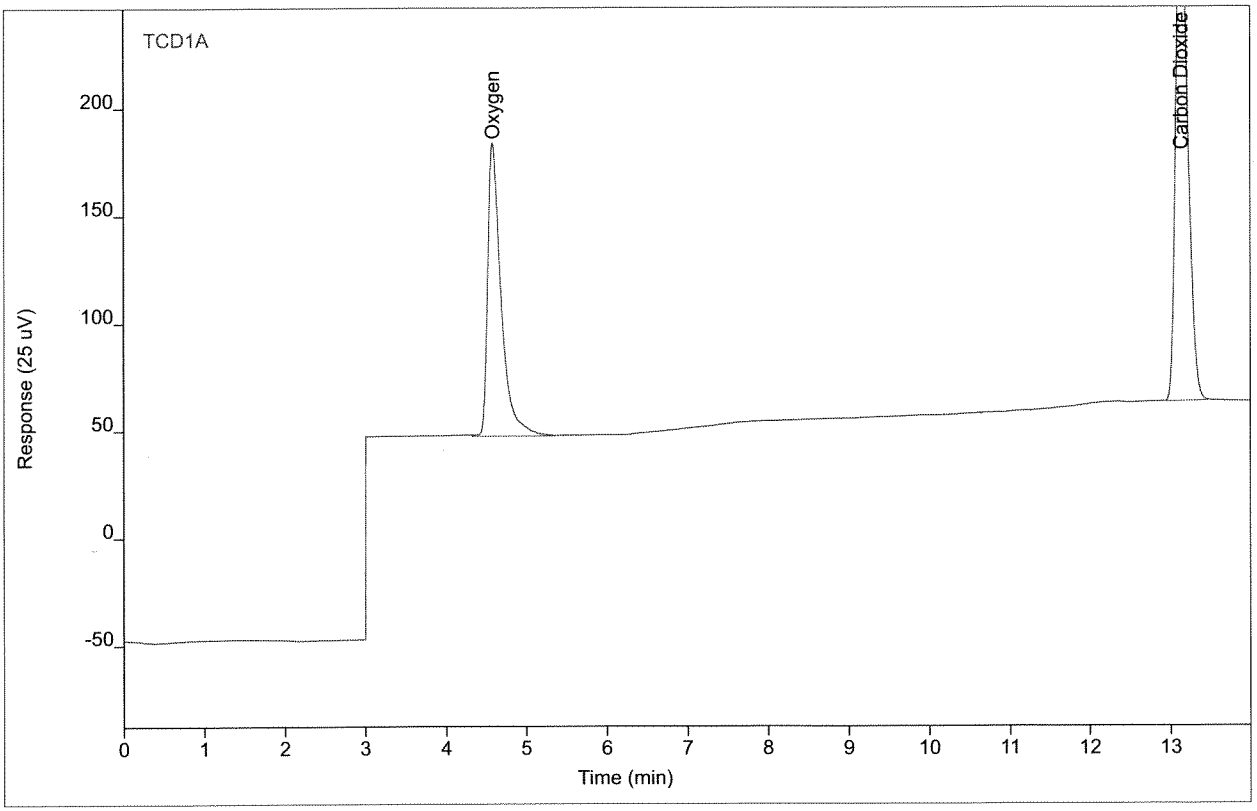
11:01:33 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP464 ver.3
Data File	009F0301.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 12:57 PM
File Modified	10/17/2016 1:11 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



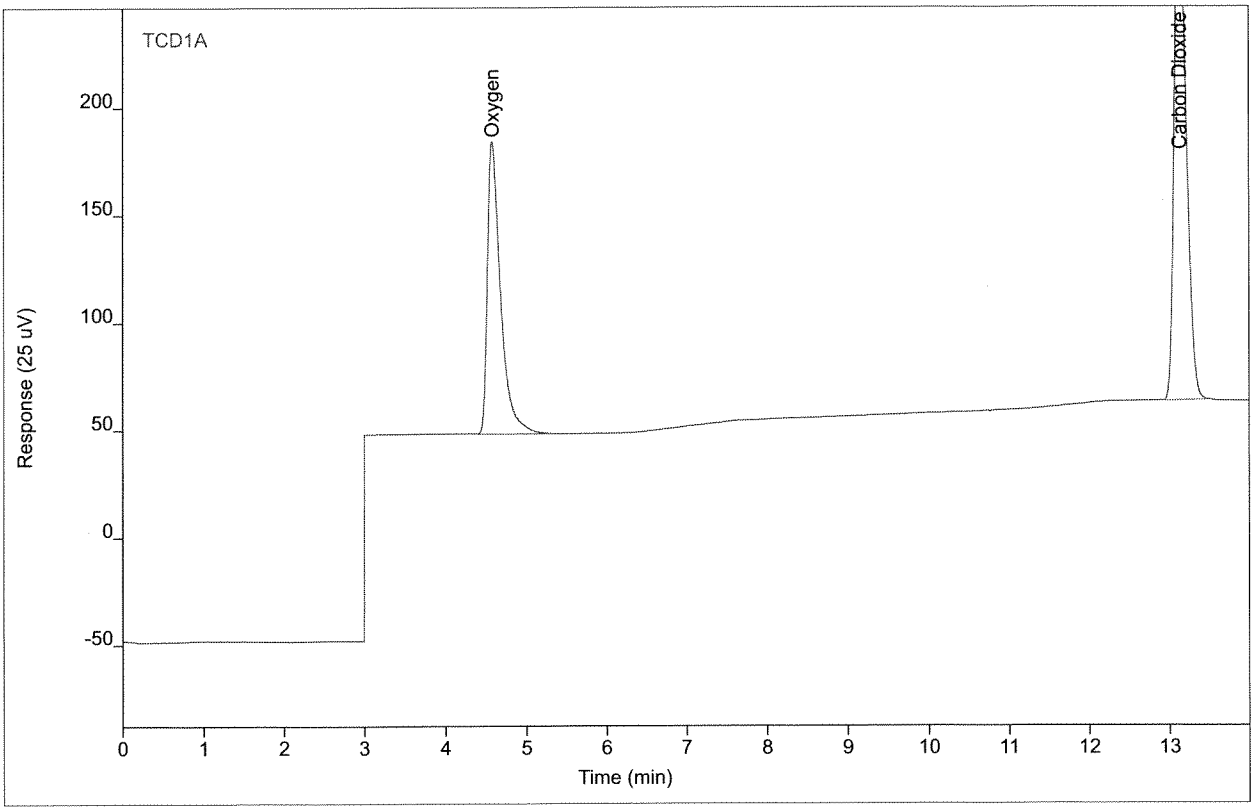
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.58	1590.89	136.161	4.57799	1	4.57799	%
Carbon Dioxide	BB	13.13	2403.62	236.432	4.53075	1	4.53075	%

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP464 ver.3
Data File	009F0302.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 1:20 PM
File Modified	10/17/2016 1:11 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



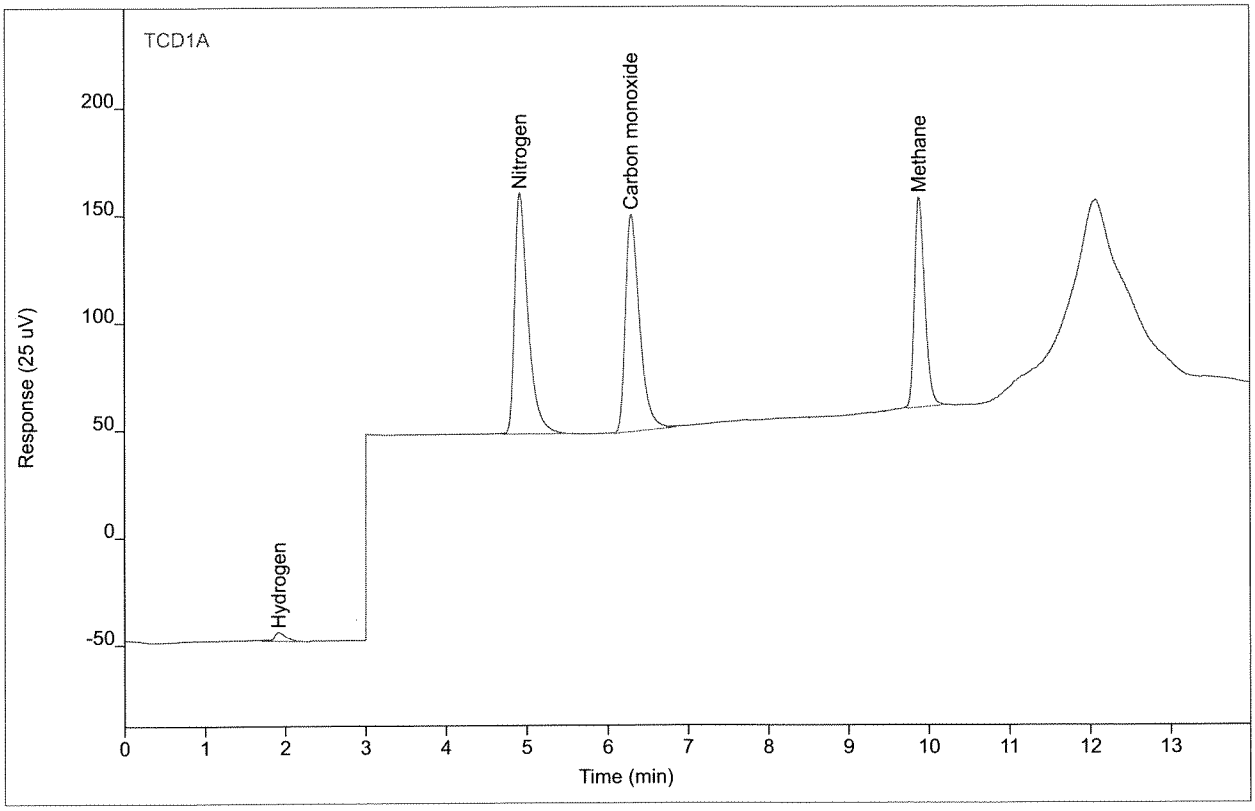
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.58	1570.18	136.092	4.51686	1	4.51686	%
Carbon Dioxide	BB	13.13	2415.95	237.122	4.55444	1	4.55444	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP464 ver.3
Data File	009F1101.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 9:11 PM
File Modified	10/20/2016 11:00 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.92	41.0117	4.07273	2.80237	1	2.80237	%
Nitrogen	MM	4.92	1289.96	112.063	3.24594	1	3.24594	%
Carbon monoxide	MM	6.30	1242.56	101.317	3.20885	1	3.20885	%
Methane	BB	9.89	859.956	97.8240	2.56771	1	2.56771	%

Analyst Peak Integration Comments

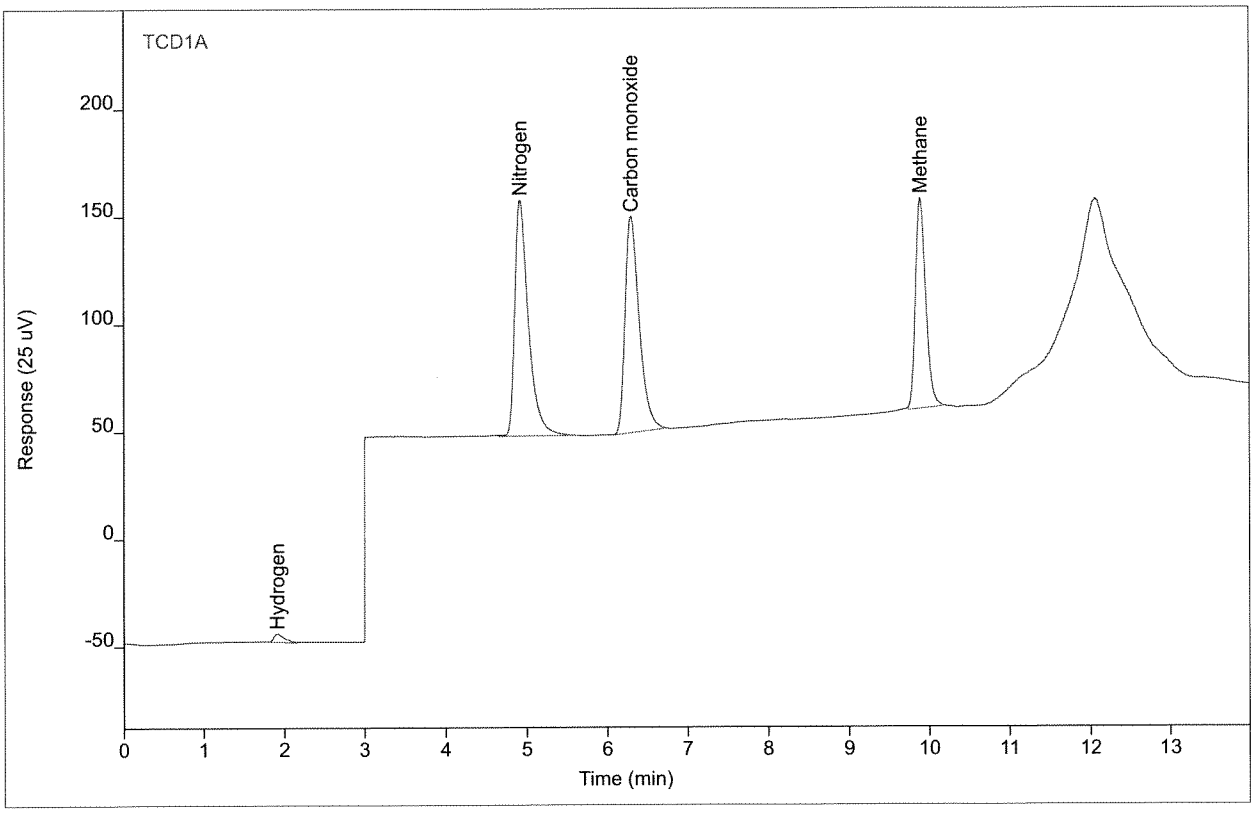
11:00:18 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP464 ver.3
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 9:34 PM
File Modified	10/20/2016 11:00 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	38.7770	4.24130	2.64728	1	2.64728	%
Nitrogen	VB	4.92	1274.76	109.913	3.20628	1	3.20628	%
Carbon monoxide	BB	6.30	1222.74	100.656	3.15706	1	3.15706	%
Methane	BB	9.89	868.332	97.9419	2.59318	1	2.59318	%

Analyst Peak Integration Comments

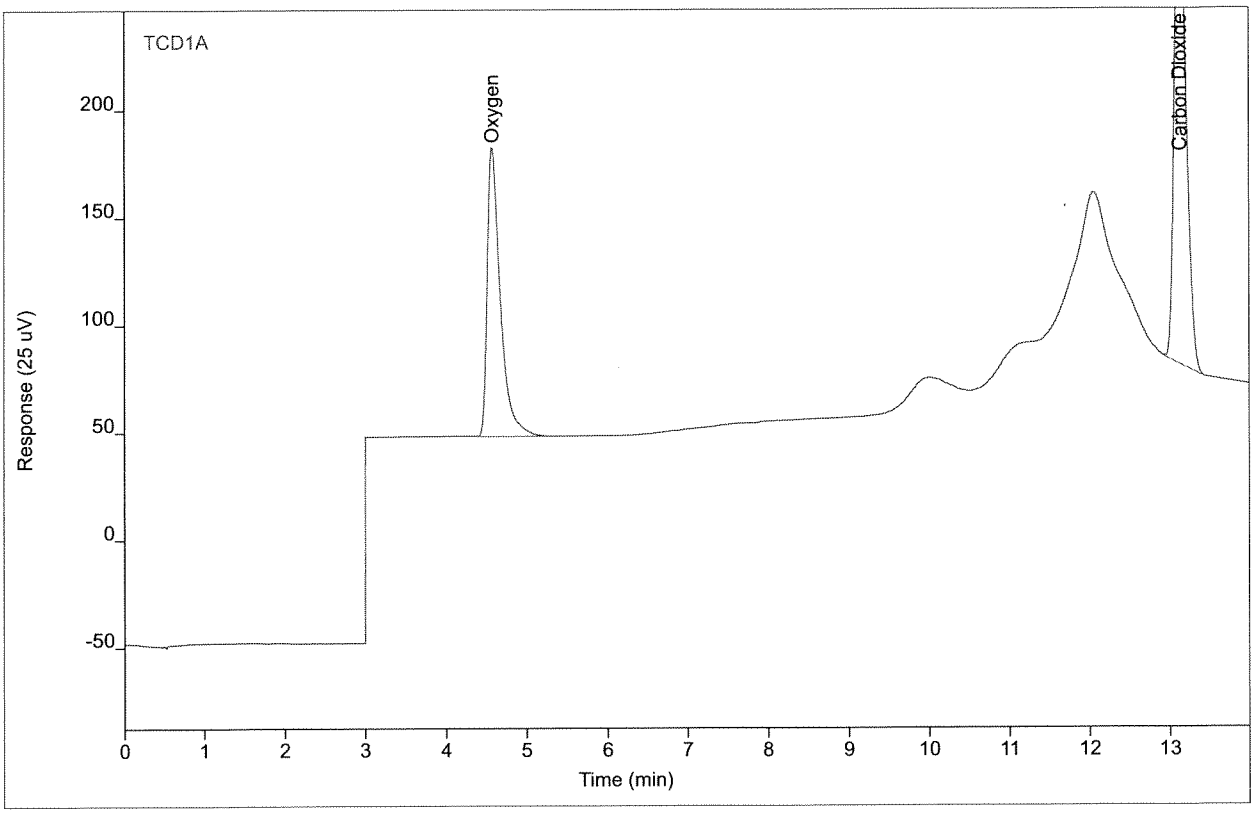
11:00:32 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP464 ver.3
Data File	009F1201.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 9:58 PM
File Modified	10/20/2016 11:04 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.57	1544.78	134.625	4.44187	1	4.44187	%
Carbon Dioxide	MM	13.12	2289.30	230.277	4.31108	1	4.31108	%

Analyst Peak Integration Comments

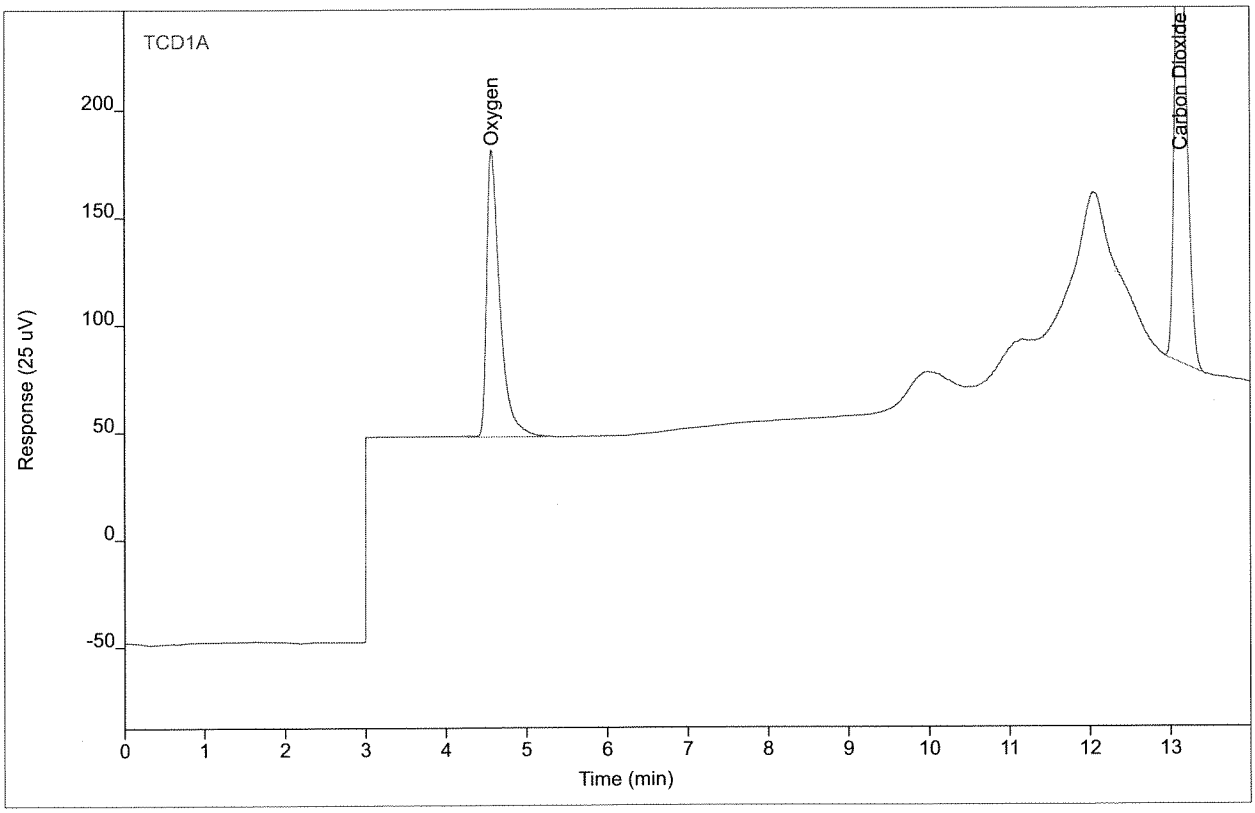
11:04:11 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP464 ver.3
Data File	009F1202.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/15/2016 10:21 PM
File Modified	10/20/2016 11:04 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.57	1531.93	133.525	4.40391	1	4.40391	%
Carbon Dioxide	MM	13.13	2320.56	232.074	4.37114	1	4.37114	%

Analyst Peak Integration Comments

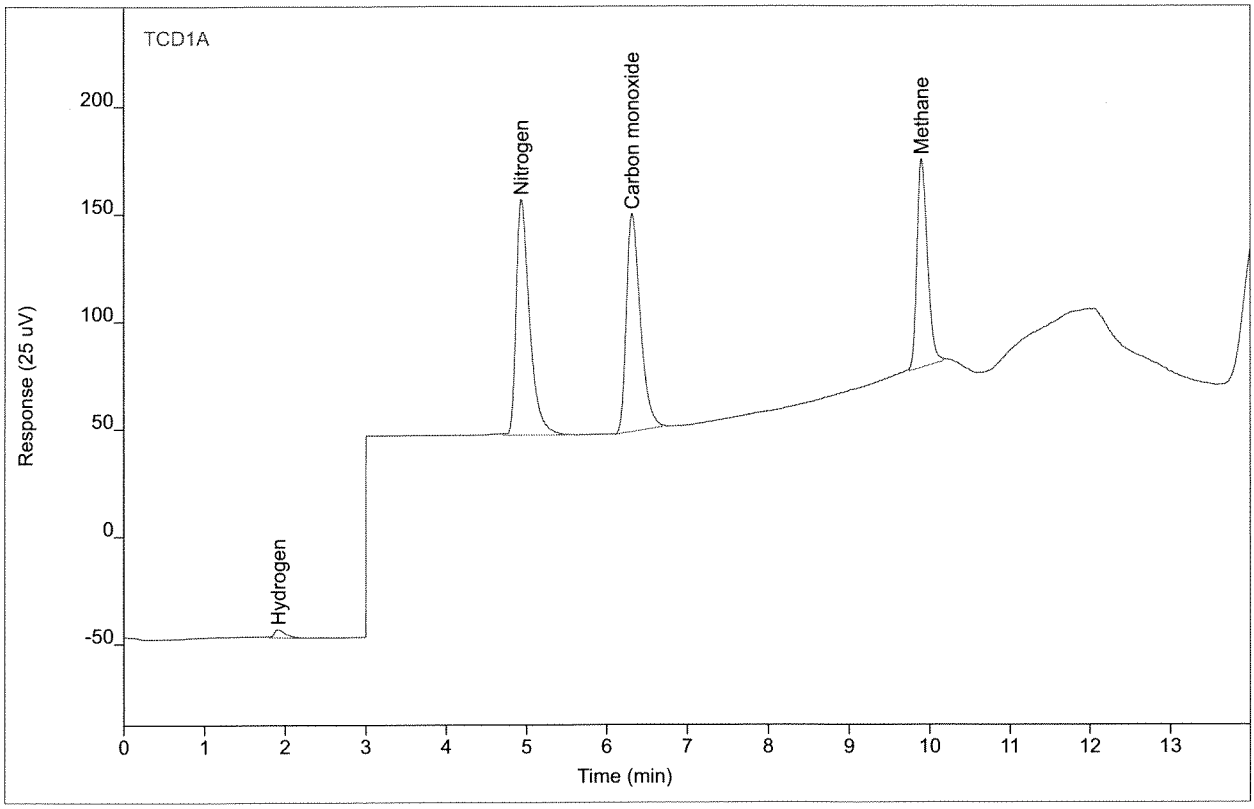
11:04:24 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP469 ver.2
Data File	009F0701.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 1:07 AM
File Modified	10/20/2016 9:42 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.92	37.5441	4.08025	2.56172	1	2.56172	%
Nitrogen	VB	4.94	1266.74	109.836	3.18532	1	3.18532	%
Carbon monoxide	BB	6.32	1216.76	101.335	3.14144	1	3.14144	%
Methane	BB	9.91	861.083	96.9802	2.57114	1	2.57114	%

Analyst Peak Integration Comments

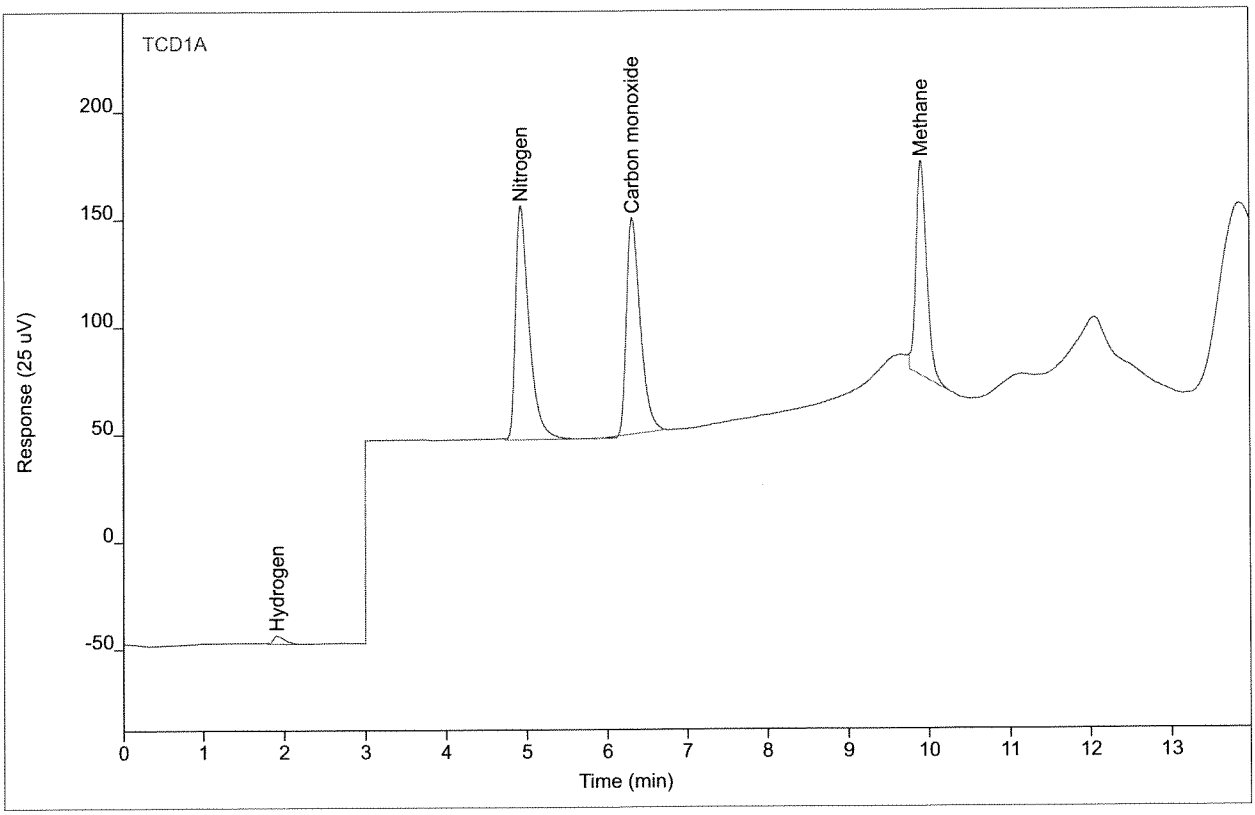
08:59:00 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP469 ver.2
Data File	009F0702.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 1:30 AM
File Modified	10/20/2016 9:42 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	37.4566	4.08031	2.55564	1	2.55564	%
Nitrogen	VB	4.94	1261.05	108.819	3.17046	1	3.17046	%
Carbon monoxide	BB	6.32	1181.02	100.501	3.04806	1	3.04806	%
Methane	BB	9.91	923.801	99.6828	2.76187	1	2.76187	%

Analyst Peak Integration Comments

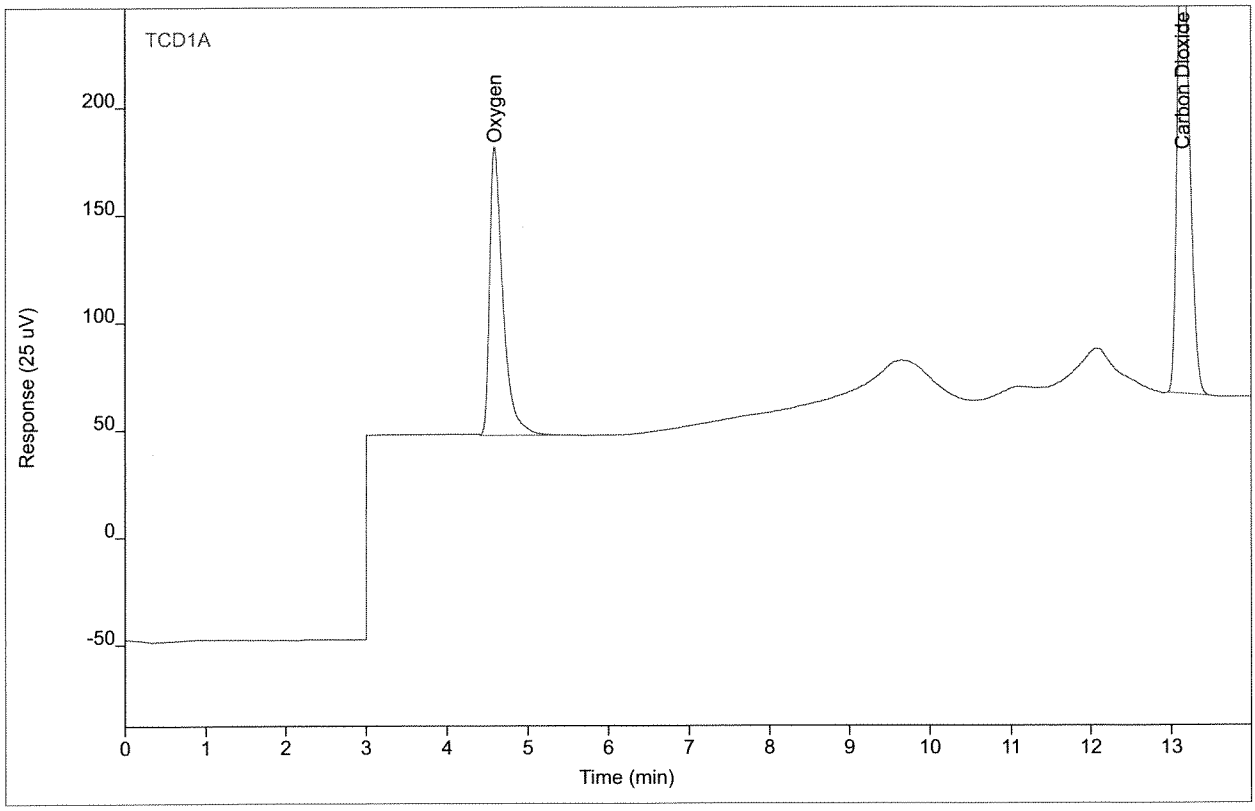
08:59:10 10/20/16 Nicholas Traversa II-BL

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP469 ver.2
Data File	009F0801.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 1:53 AM
File Modified	10/20/2016 9:42 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



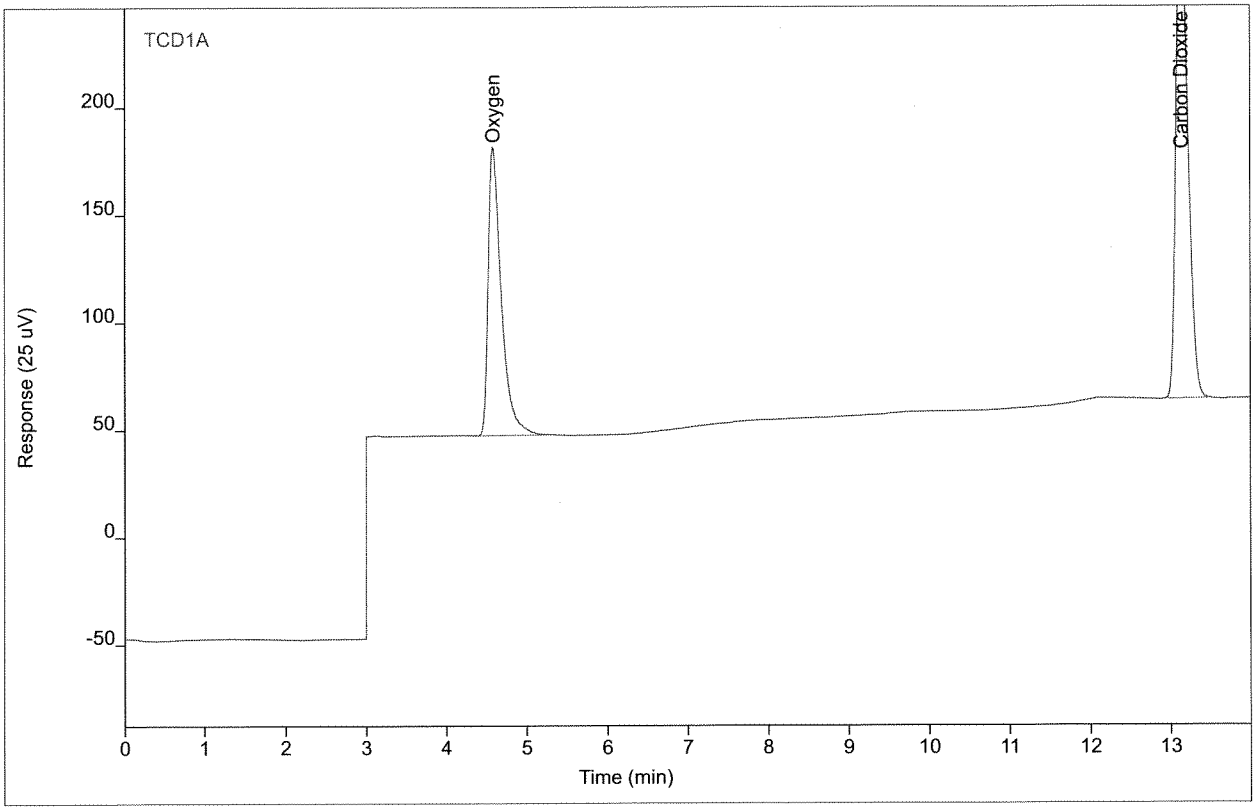
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.59	1544.56	134.121	4.44120	1	4.44120	%
Carbon Dioxide	BB	13.14	2338.36	230.344	4.40535	1	4.40535	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP469 ver.2
Data File	009F0802.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 2:16 AM
File Modified	10/20/2016 9:42 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM

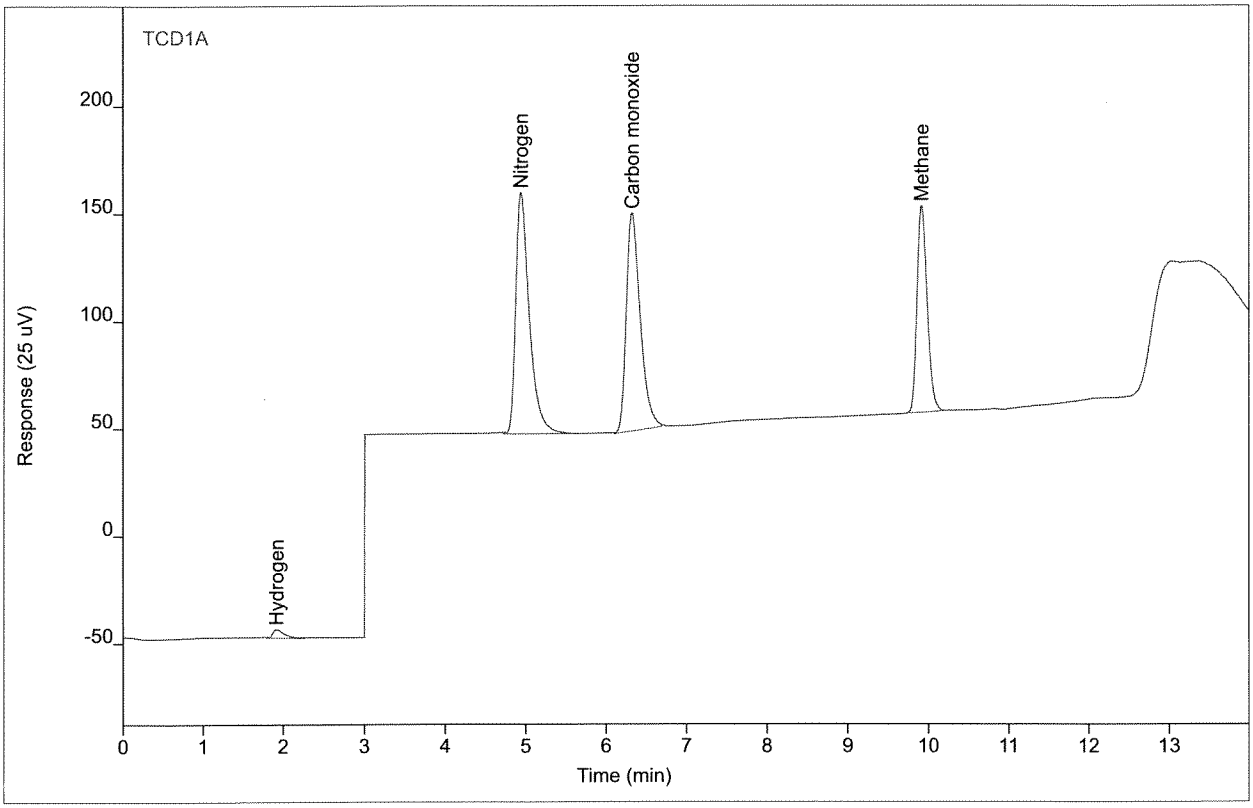


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.59	1533.67	134.255	4.40906	1	4.40906	%
Carbon Dioxide	BB	13.14	2371.92	232.663	4.46985	1	4.46985	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP470 ver.2	Vial Number	Vial 9
Data File	009F0501.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	1 of 2
Injection Date	10/20/2016 5:38 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/21/2016 1:15 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	10/14/2016 10:09 AM
Operator	Nicholas Traversa	Printed	10/25/2016 12:59 PM



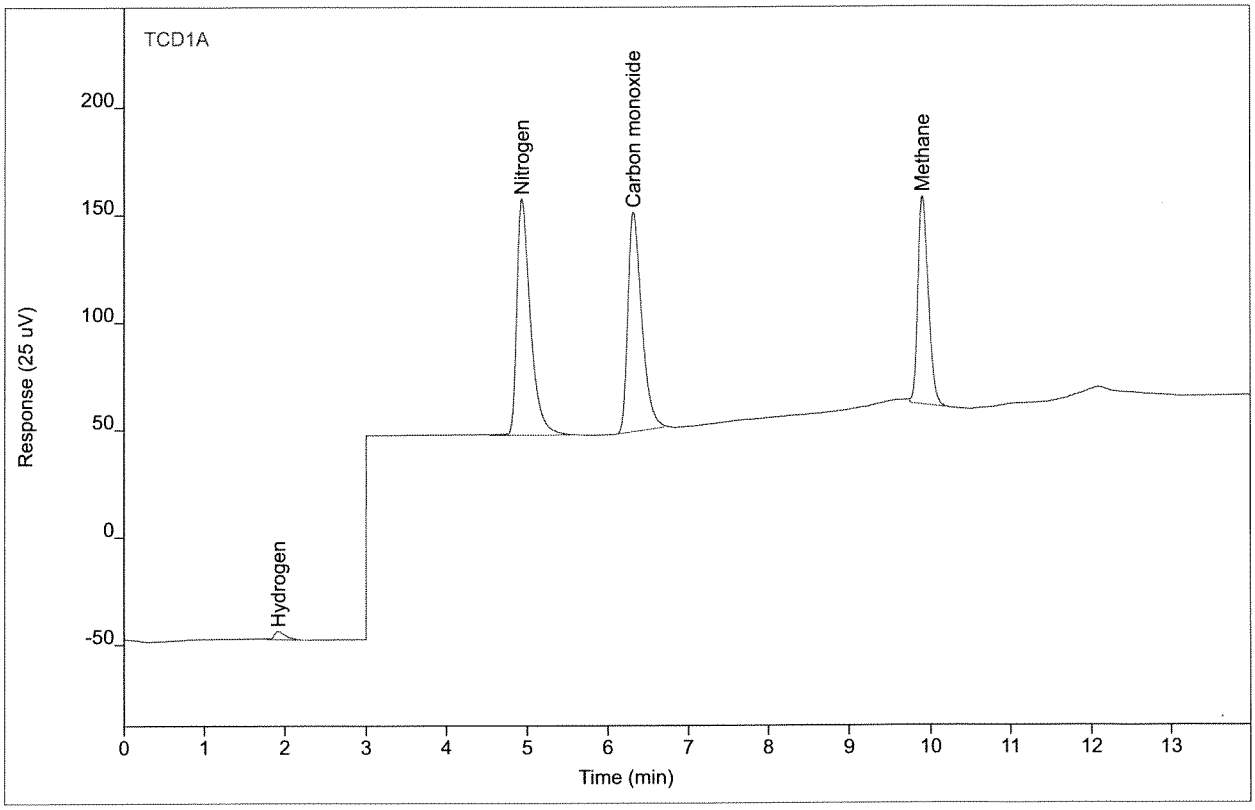
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.92	39.0915	4.08689	2.66911	1	2.66911	%
Nitrogen	VB	4.94	1300.56	112.339	3.27362	1	3.27362	%
Carbon monoxide	BB	6.33	1218.25	101.407	3.14533	1	3.14533	%
Methane	BB	9.91	845.841	96.1605	2.52479	1	2.52479	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP470 ver.2
Data File	009F0502.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 6:01 PM
File Modified	10/21/2016 1:15 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



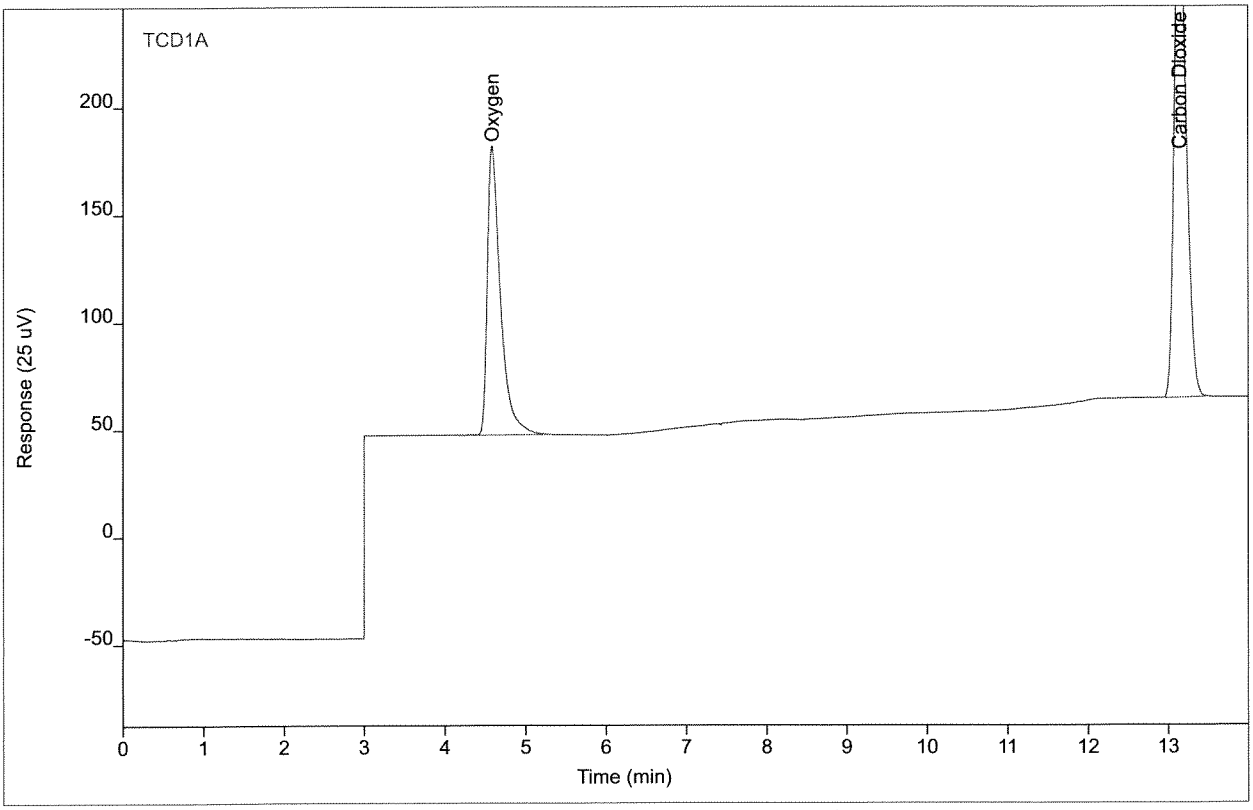
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.92	37.9804	4.00119	2.59200	1	2.59200	%
Nitrogen	BB	4.94	1284.44	110.039	3.23155	1	3.23155	%
Carbon monoxide	BB	6.33	1219.54	102.265	3.14872	1	3.14872	%
Methane	BB	9.92	861.738	96.8147	2.57313	1	2.57313	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP470 ver.2
Data File	009F0601.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 6:25 PM
File Modified	10/21/2016 1:15 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



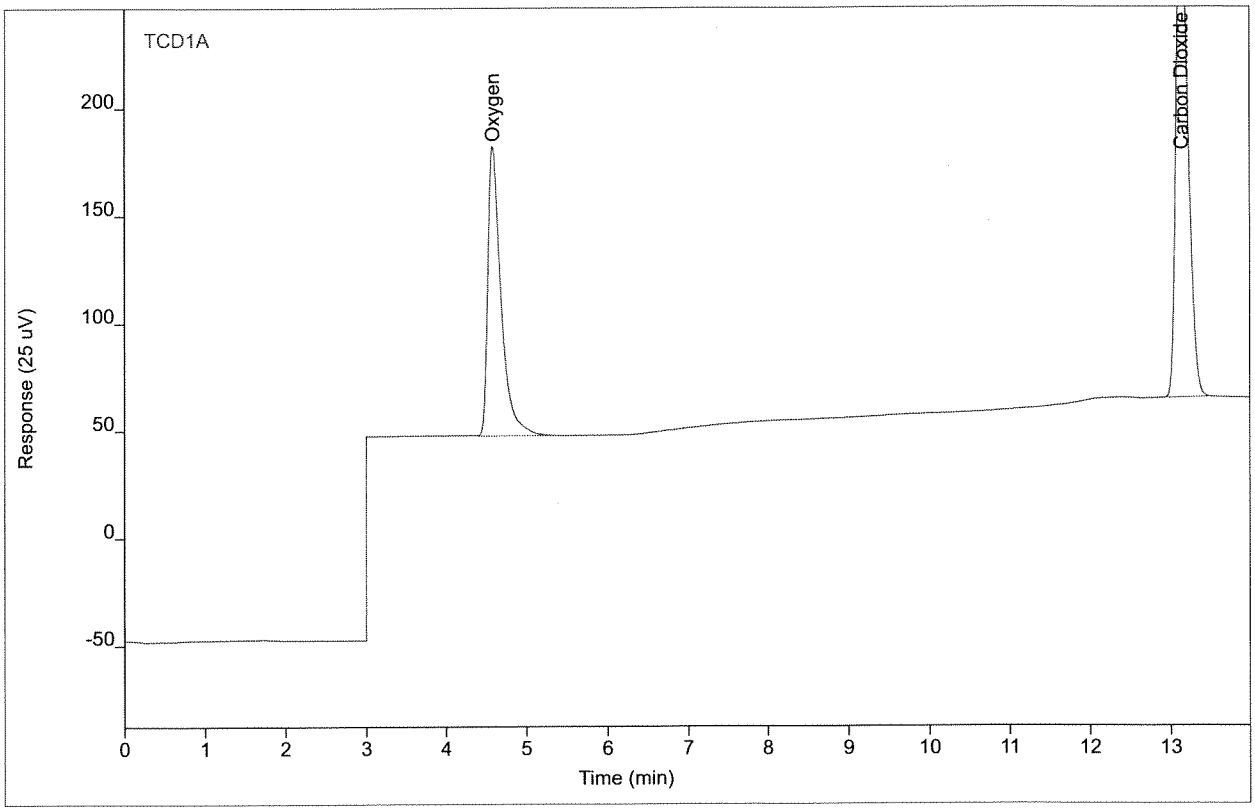
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.59	1549.21	134.459	4.45494	1	4.45494	%
Carbon Dioxide	BB	13.14	2396.41	234.126	4.51690	1	4.51690	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP470 ver.2
Data File	009F0602.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/20/2016 6:48 PM
File Modified	10/21/2016 1:15 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/25/2016 12:59 PM



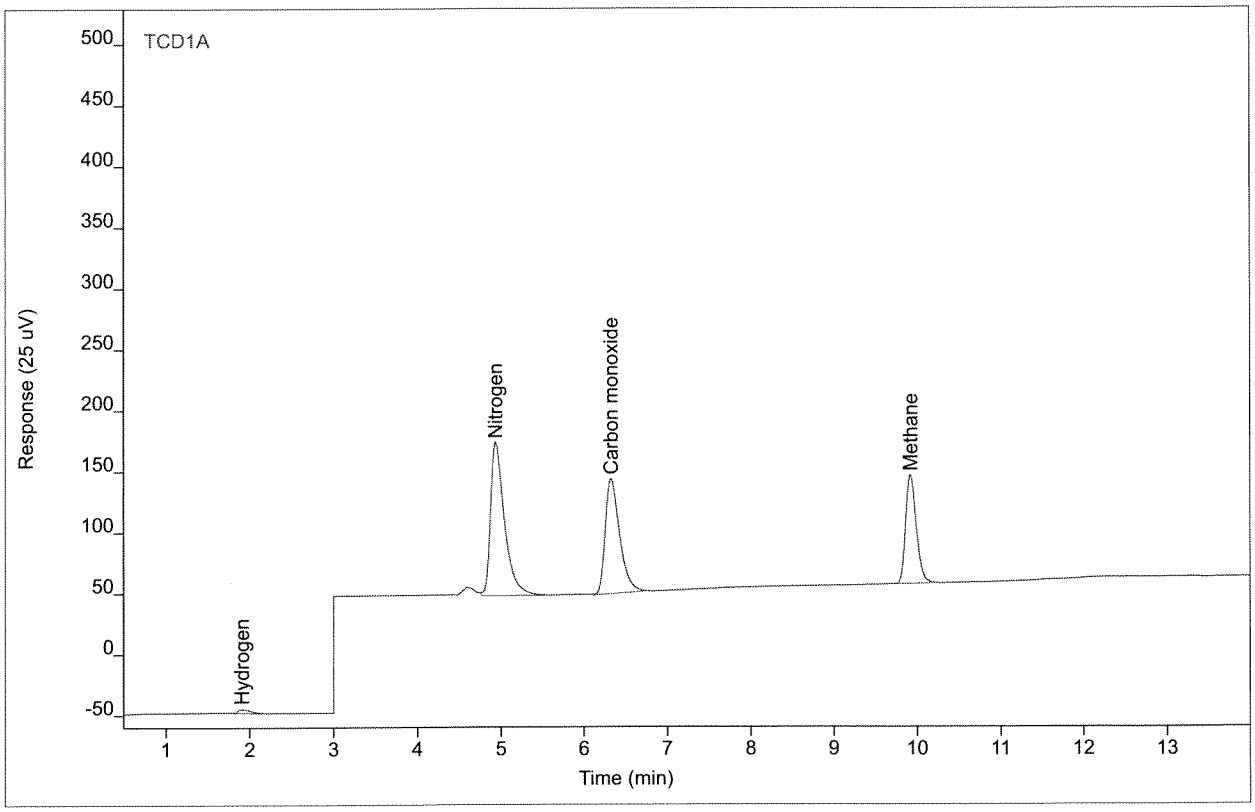
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.59	1559.39	134.947	4.48498	1	4.48498	%
Carbon Dioxide	BB	13.14	2404.28	235.280	4.53203	1	4.53203	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP472 ver.2
Data File	009F0902.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 7:55 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/26/2016 7:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	36.1384	3.84601	2.64598	1	2.64598	%
Nitrogen	VB	4.94	1468.75	125.422	3.40840	1	3.40840	%
Carbon monoxide	BB	6.33	1137.53	94.2899	3.46636	1	3.46636	%
Methane	BB	9.92	785.127	89.0266	2.75845	1	2.75845	%

Analyst Peak Integration Comments

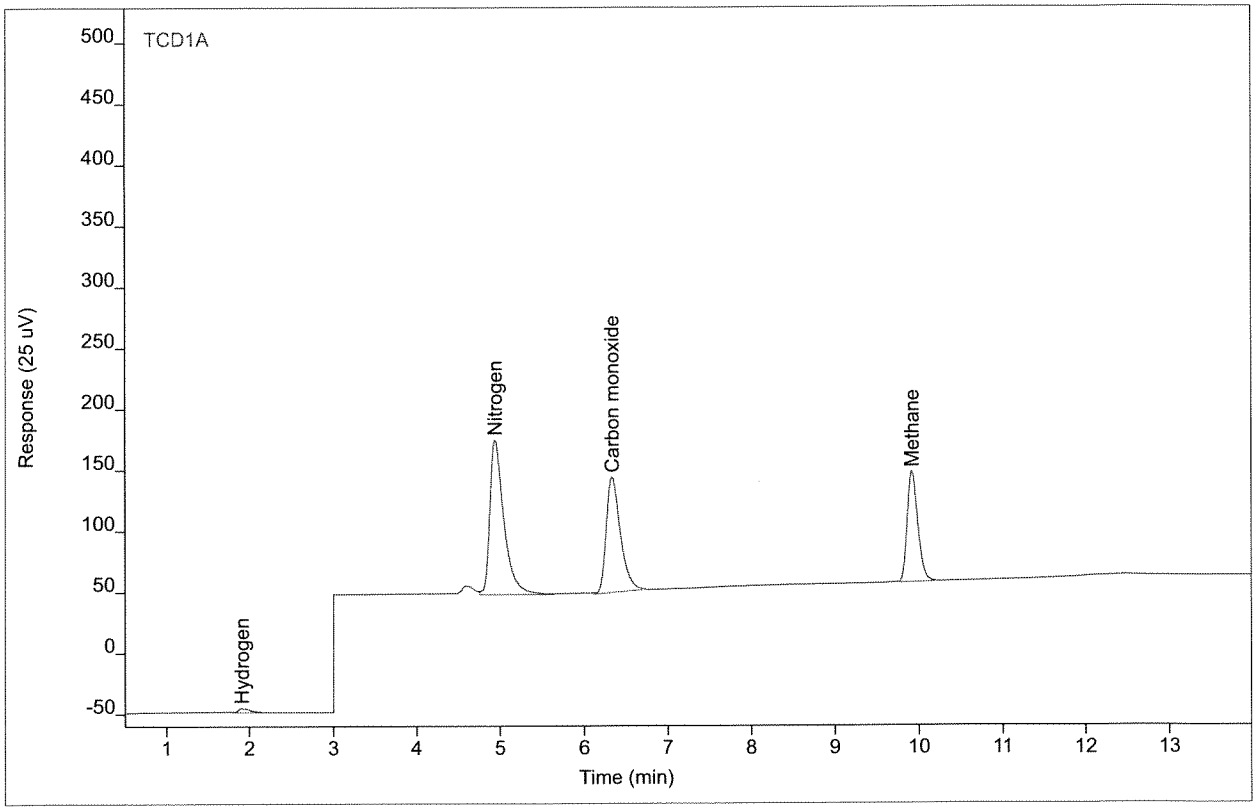
06:42:13 10/25/16 Justin Guenzler false positive
06:42:25 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP472 ver.2
Data File	009F0903.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 8:19 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/26/2016 7:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	36.0630	3.78111	2.64023	1	2.64023	%
Nitrogen	VB	4.94	1497.24	127.029	3.49469	1	3.49469	%
Carbon monoxide	BB	6.34	1137.15	94.9162	3.46519	1	3.46519	%
Methane	BB	9.92	795.246	90.6889	2.79419	1	2.79419	%

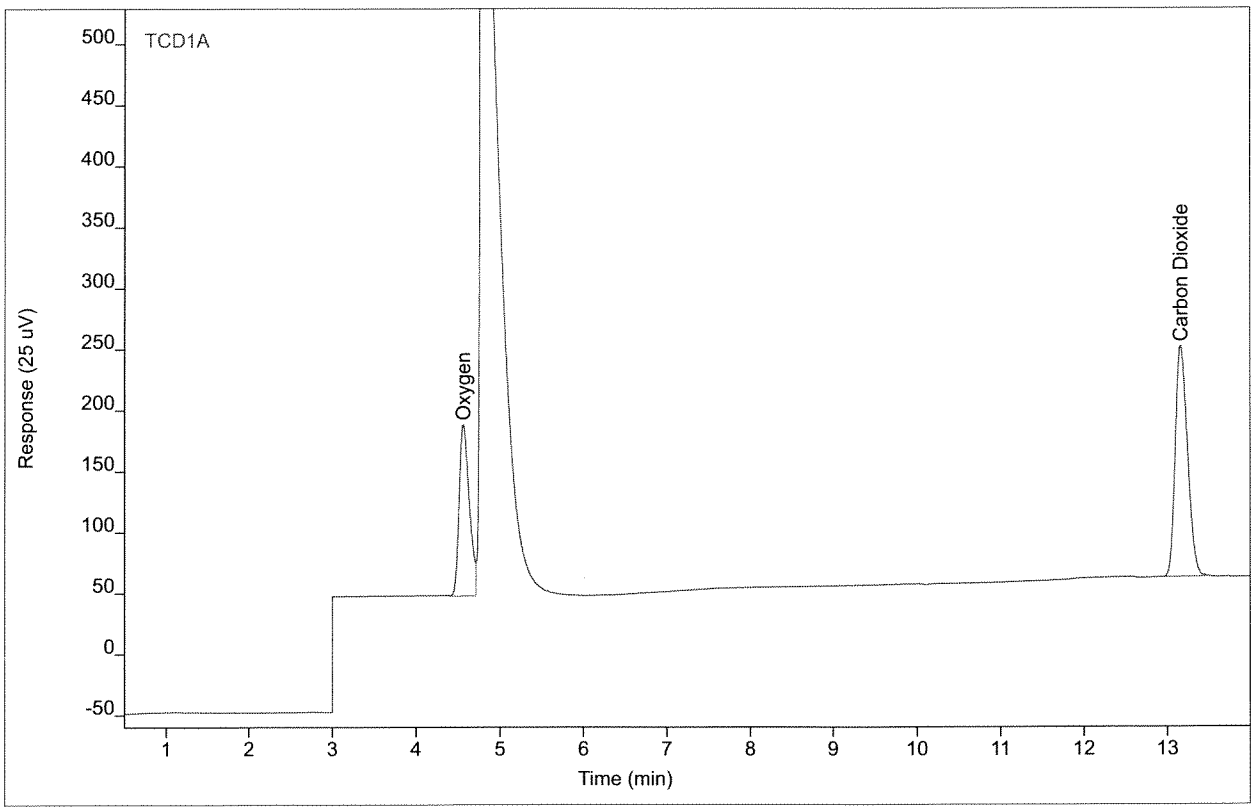
Analyst Peak Integration Comments

06:42:34 10/25/16 Justin Guenzler II
06:42:50 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1302.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/25/2016 2:14 AM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:50 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/26/2016 7:41 AM



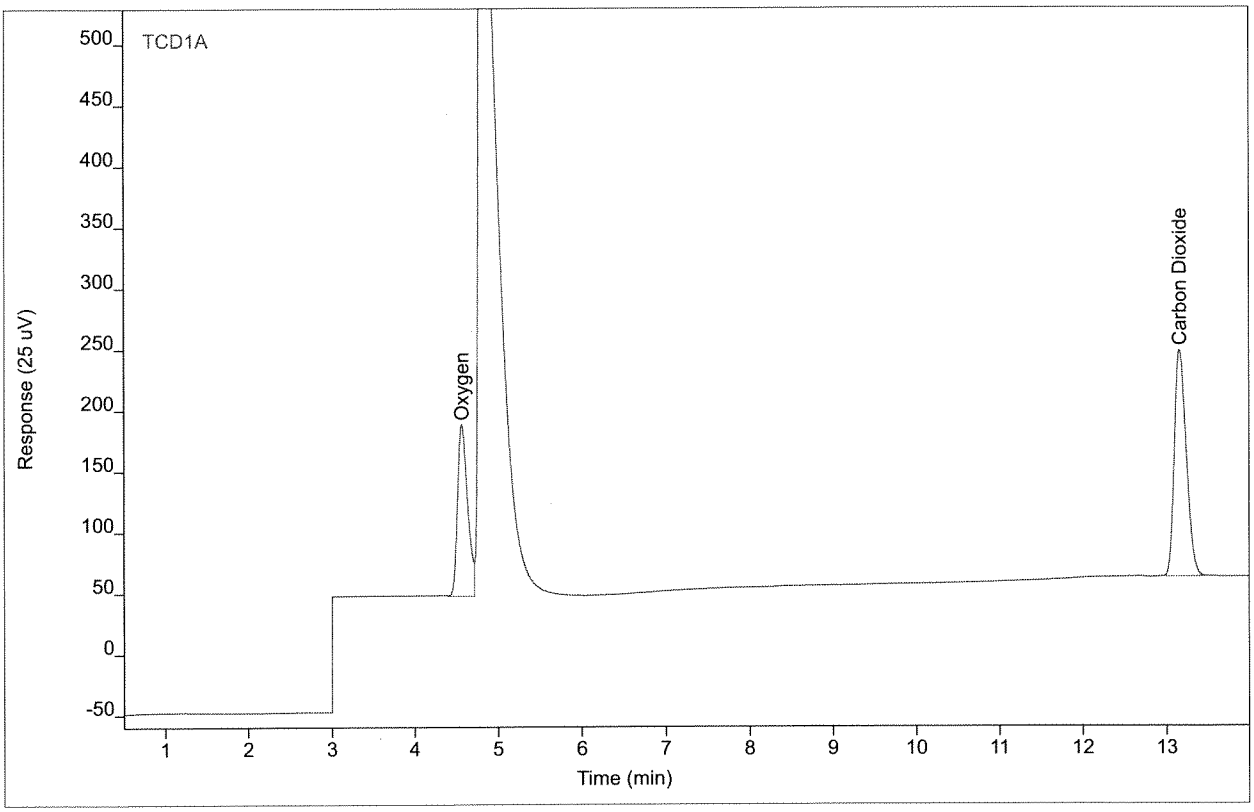
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.56	1180.60	140.595	4.10965	1	4.10965	%
Carbon Dioxide	BB	13.16	1897.47	189.252	4.25957	1	4.25957	%

Chromatogram Report

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP472 ver.2
Data File	009F1303.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 2:38 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/26/2016 7:41 AM



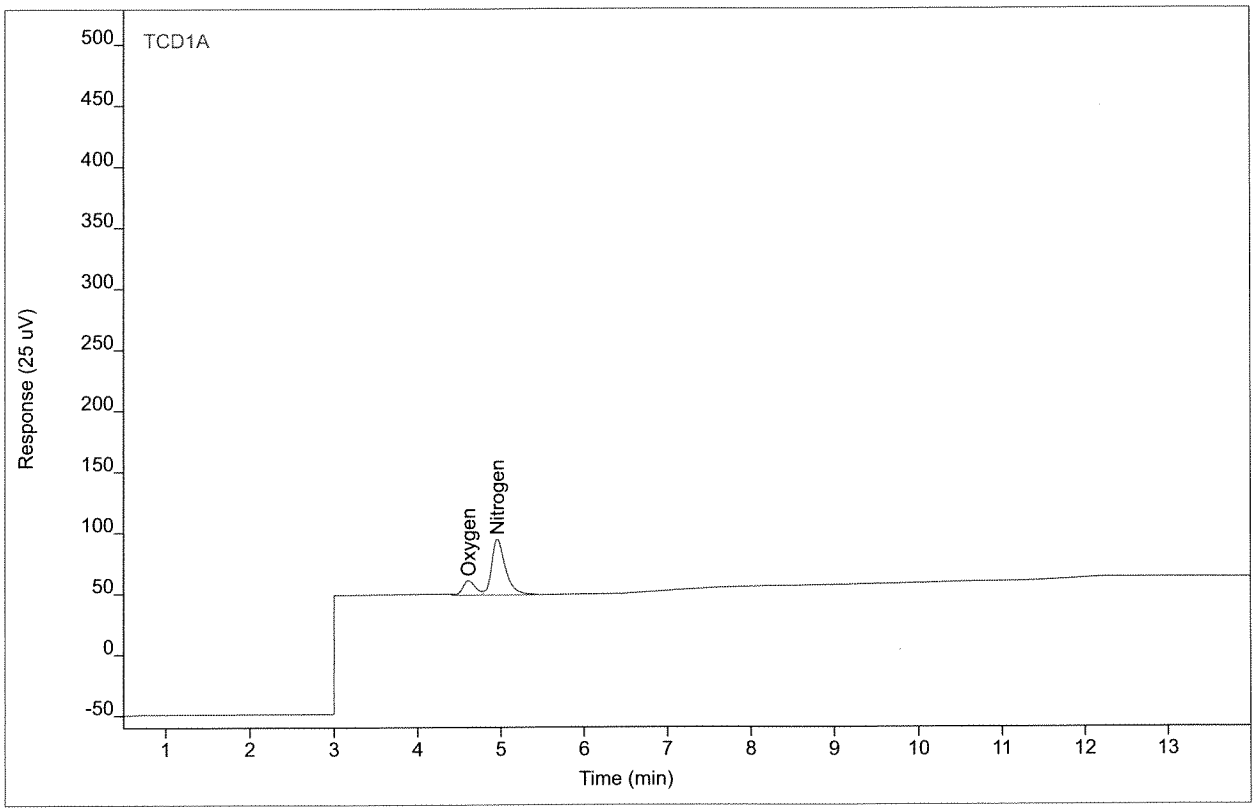
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.56	1184.49	140.756	4.12439	1	4.12439	%
Carbon Dioxide	BB	13.16	1882.48	185.731	4.22549	1	4.22549	%

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	BETTYP473 ver.3
Data File	004F0301.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 2:04 PM
File Modified	10/26/2016 7:28 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	1 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:49 PM
Printed	10/26/2016 7:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.89)				1		
Oxygen	VV	4.61	124.582	12.0316	0.27380	1	0.27380	%
Nitrogen	VB	4.96	540.565	46.0745	0.59699	1	0.59699	%
Carbon monoxide		(6.33)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.21)				1		

Analyst Peak Integration Comments

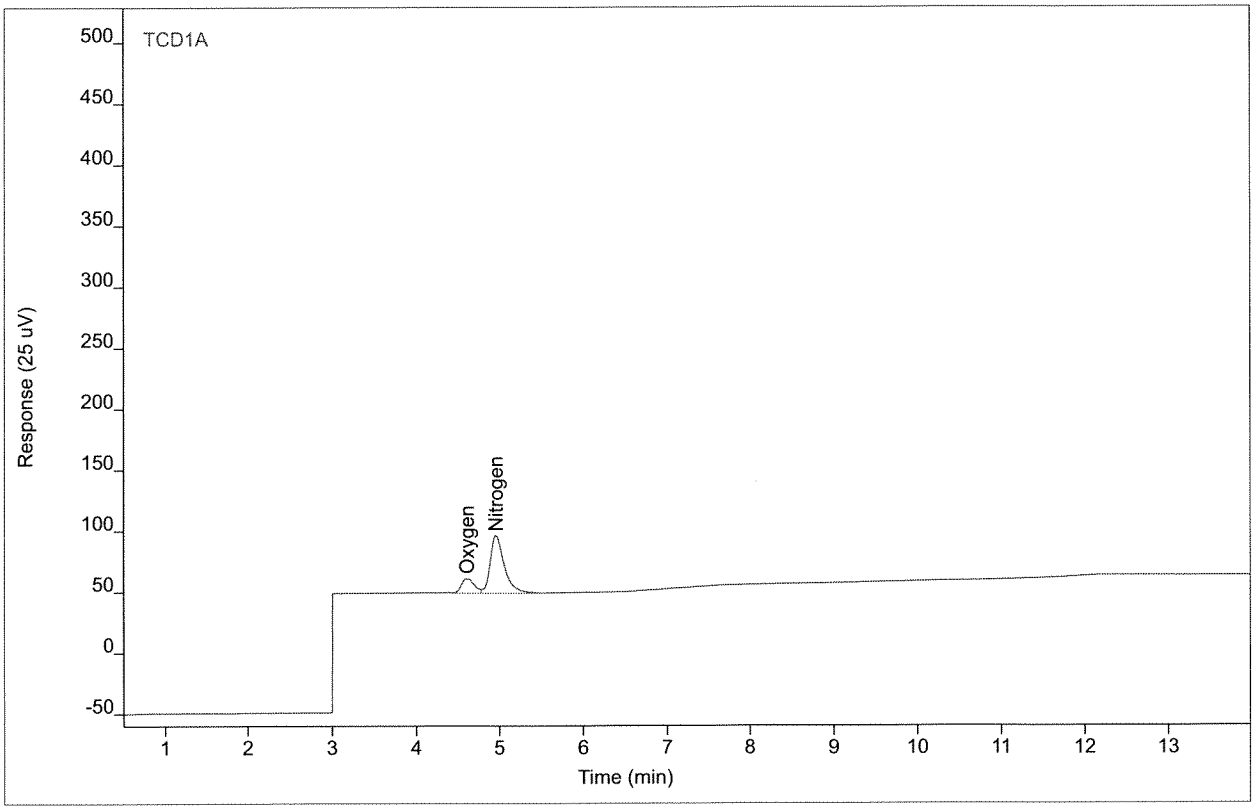
14:20:51 10/25/16 Justin Guenzler false positive

Chromatogram Report

Enthalpy Analytical

Sample Name	0816-140.U2-C3-Primary Can1341.Can
Sequence Name	BETTYP473 ver.3
Data File	004F0302.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 2:25 PM
File Modified	10/26/2016 7:28 AM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Sample
Vial Number	Vial 4
Injection Volume	250
Injection	2 of 2
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:49 PM
Printed	10/26/2016 7:41 AM



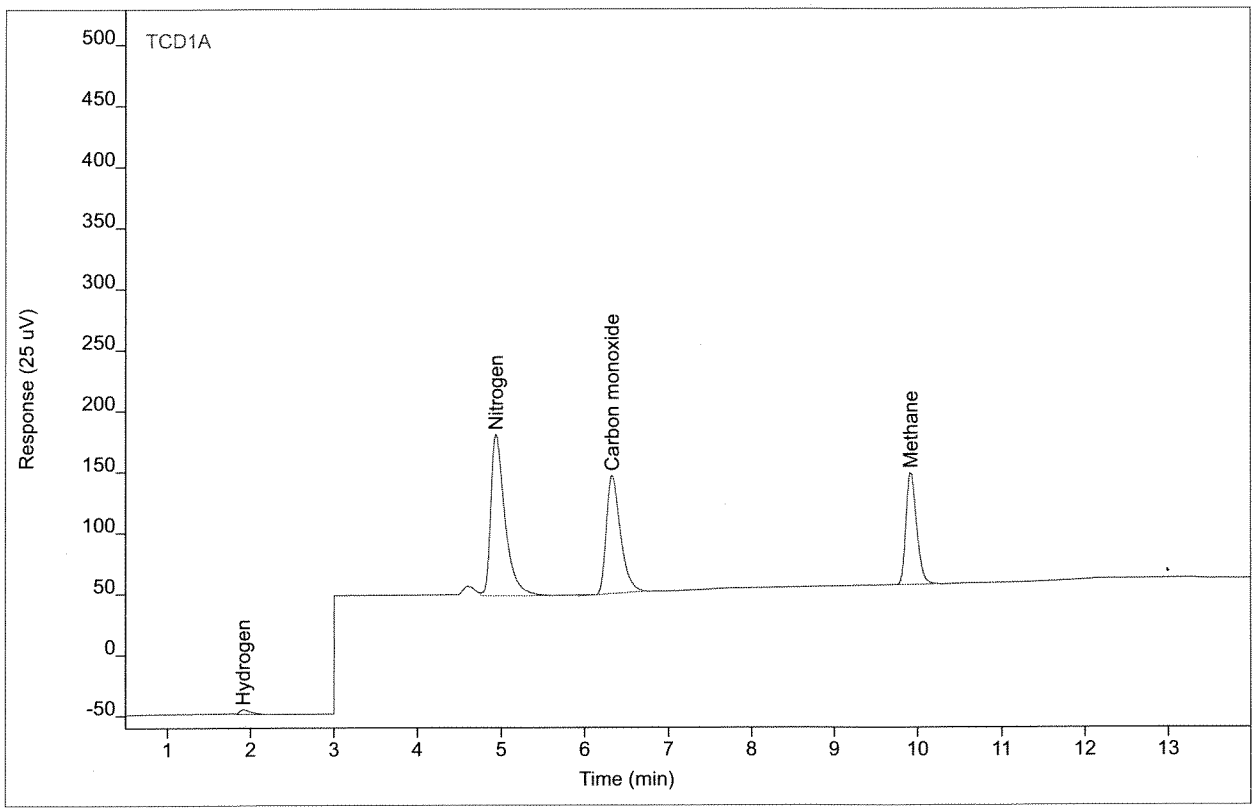
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen		(1.89)				1		
Oxygen	BV	4.61	129.125	12.4904	0.28379	1	0.28379	%
Nitrogen	VB	4.96	561.019	47.4113	0.65895	1	0.65895	%
Carbon monoxide		(6.33)				1		
Methane		(9.88)				1		
Carbon Dioxide		(13.21)				1		

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP473 ver.3
Data File	009F1101.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 7:49 PM
File Modified	10/26/2016 7:29 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:49 PM
Printed	10/26/2016 7:41 AM



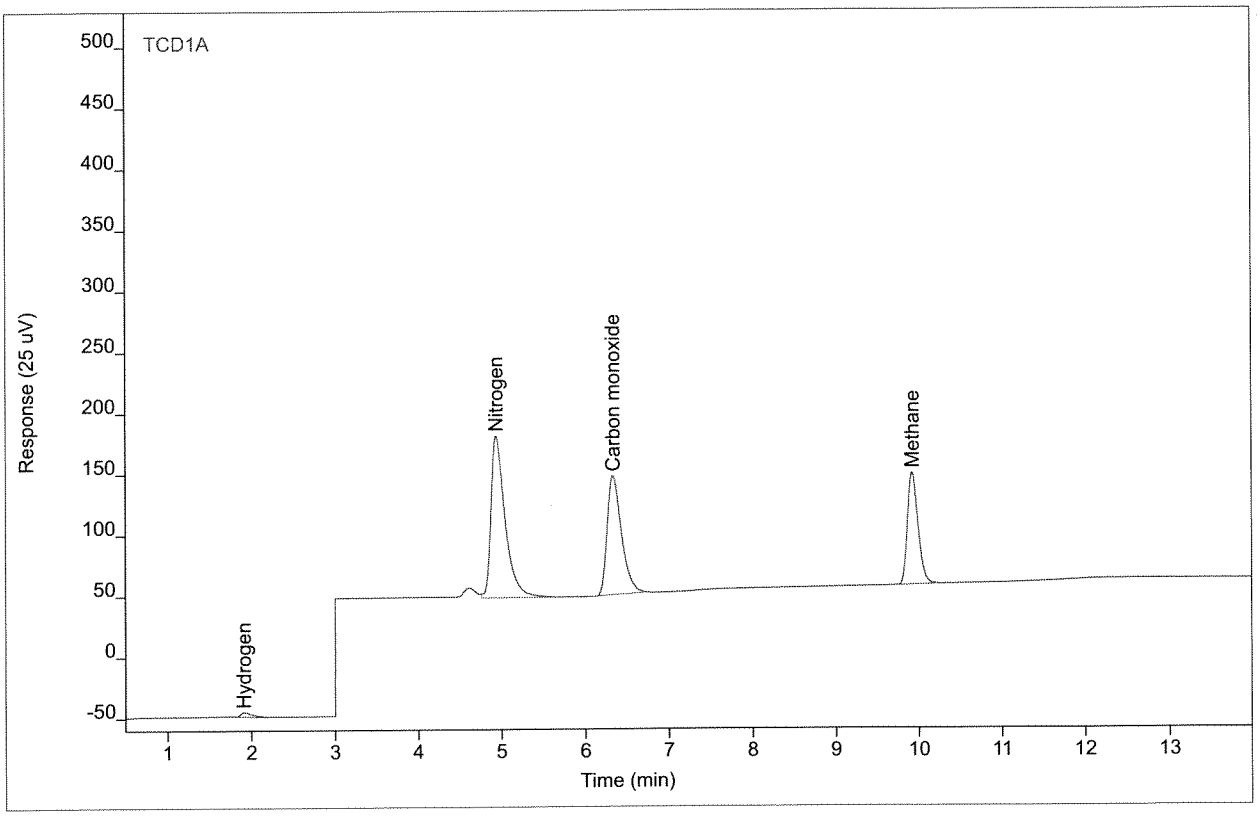
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.91	35.9762	3.94773	2.63361	1	2.63361	%
Nitrogen	VB	4.94	1569.11	132.544	3.71237	1	3.71237	%
Carbon monoxide	BB	6.33	1146.97	97.0692	3.49515	1	3.49515	%
Methane	BB	9.92	811.224	92.0215	2.85063	1	2.85063	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP473 ver.3
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 8:12 PM
File Modified	10/26/2016 7:29 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:49 PM
Printed	10/26/2016 7:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	36.4636	3.89729	2.67081	1	2.67081	%
Nitrogen	VB	4.94	1573.43	133.008	3.72546	1	3.72546	%
Carbon monoxide	BB	6.33	1157.68	97.6159	3.52778	1	3.52778	%
Methane	BB	9.92	813.992	92.0323	2.86041	1	2.86041	%

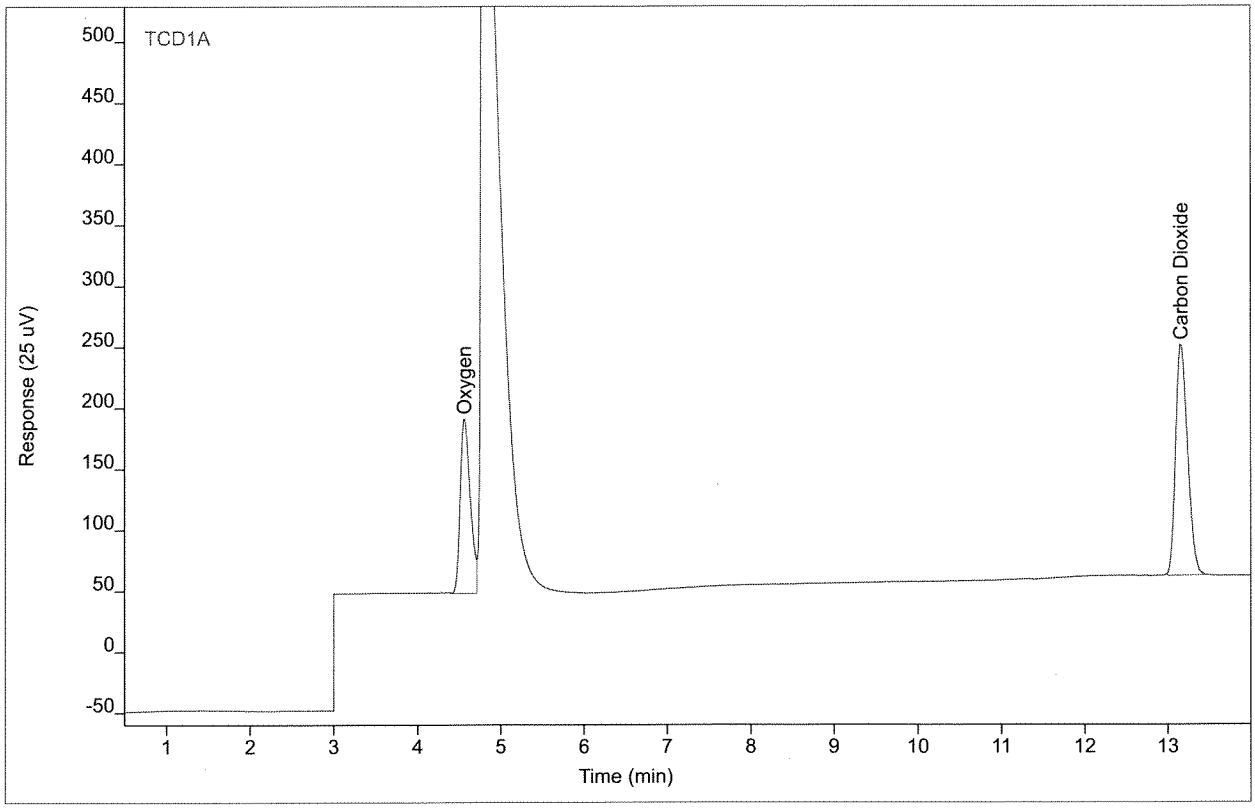
Analyst Peak Integration Comments

06:26:33 10/26/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP473 ver.3	Vial Number	Vial 9
Data File	009F1201.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	1 of 3
Injection Date	10/25/2016 9:00 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/26/2016 7:29 AM	Analysis Method	BETTYP472_FGA_.M
Instrument	Betty	Method Modified	10/25/2016 12:49 PM
Operator	Nicholas Traversa	Printed	10/26/2016 7:41 AM

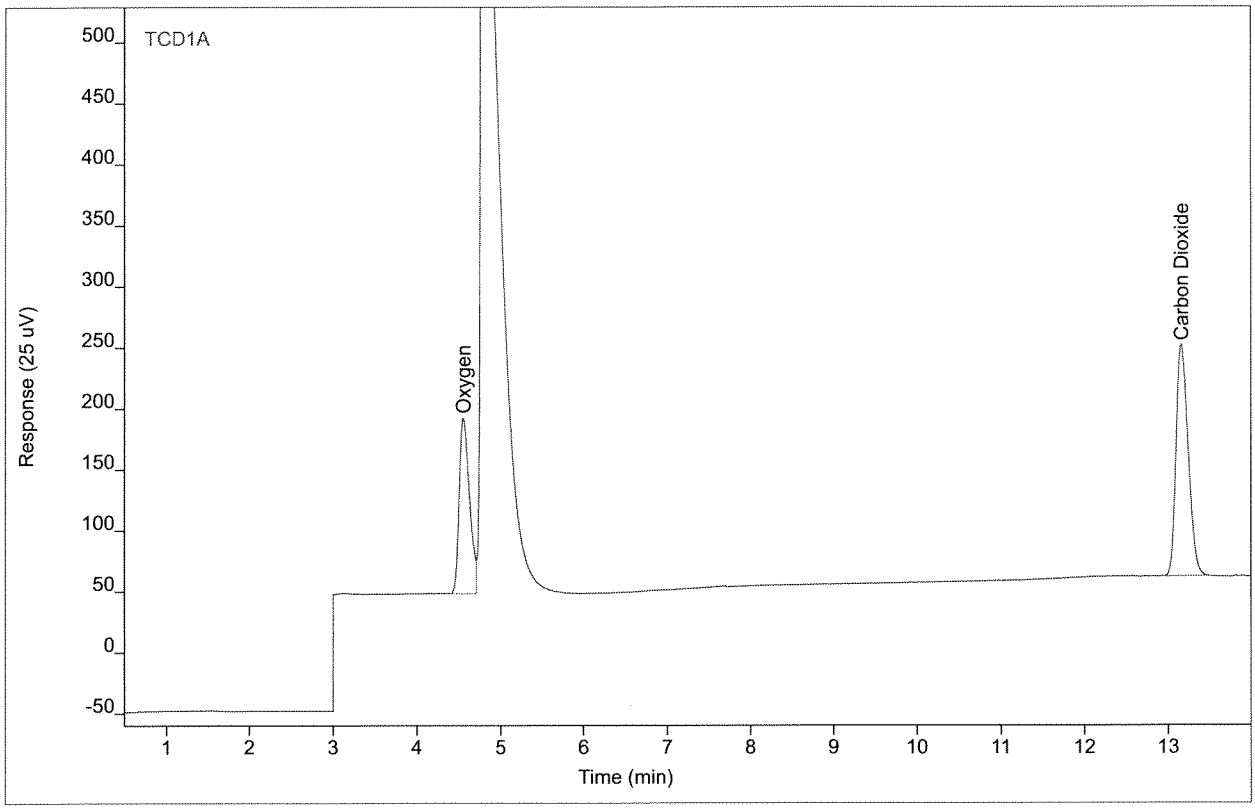


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.56	1201.10	143.618	4.18728	1	4.18728	%
Carbon Dioxide	BB	13.16	1903.65	189.443	4.27364	1	4.27364	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP473 ver.3	Vial Number	Vial 9
Data File	009F1202.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 3
Injection Date	10/25/2016 9:23 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/26/2016 7:29 AM	Analysis Method	BETTYP472_FGA_.M
Instrument	Betty	Method Modified	10/25/2016 12:49 PM
Operator	Nicholas Traversa	Printed	10/26/2016 7:41 AM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MF	4.56	1210.03	144.596	4.22109	1	4.22109	%
Carbon Dioxide	BB	13.16	1917.43	189.571	4.30497	1	4.30497	%

Analyst Peak Integration Comments

06:27:11 10/26/16 Justin Guenzler II

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 line 6. ASTM D1946-90 Canister Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Hydrogen -- Calibration Standards, Laboratory Blanks and Controls												
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	BETTYP338_FGA.M	1.91	1.92	0.1	2.56	2.62	1.1	2.59	2.76	93.8
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1001.D	009F1002.D	BETTYP338_FGA.M	1.91	1.92	0.1	2.55	2.60	1.0	2.58	2.76	93.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0201.D	009F0202.D	BETTYP338_FGA.M	1.91	1.90	0.3	2.74	2.55	3.5	2.65	2.76	95.8
Bettyp374 Method Blank-1	001F0401.D	001F0402.D	BETTYP338_FGA.M	NA	NA	NA	0.0853	0.0853	0.0	0.0853	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	BETTYP338_FGA.M	1.92	1.91	0.2	2.80	2.65	2.8	2.72	2.76	98.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0701.D	009F0702.D	BETTYP338_FGA.M	1.92	1.91	0.2	2.56	2.56	0.1	2.56	2.76	92.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP338_FGA.M	1.92	1.92	0.1	2.67	2.59	1.5	2.63	2.76	95.3
Oxygen -- Calibration Standards, Laboratory Blanks and Controls												
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1501.D	009F1502.D	BETTYP338_FGA.M	4.58	4.58	0.0	4.41	4.44	0.4	4.42	4.80	92.0
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1101.D	009F1102.D	BETTYP338_FGA.M	4.58	4.58	0.0	4.43	4.50	0.8	4.47	4.80	92.9
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0301.D	009F0302.D	BETTYP338_FGA.M	4.58	4.58	0.0	4.58	4.52	0.7	4.55	4.80	94.6
Bettyp374 Method Blank-1	001F0401.D	001F0402.D	BETTYP338_FGA.M	NA	NA	NA	0.0543	0.0543	0.0	0.0543	NA	NA
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1201.D	009F1202.D	BETTYP338_FGA.M	4.57	4.57	0.0	4.44	4.40	0.4	4.42	4.80	92.0
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0801.D	009F0802.D	BETTYP338_FGA.M	4.59	4.59	0.0	4.44	4.41	0.4	4.43	4.80	92.1
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0601.D	009F0602.D	BETTYP338_FGA.M	4.59	4.59	0.0	4.45	4.48	0.3	4.47	4.80	93.0

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 line 6. ASTM D1946-90 Canister Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Nitrogen -- Calibration Standards, Laboratory Blanks and Controls												
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	BETTYP338_FGA.M	4.93	4.94	0.0	3.27	3.17	1.5	3.22	3.37	95.6
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1001.D	009F1002.D	BETTYP338_FGA.M	4.93	4.93	0.0	3.25	3.20	0.8	3.22	3.37	95.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0201.D	009F0202.D	BETTYP338_FGA.M	4.94	4.94	0.0	3.32	3.18	2.3	3.25	3.37	96.4
Bettyp374 Method Blank-1	001F0401.D	001F0402.D	BETTYP338_FGA.M	4.96	4.96	0.0	0.0637	0.0700	4.7	0.0669	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	BETTYP338_FGA.M	4.92	4.92	0.0	3.25	3.21	0.6	3.23	3.37	95.7
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0701.D	009F0702.D	BETTYP338_FGA.M	4.94	4.94	0.0	3.19	3.17	0.2	3.18	3.37	94.3
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP338_FGA.M	4.94	4.94	0.0	3.27	3.23	0.6	3.25	3.37	96.5
Carbon monoxide -- Calibration Standards, Laboratory Blanks and Controls												
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	BETTYP338_FGA.M	6.32	6.32	0.0	3.07	3.09	0.3	3.08	3.37	91.5
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1001.D	009F1002.D	BETTYP338_FGA.M	6.31	6.32	0.0	3.13	3.18	0.8	3.15	3.37	93.5
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0201.D	009F0202.D	BETTYP338_FGA.M	6.32	6.32	0.0	3.19	3.15	0.6	3.17	3.37	94.0
Bettyp374 Method Blank-1	001F0401.D	001F0402.D	BETTYP338_FGA.M	NA	NA	NA	0.0380	0.0380	0.0	0.0380	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	BETTYP338_FGA.M	6.30	6.30	0.0	3.21	3.16	0.8	3.18	3.37	94.4
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0701.D	009F0702.D	BETTYP338_FGA.M	6.32	6.32	0.0	3.14	3.05	1.5	3.09	3.37	91.8
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP338_FGA.M	6.33	6.33	0.0	3.15	3.15	0.1	3.15	3.37	93.4

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 line 6. ASTM D1946-90 Canister Analysis

Client No.: 16-323

Sample Name	Filename #1	Filename #2	Analysis Method	Ret Time (min)	Ret Time (min)	%dif RT	Conc # 1 (%)	Conc # 2 (%)	%dif conc	Avg Conc (%)	Standard Tag	% Tag
Methane -- Calibration Standards, Laboratory Blanks and Controls												
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1401.D	009F1402.D	BETTYP338_FGA.M	9.90	9.90	0.0	2.51	2.57	1.2	2.54	2.70	94.0
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1001.D	009F1002.D	BETTYP338_FGA.M	9.90	9.90	0.0	2.52	2.59	1.3	2.56	2.70	94.8
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0201.D	009F0202.D	BETTYP338_FGA.M	9.91	9.91	0.0	2.53	2.56	0.6	2.54	2.70	94.2
Bettyp374 Method Blank-1	001F0401.D	001F0402.D	BETTYP338_FGA.M	NA	NA	NA	0.0310	0.0310	0.0	0.0310	NA	NA
BettyP300 #FG7 ENV(1=530,3=319.09)	009F1101.D	009F1102.D	BETTYP338_FGA.M	9.89	9.89	0.0	2.57	2.59	0.5	2.58	2.70	95.6
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0701.D	009F0702.D	BETTYP338_FGA.M	9.91	9.91	0.0	2.57	2.76	3.6	2.67	2.70	98.8
BettyP300 #FG7 ENV(1=530,3=319.09)	009F0501.D	009F0502.D	BETTYP338_FGA.M	9.91	9.92	0.0	2.52	2.57	0.9	2.55	2.70	94.4
Carbon Dioxide -- Calibration Standards, Laboratory Blanks and Controls												
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1501.D	009F1502.D	BETTYP338_FGA.M	13.12	13.13	0.0	4.50	4.46	0.4	4.48	4.80	93.3
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1101.D	009F1102.D	BETTYP338_FGA.M	13.13	13.13	0.0	4.28	4.35	0.7	4.31	4.80	89.9
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0301.D	009F0302.D	BETTYP338_FGA.M	13.13	13.13	0.0	4.53	4.55	0.3	4.54	4.80	94.6
Bettyp374 Method Blank-1	001F0401.D	001F0402.D	BETTYP338_FGA.M	NA	NA	NA	0.0543	0.0543	0.0	0.0543	NA	NA
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F1201.D	009F1202.D	BETTYP338_FGA.M	13.12	13.13	0.0	4.31	4.37	0.7	4.34	4.80	90.4
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0801.D	009F0802.D	BETTYP338_FGA.M	13.14	13.14	0.0	4.41	4.47	0.7	4.44	4.80	92.4
BettyP300 #FG3 ENV(1=374.56,2=391.07)	009F0601.D	009F0602.D	BETTYP338_FGA.M	13.14	13.14	0.0	4.52	4.53	0.2	4.52	4.80	94.3

Calibration Table

Calib. Data Modified : 3/10/2016 2:30:51 PM

Rel. Reference Window : 2.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 2.000 %
Abs. Non-ref. Window : 0.200 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: TCD1 A,
Signal 2: FID2 B,

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
1.872	1	5	3.10000e-1	5.13678	6.03491e-2			Hydrogen
		6	7.90000e-1	11.76654	6.71395e-2			
		7	2.76000	41.26264	6.68886e-2			
		8	8.20000	109.55068	7.48512e-2			
		29	28.54000	440.66239	6.47661e-2			
4.500	1	1	5.43000e-1	218.59111	2.48409e-3			Oxygen
		2	1.32800	520.62223	2.55079e-3			
		3	4.80500	1736.12236	2.76766e-3			
		4	10.00000	3307.48104	3.02345e-3			
		23	99.99900	3.24159e4	3.08487e-3			
4.750	1	5	3.80000e-1	187.50402	2.02662e-3			Nitrogen
		6	9.60000e-1	437.08495	2.19637e-3			
		7	3.37000	1440.89331	2.33883e-3			
		8	10.00000	3803.79207	2.62896e-3			
		22	99.90000	3.48535e4	2.86629e-3			
6.200	1	5	3.80000e-1	155.97675	2.43626e-3			Carbon monoxide
		6	9.60000e-1	401.70233	2.38983e-3			
		7	3.37000	1381.79004	2.43887e-3			
		8	10.00000	3722.06681	2.68668e-3			
		25	99.50000	3.59590e4	2.76704e-3			
9.927	1	5	3.10000e-1	114.25856	2.71314e-3			Methane
		6	7.70000e-1	285.04939	2.70129e-3			
		7	2.70000	965.95817	2.79515e-3			
		8	8.00000	2565.40658	3.11841e-3			
		24	99.99900	3.05536e4	3.27291e-3			
13.187	1	1	5.43000e-1	321.34324	1.68978e-3			Carbon Dioxide
		2	1.32700	775.62209	1.71088e-3			

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
		3	4.80000	2628.36450	1.82623e-3			
		4	9.98800	5052.13818	1.97698e-3			
		21	99.99000	5.05745e4	1.97708e-3			

More compound-specific settings:

Compound: Hydrogen
  Time Window : From 1.753 min To 1.990 min

Compound: Oxygen
  Time Window : From 4.217 min To 4.656 min

Compound: Nitrogen
  Time Window : From 4.410 min To 4.950 min

Compound: Carbon monoxide
  Time Window : From 5.600 min To 6.350 min

Compound: Methane
  Time Window : From 9.509 min To 10.277 min

Compound: Carbon Dioxide
  Time Window : From 12.572 min To 13.418 min

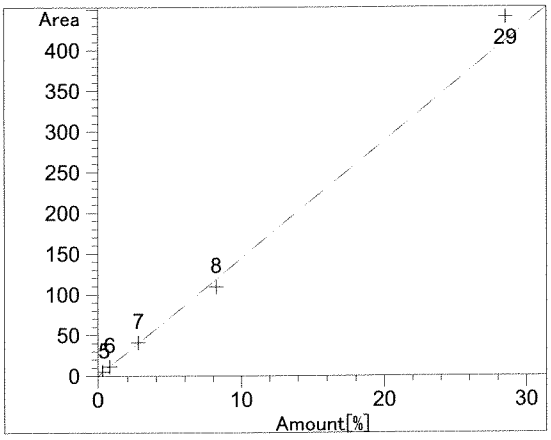
1 Warnings or Errors :

Warning : Overlapping peak time windows at 4.5 min, signal 1

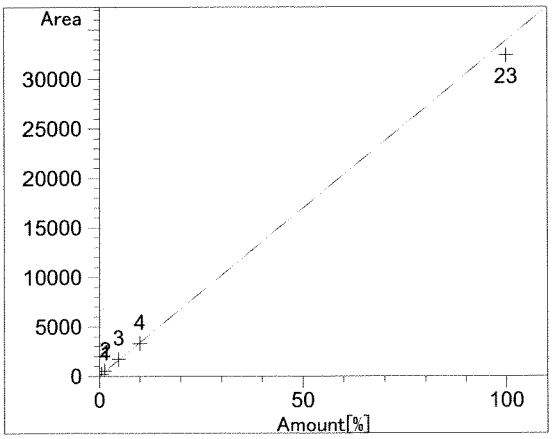
Peak Sum Table

No Entries in table

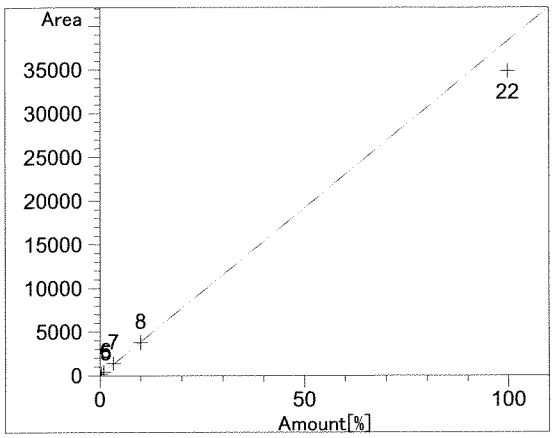
Calibration Curves



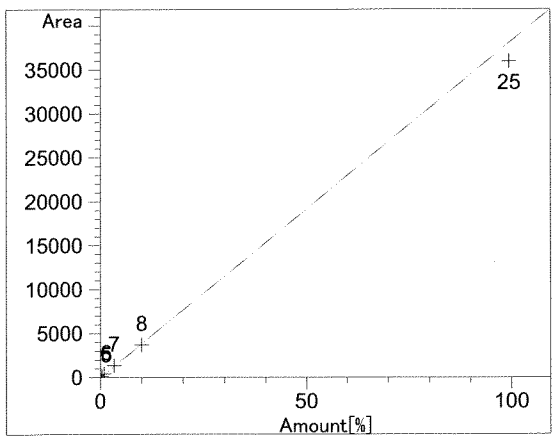
Hydrogen at exp. RT: 1.872
TCD1 A,
Correlation: 0.99796
Residual Std. Dev.: 17.46977
Formula: y = mx + b
m: 14.40886
b: 6.32728e-1
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.153982
Level 7 : 0.012616
Level 8 : 0.001429
Level 29 : 0.000118



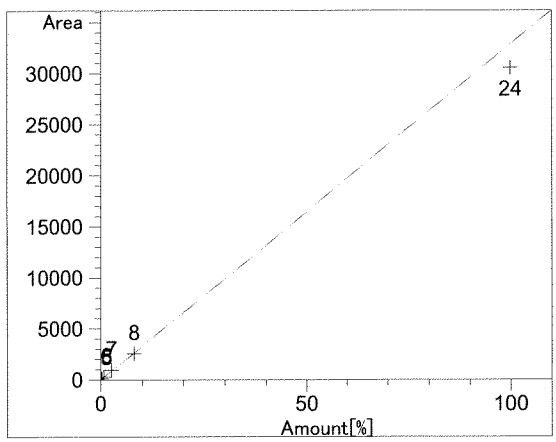
Oxygen at exp. RT: 4.500
TCD1 A,
Correlation: 0.99818
Residual Std. Dev.: 867.33345
Formula: y = mx + b
m: 338.71575
b: 40.25204
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167187
Level 3 : 0.012771
Level 4 : 0.002948
Level 23 : 0.000029



Nitrogen at exp. RT: 4.750
TCD1 A,
Correlation: 0.99666
Residual Std. Dev.: 1997.69987
Formula: y = mx + b
m: 383.02817
b: 46.67047
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 22 : 0.000014

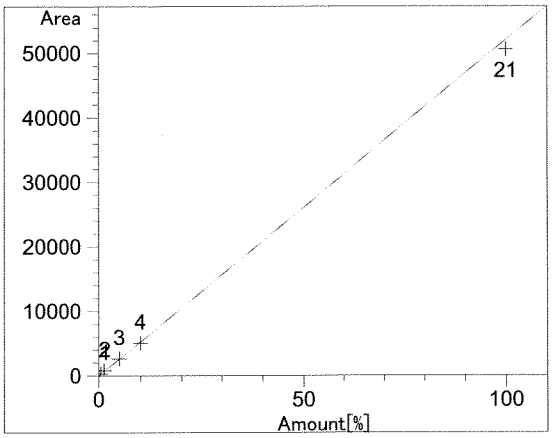


Carbon monoxide at exp. RT: 6.200
TCD1 A,
Correlation: 0.99808
Residual Std. Dev.: 1236.72354
Formula: y = mx + b
m: 382.73114
b: 14.43109
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 25 : 0.000015



Methane at exp. RT: 9.927
TCD1 A,
Correlation: 0.99726
Residual Std. Dev.: 1354.64394
Formula: y = mx + b
m: 328.82302
b: 15.63295
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.162085
Level 7 : 0.013182
Level 8 : 0.001502

Level 24 : 9.61019e-006

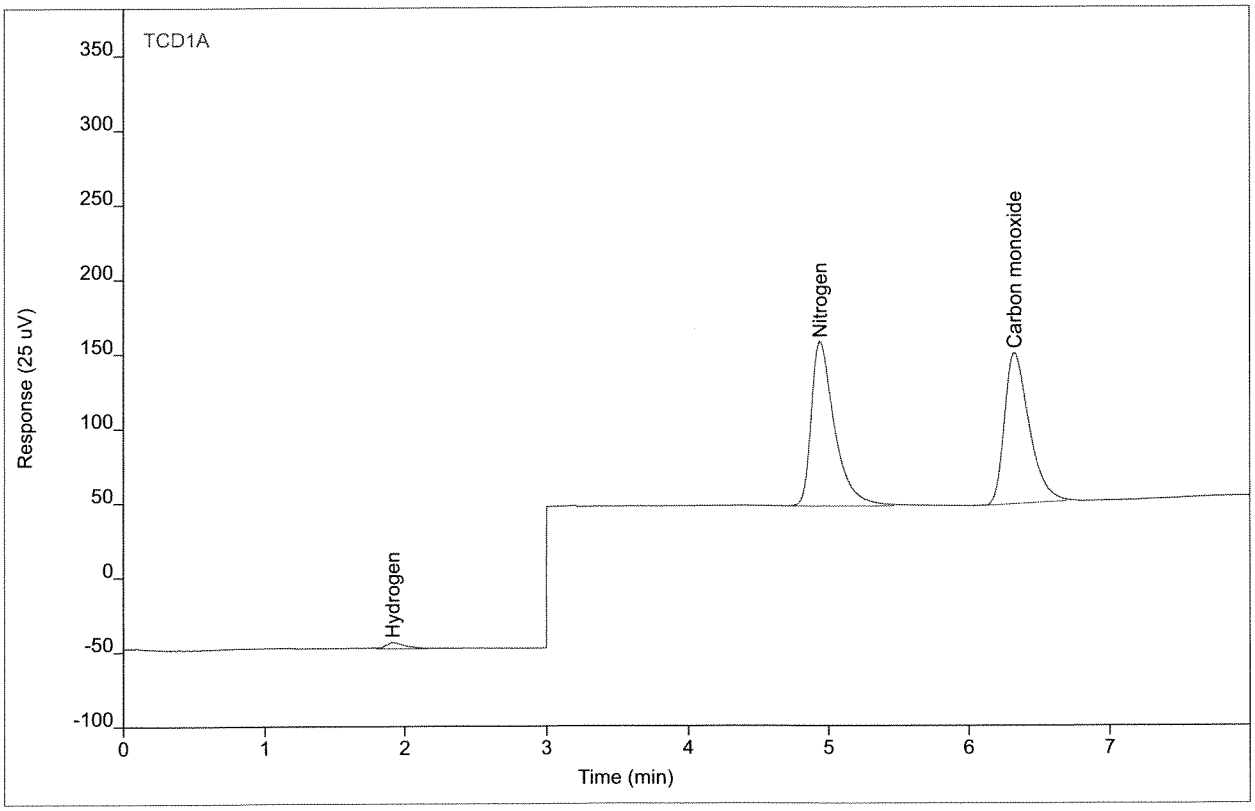


Carbon Dioxide at exp. RT: 13.187
TCD1 A,
Correlation: 0.99876
Residual Std. Dev.: 878.28250
Formula: y = mx + b
m: 520.40162
b: 45.80839
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.167439
Level 3 : 0.012797
Level 4 : 0.002956
Level 21 : 0.000029

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)	Sample Type	Calibration
Sequence Name	BETTYP465A ver.3	Vial Number	Vial 9
Data File	009F1202.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/18/2016 5:18 AM	Acquisition Method	GC142P133_CAL.M
File Modified	10/19/2016 8:02 AM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	10/14/2016 10:09 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:45 AM



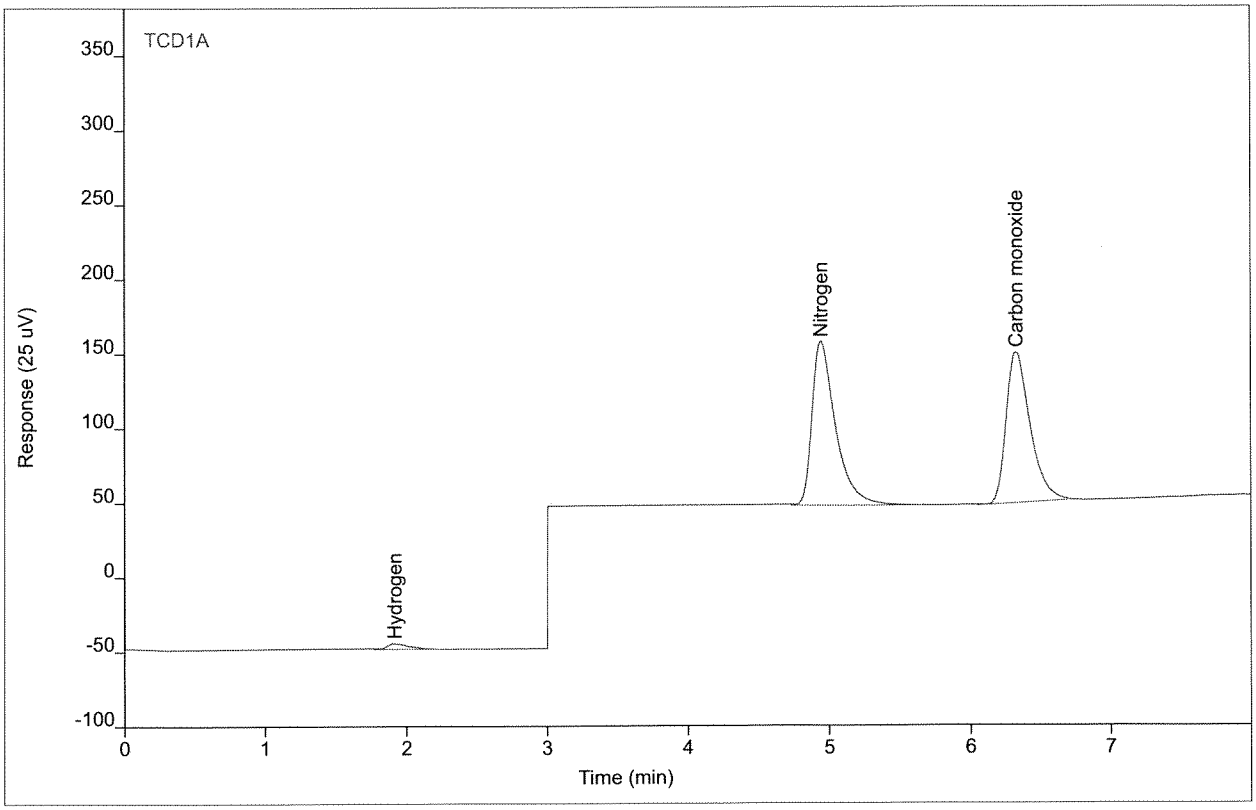
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	42.2998	4.45292	2.89177	1	2.89177	%
Nitrogen	VV	4.94	1287.05	110.228	3.23835	1	3.23835	%
Carbon monoxide	BB	6.32	1216.77	101.378	3.14147	1	3.14147	%
Methane	BB	9.91	849.786	96.8566	2.53678	1	2.53678	%

Chromatogram Report

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP465A ver.3
Data File	009F1203.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/18/2016 5:41 AM
File Modified	10/19/2016 8:02 AM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/24/2016 9:45 AM



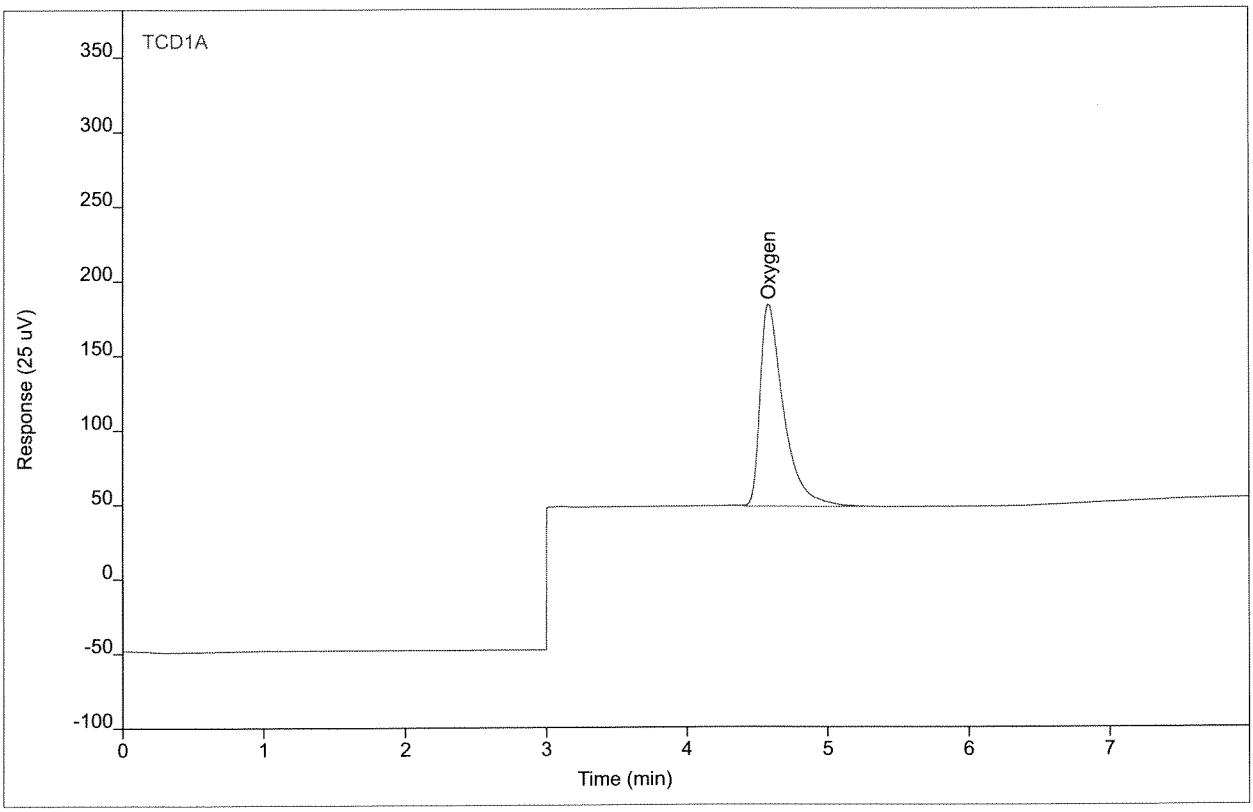
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.91	41.2898	4.19681	2.82167	1	2.82167	%
Nitrogen	VB	4.94	1281.40	110.154	3.22361	1	3.22361	%
Carbon monoxide	VB	6.33	1215.50	101.423	3.13815	1	3.13815	%
Methane	BB	9.91	841.192	95.9342	2.51065	1	2.51065	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP465A ver.3
Data File	009F1303.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/18/2016 7:14 AM
File Modified	10/19/2016 8:02 AM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	10/14/2016 10:09 AM
Printed	10/24/2016 9:45 AM

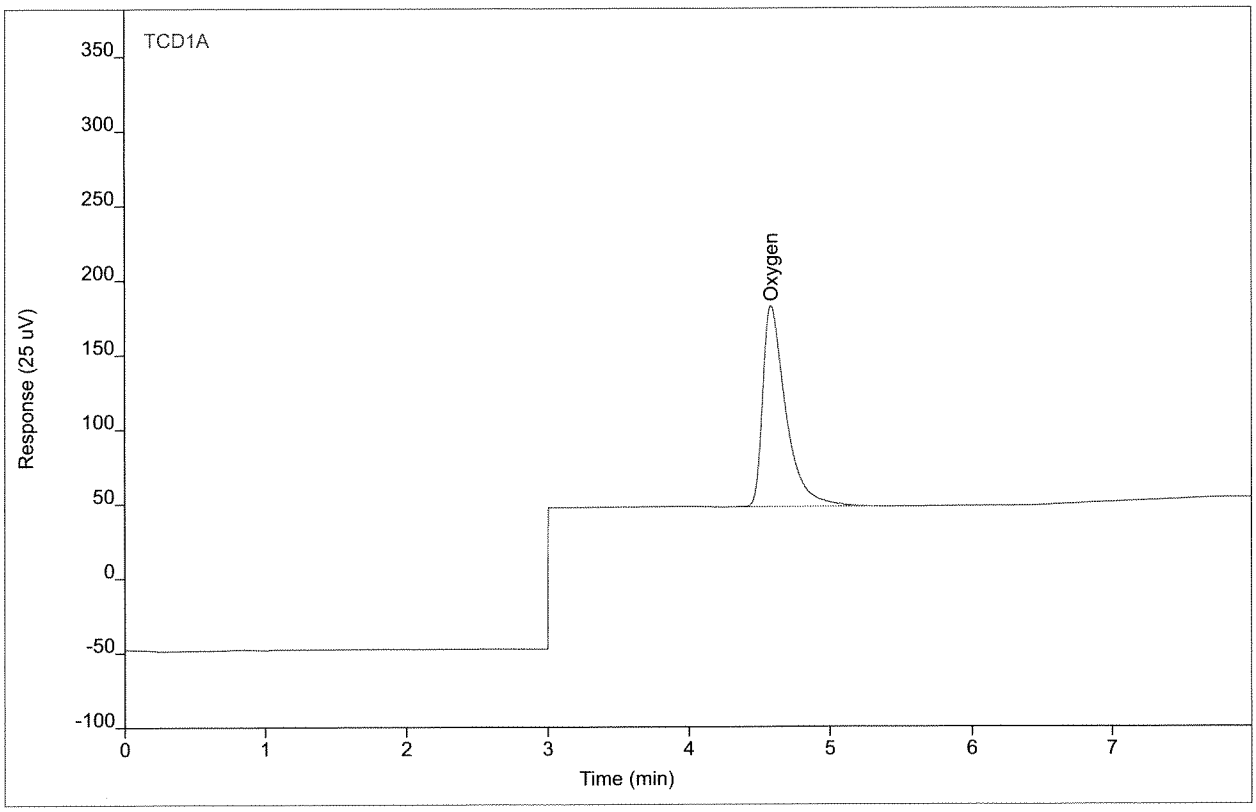


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.58	1560.28	135.754	4.48762	1	4.48762	%
Carbon Dioxide	BB	13.14	2406.07	236.638	4.53547	1	4.53547	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP465A ver.3	Vial Number	Vial 9
Data File	009F1304.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	4 of 4
Injection Date	10/18/2016 7:37 AM	Acquisition Method	GC142P133_CAL.M
File Modified	10/19/2016 8:02 AM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	10/14/2016 10:09 AM
Operator	Nicholas Traversa	Printed	10/24/2016 9:45 AM



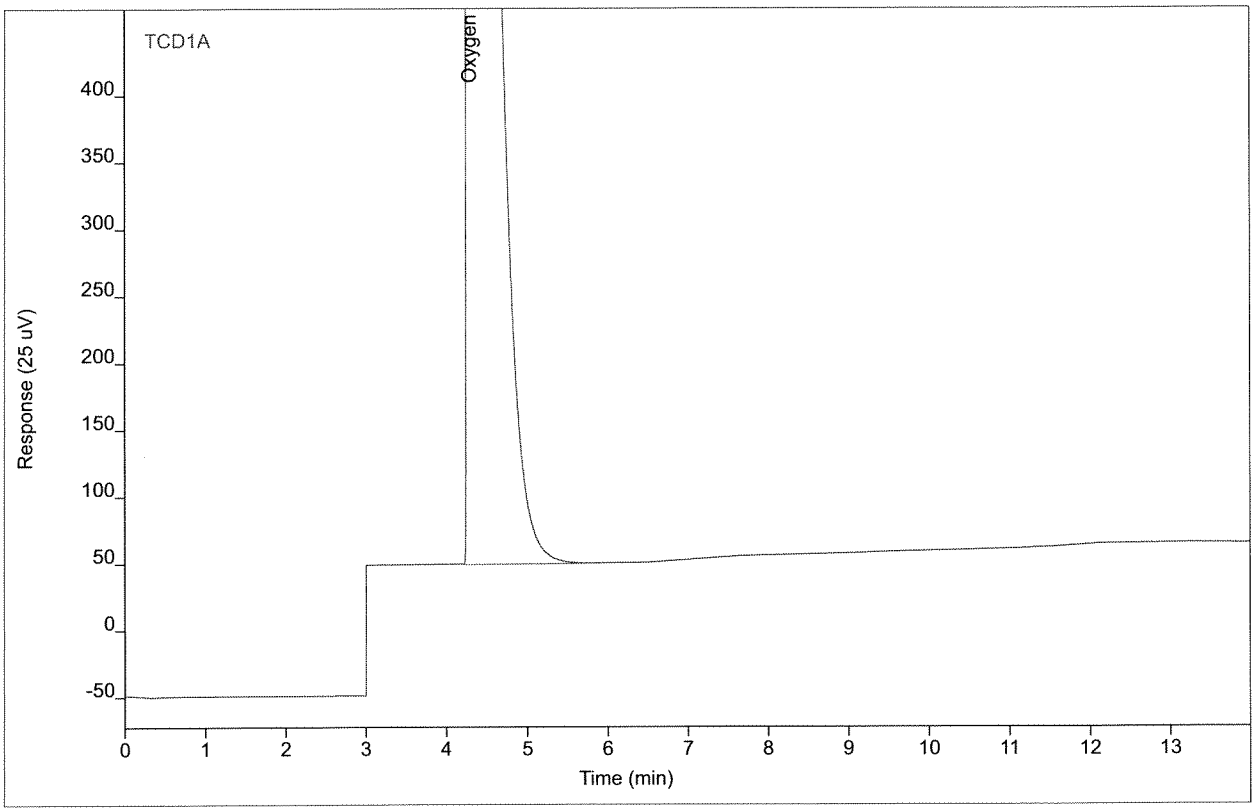
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.58	1552.11	134.889	4.46351	1	4.46351	%
Carbon Dioxide	BB	13.14	2385.49	235.018	4.49592	1	4.49592	%

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.99 % #FG23 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0102.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 9:21 AM
File Modified	3/10/2016 1:20 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



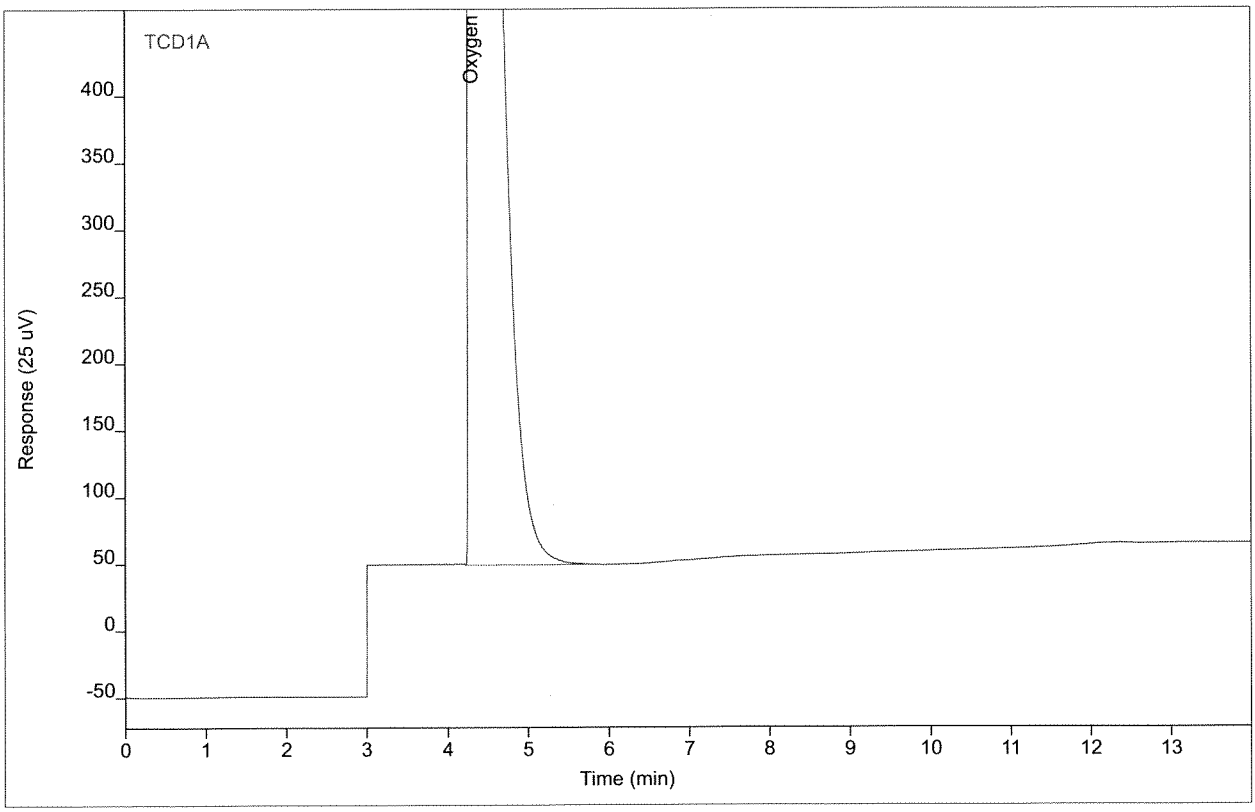
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.29	32325.2	1646.19	95.3159	1	95.3159	%

Chromatogram Report

Sample Name	O2 99.99 % #FG23 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0103.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 9:44 AM
File Modified	3/10/2016 1:20 PM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



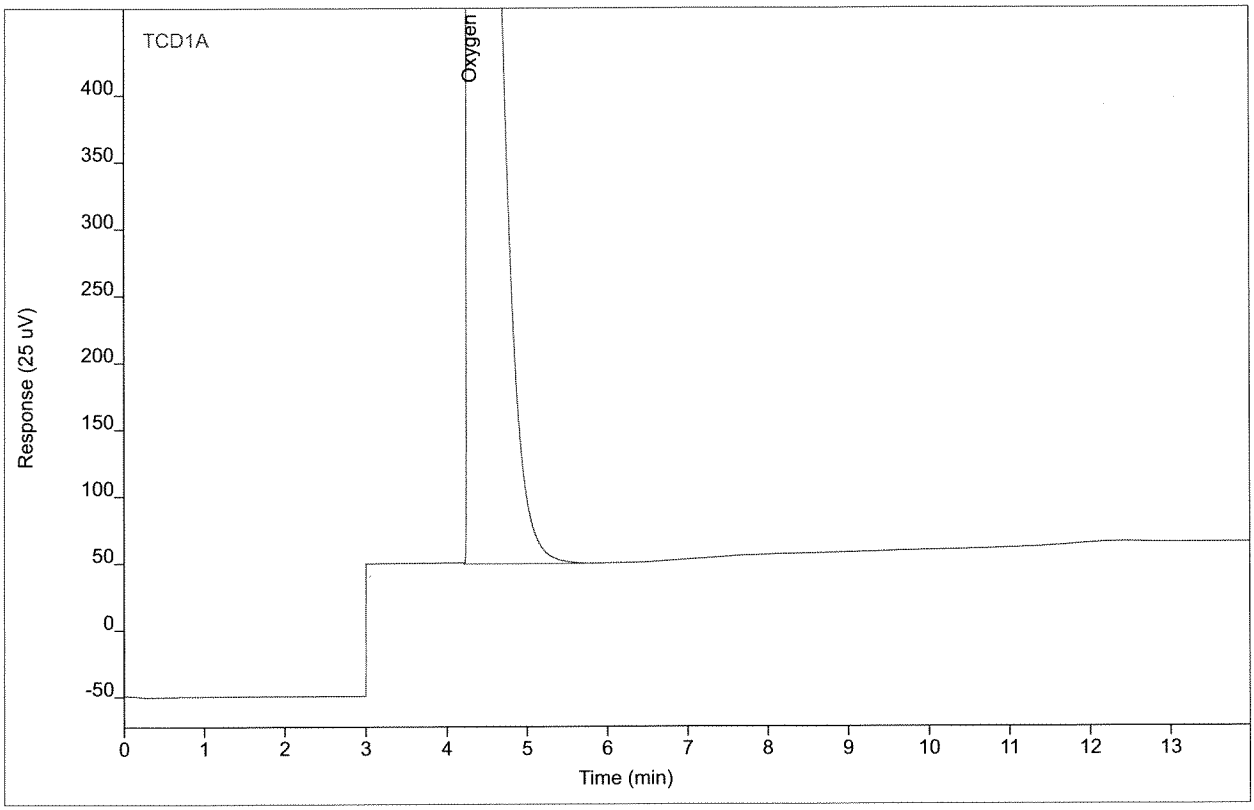
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.29	32385.7	1644.14	95.4944	1	95.4944	%

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.99 % #FG23 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0104.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 10:08 AM
File Modified	3/10/2016 1:20 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

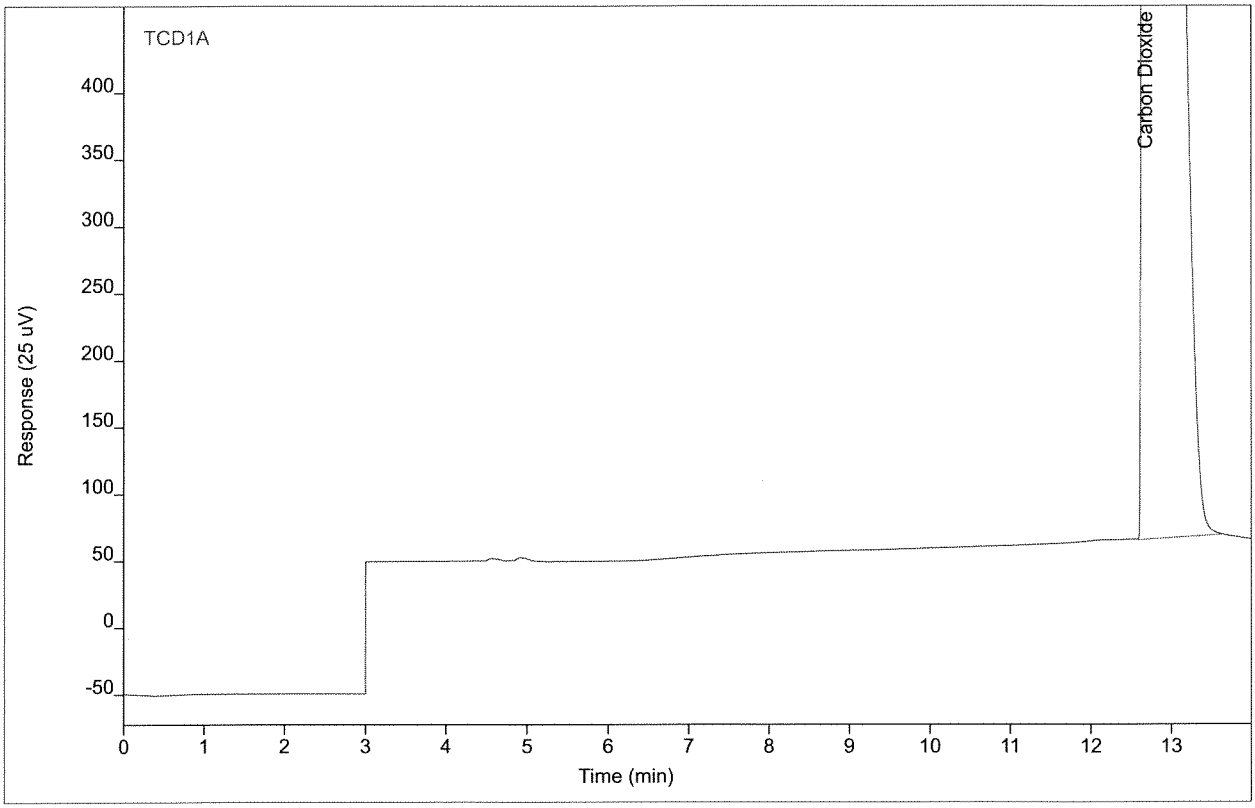


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.29	32536.8	1654.25	95.9404	1	95.9404	%

Chromatogram Report

Enthalpy Analytical

Sample Name	CO2 99.99 % #FG21 ENV(1=0,4=400)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F0202.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	2 of 4
Injection Date	3/8/2016 10:56 AM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 1:21 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Justin Guenzler	Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.67	50862.0	2324.52	97.6481	1	97.6481	%

Analyst Peak Integration Comments

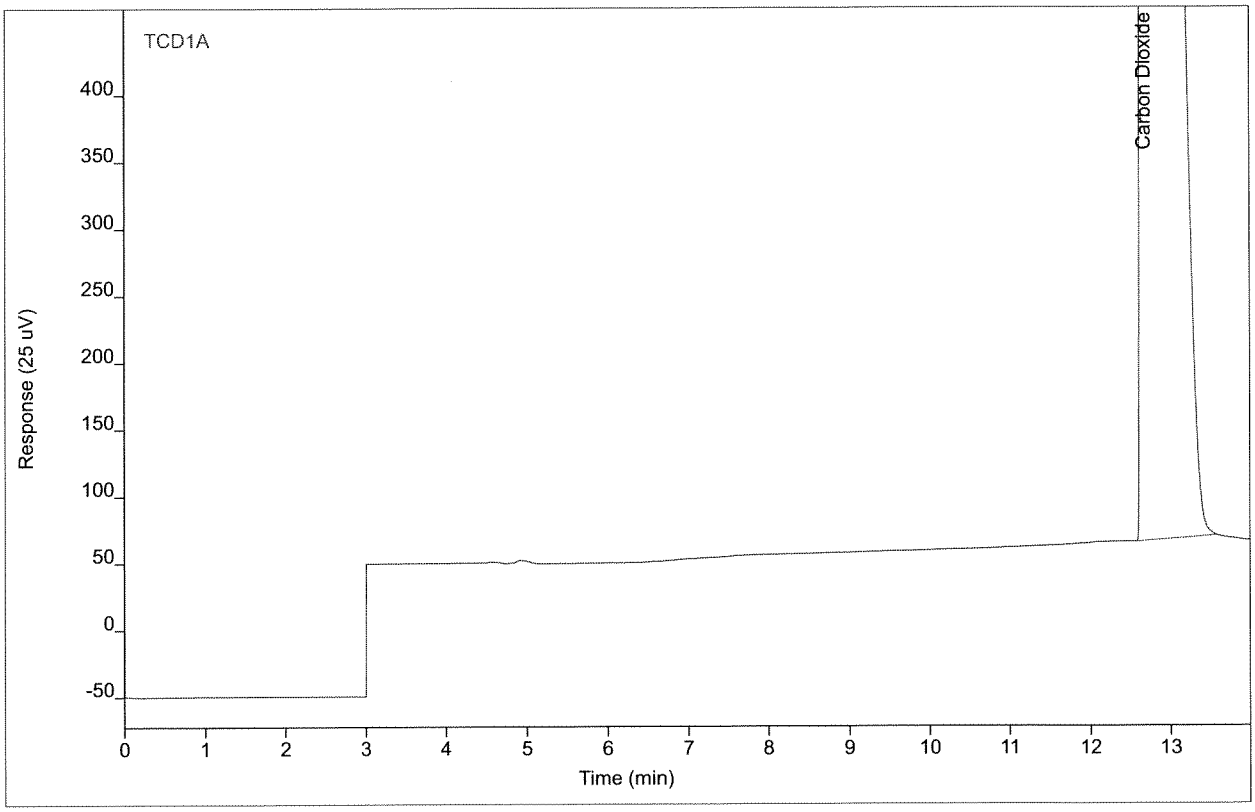
11:12:29 03/08/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	CO2 99.99 % #FG21 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0203.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 11:20 AM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.67	50559.9	2313.50	97.0674	1	97.0674	%

Analyst Peak Integration Comments

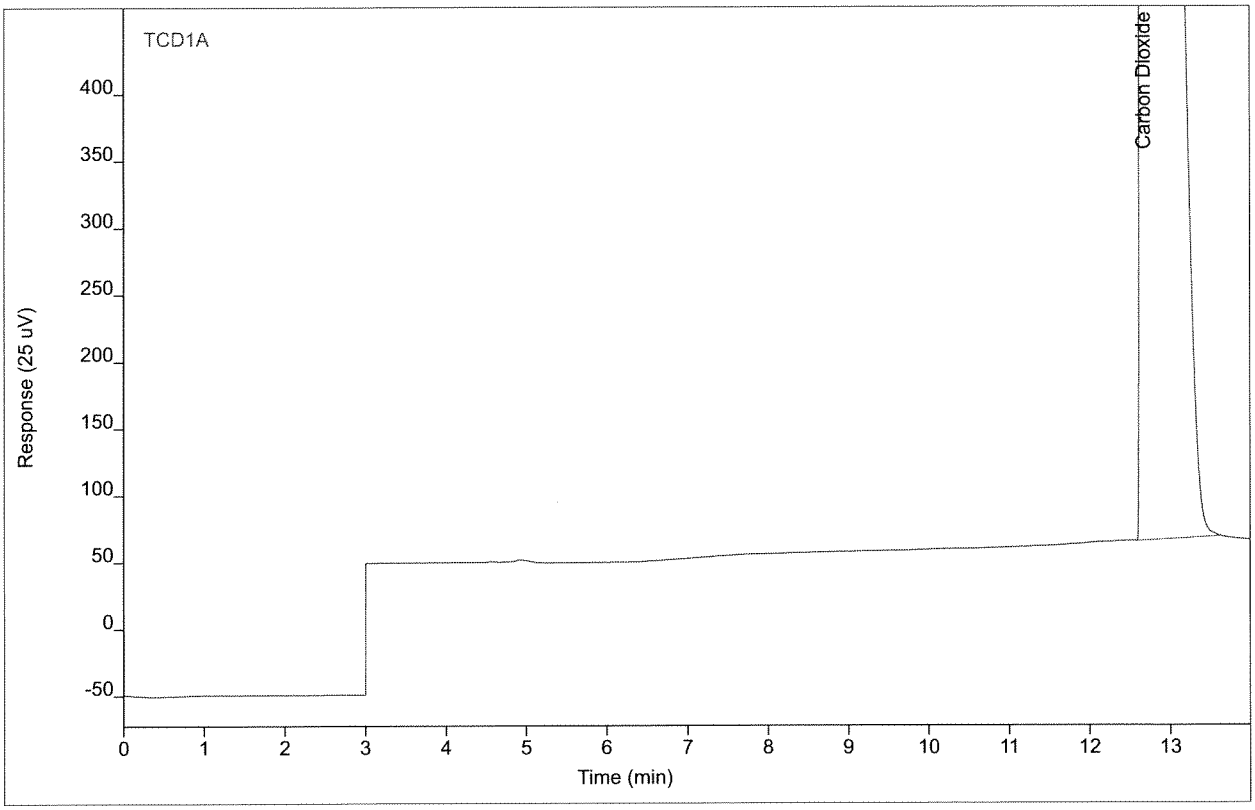
11:41:02 03/08/16 Justin Guenzler II-Baseline

Chromatogram Report

Sample Name	CO2 99.99 % #FG21 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0204.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 11:44 AM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.67	50301.7	2281.28	96.5714	1	96.5714	%

Analyst Peak Integration Comments

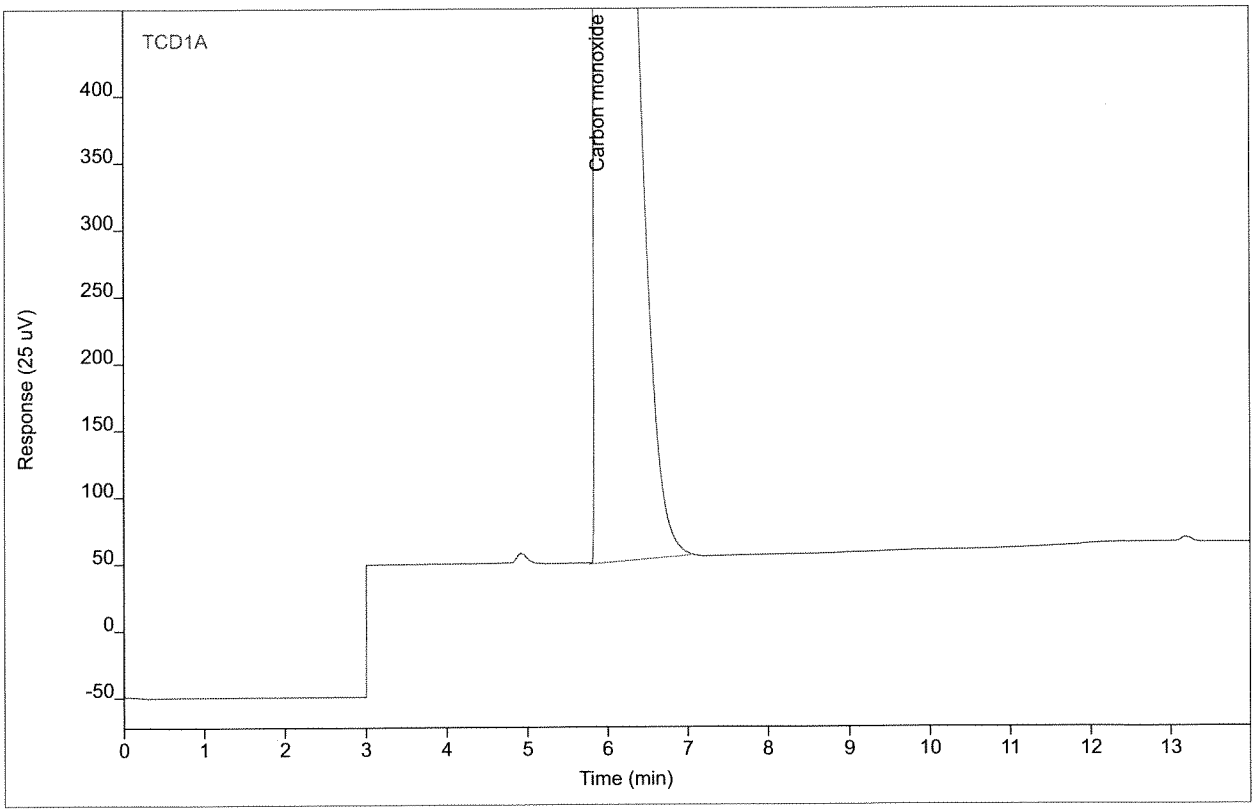
12:24:30 03/08/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	CO 99.5 % #FG25 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0302.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 12:32 PM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

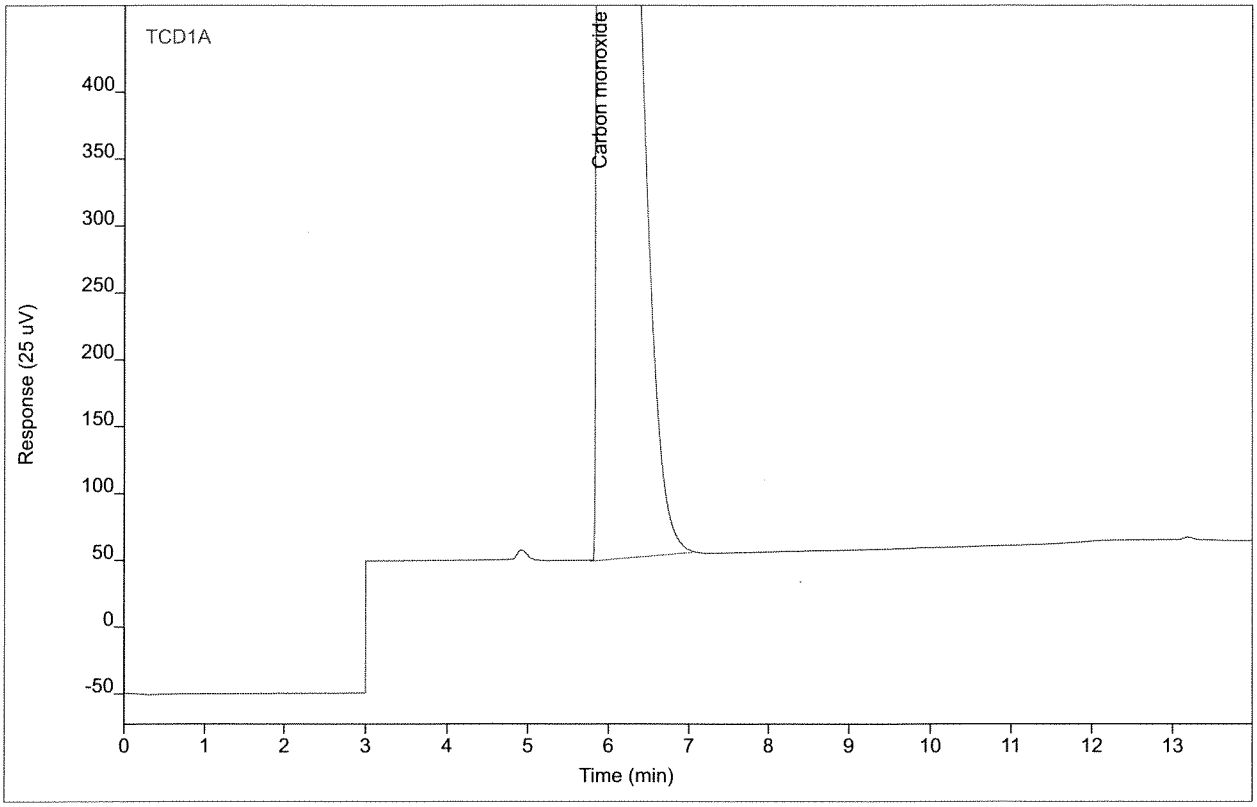


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	BB	5.89	35879.0	1426.39	93.7070	1	93.7070	%

Chromatogram Report

Enthalpy Analytical

Sample Name	CO 99.5 % #FG25 ENV(1=0,4=400)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F0303.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 4
Injection Date	3/8/2016 12:55 PM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 1:21 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Justin Guenzler	Printed	3/10/2016 2:39 PM



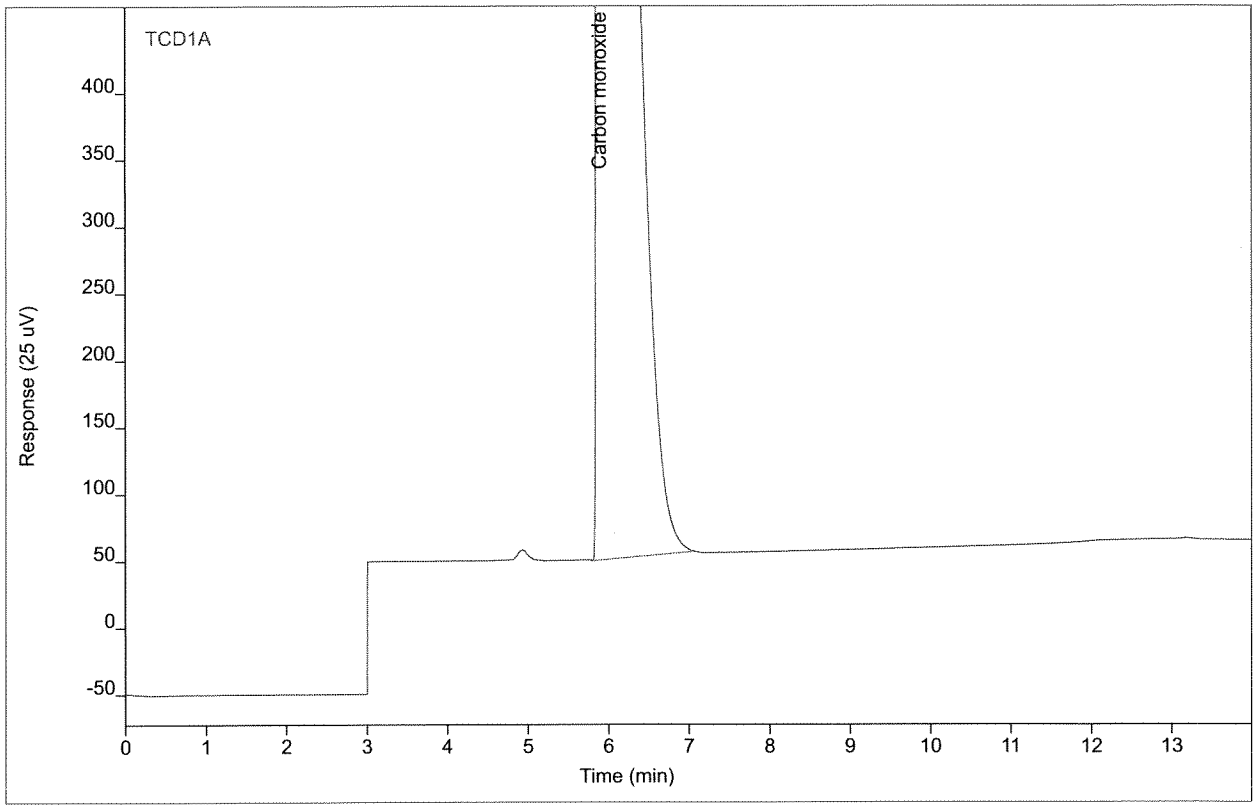
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	BB	5.89	35829.4	1419.53	93.5774	1	93.5774	%

Chromatogram Report

Sample Name	CO 99.5 % #FG25 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0304.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 1:19 PM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



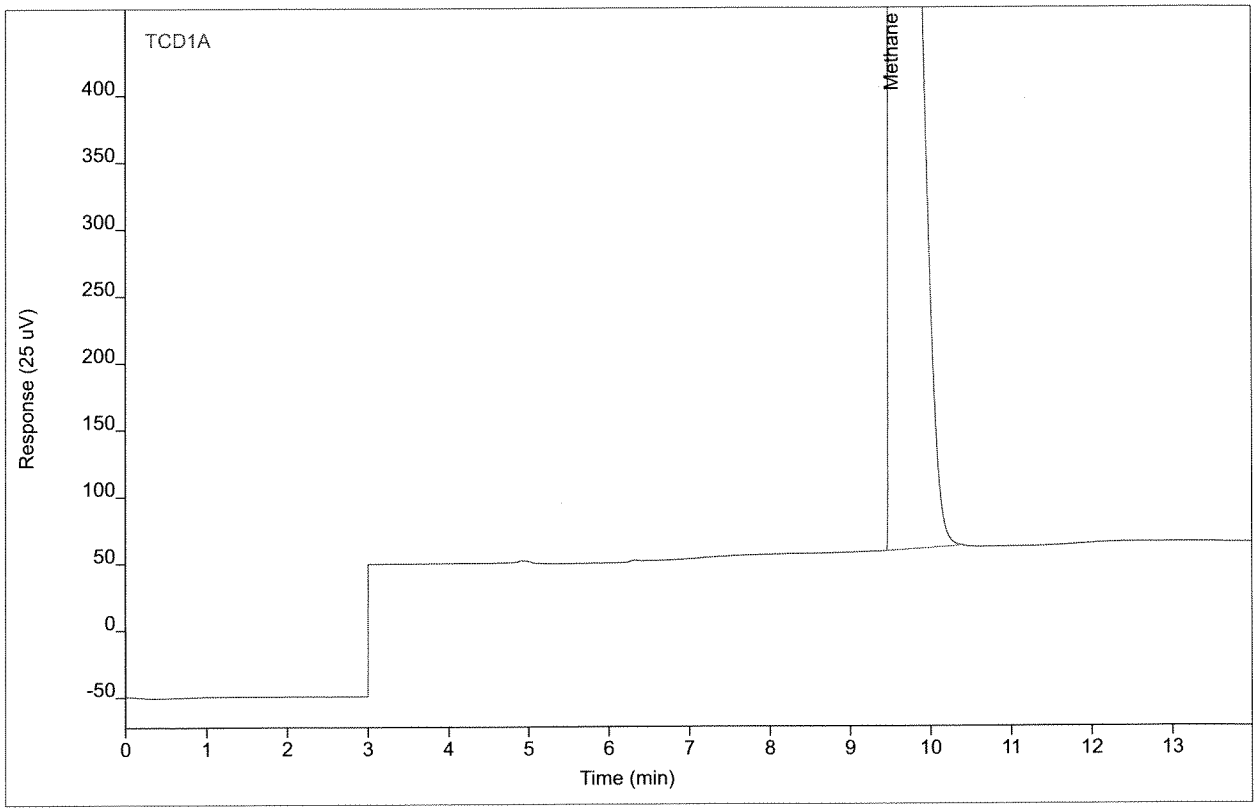
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	BB	5.89	36168.5	1437.02	94.4633	1	94.4633	%

Chromatogram Report

Enthalpy Analytical

Sample Name	Methane 99.999 % #FG24 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0502.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 2:34 PM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



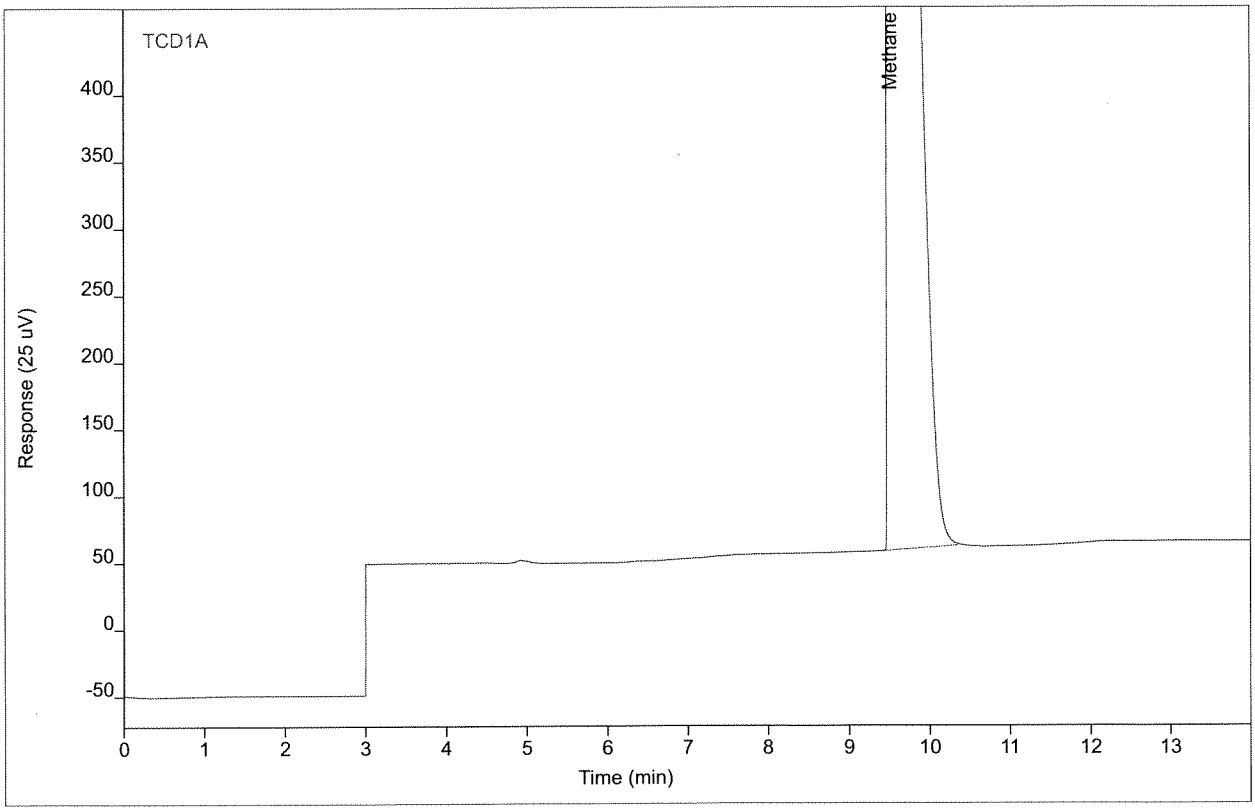
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.52	30485.5	1667.37	92.6634	1	92.6634	%

Chromatogram Report

Sample Name	Methane 99.999 % #FG24 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0503.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 2:57 PM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



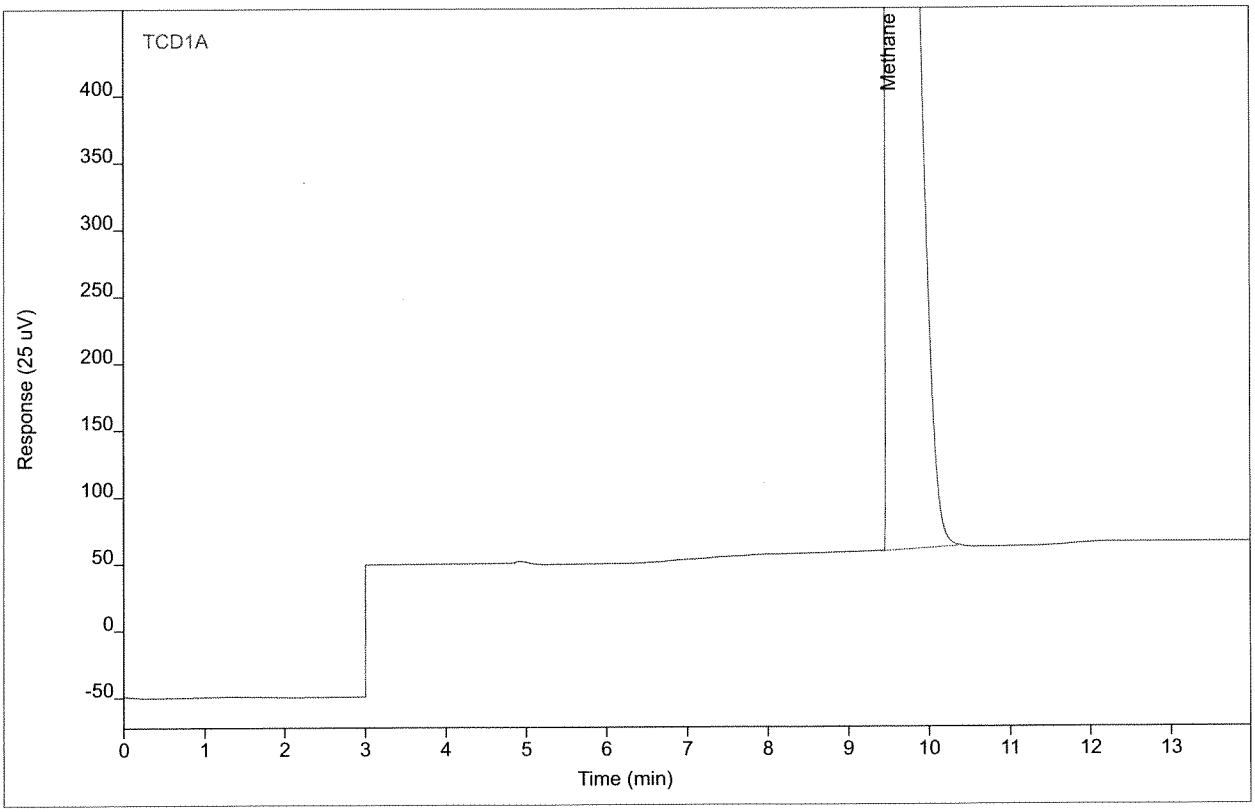
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.52	30372.2	1668.64	92.3189	1	92.3189	%

Chromatogram Report

Sample Name	Methane 99.999 % #FG24 ENV(1=0,4=400)
Sequence Name	BETTYP338 ver.3
Data File	009F0504.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 3:21 PM
File Modified	3/10/2016 1:21 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



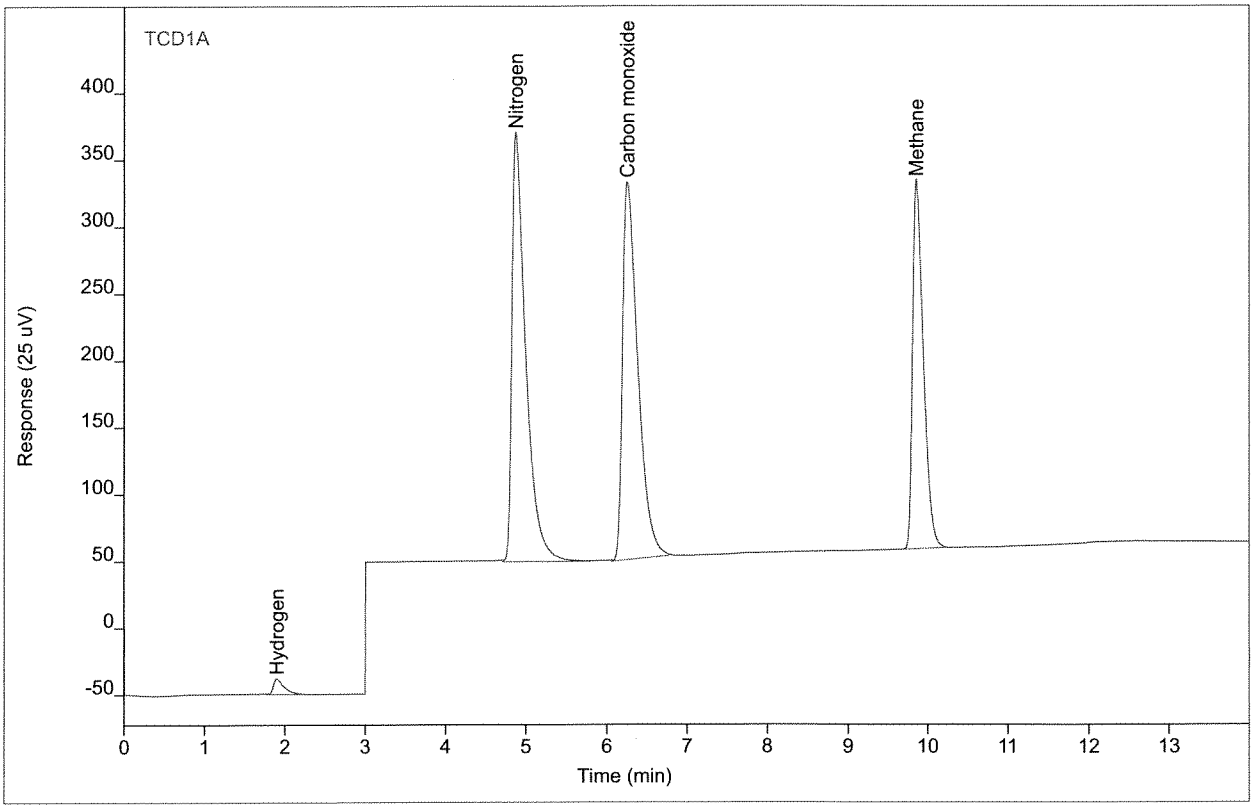
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.52	30803.0	1686.10	93.6291	1	93.6291	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP338 ver.3
Data File	009F0706.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 6:33 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	6 of 8
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



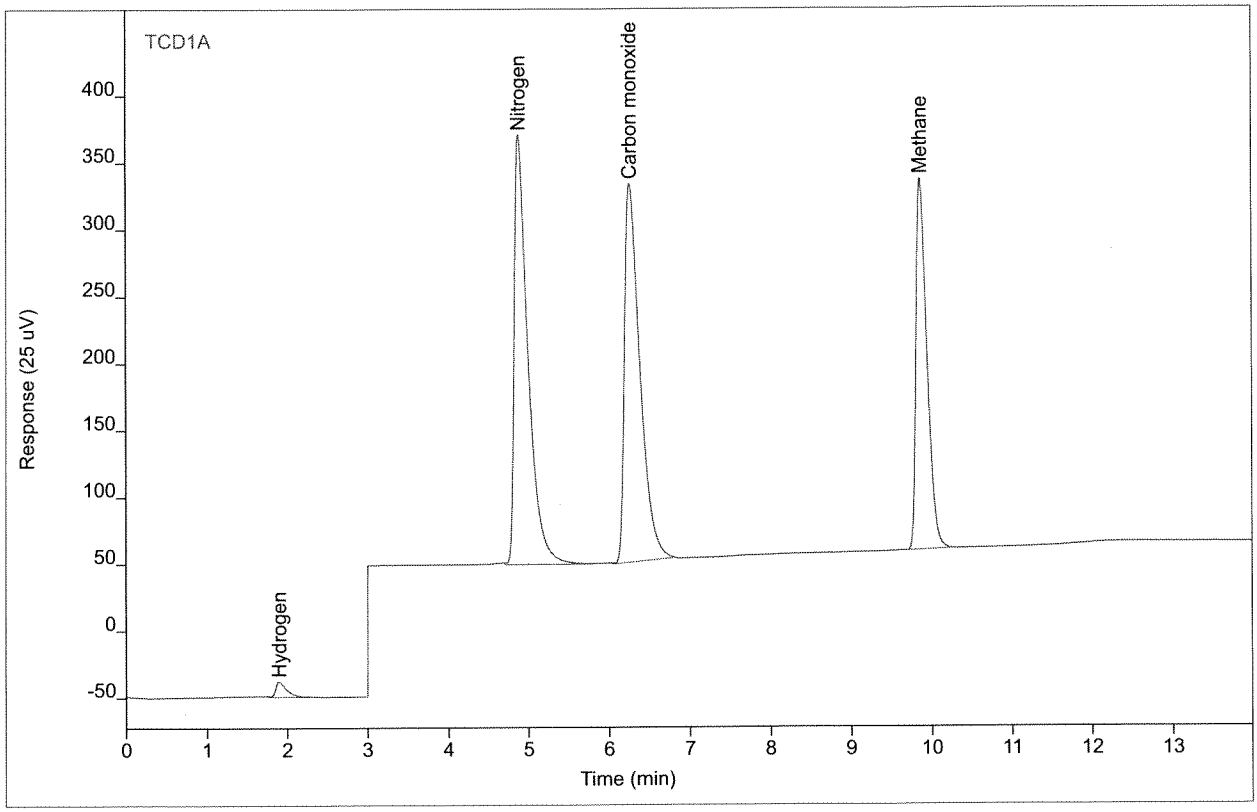
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.90	108.784	11.6748	7.50590	1	7.50590	%
Nitrogen	VB	4.88	3808.71	320.870	9.82183	1	9.82183	%
Carbon monoxide	BB	6.26	3727.25	282.439	9.70086	1	9.70086	%
Methane	BB	9.86	2544.39	275.258	7.69033	1	7.69033	%

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP338 ver.3
Data File	009F0707.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 6:57 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	7 of 8
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



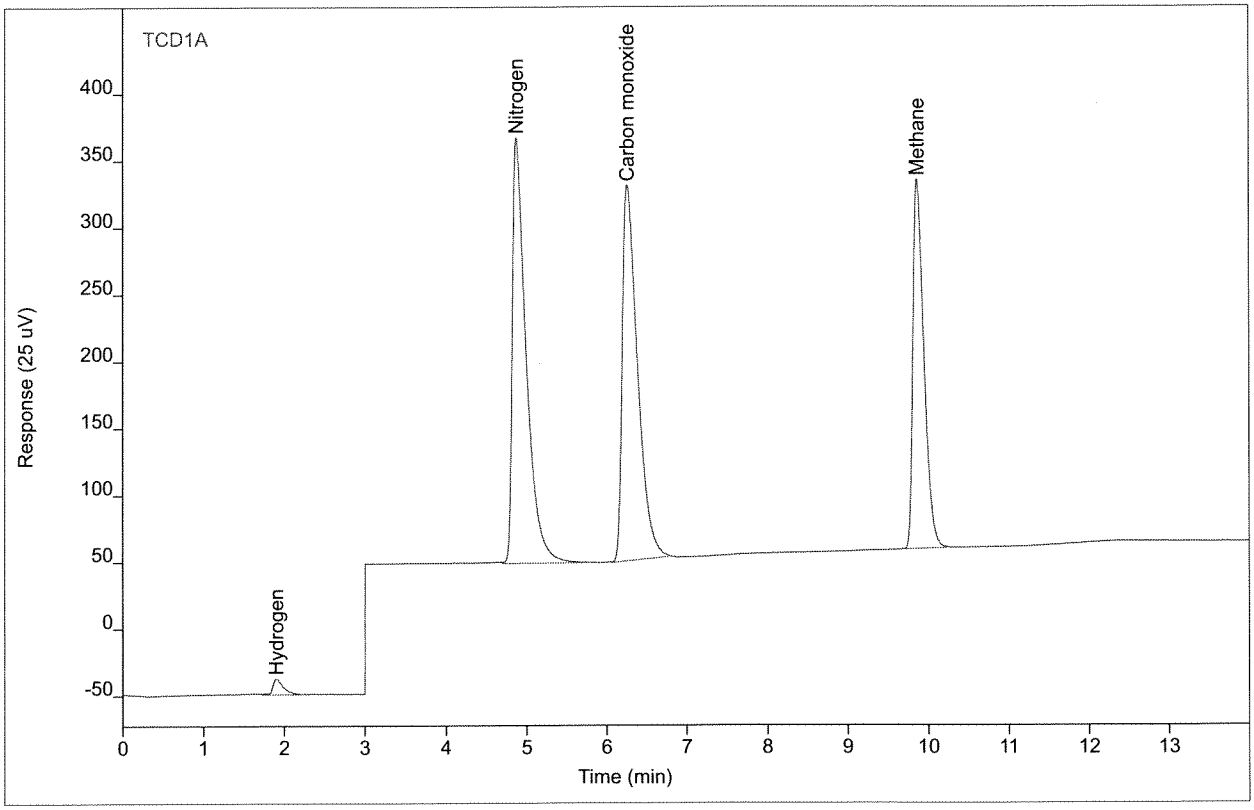
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.90	109.665	11.7216	7.56700	1	7.56700	%
Nitrogen	VB	4.88	3820.06	321.367	9.85147	1	9.85147	%
Carbon monoxide	BB	6.26	3739.33	283.309	9.73241	1	9.73241	%
Methane	BB	9.86	2586.47	277.651	7.81830	1	7.81830	%

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.09)
Sequence Name	BETTYP338 ver.3
Data File	009F0708.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 7:20 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	8 of 8
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



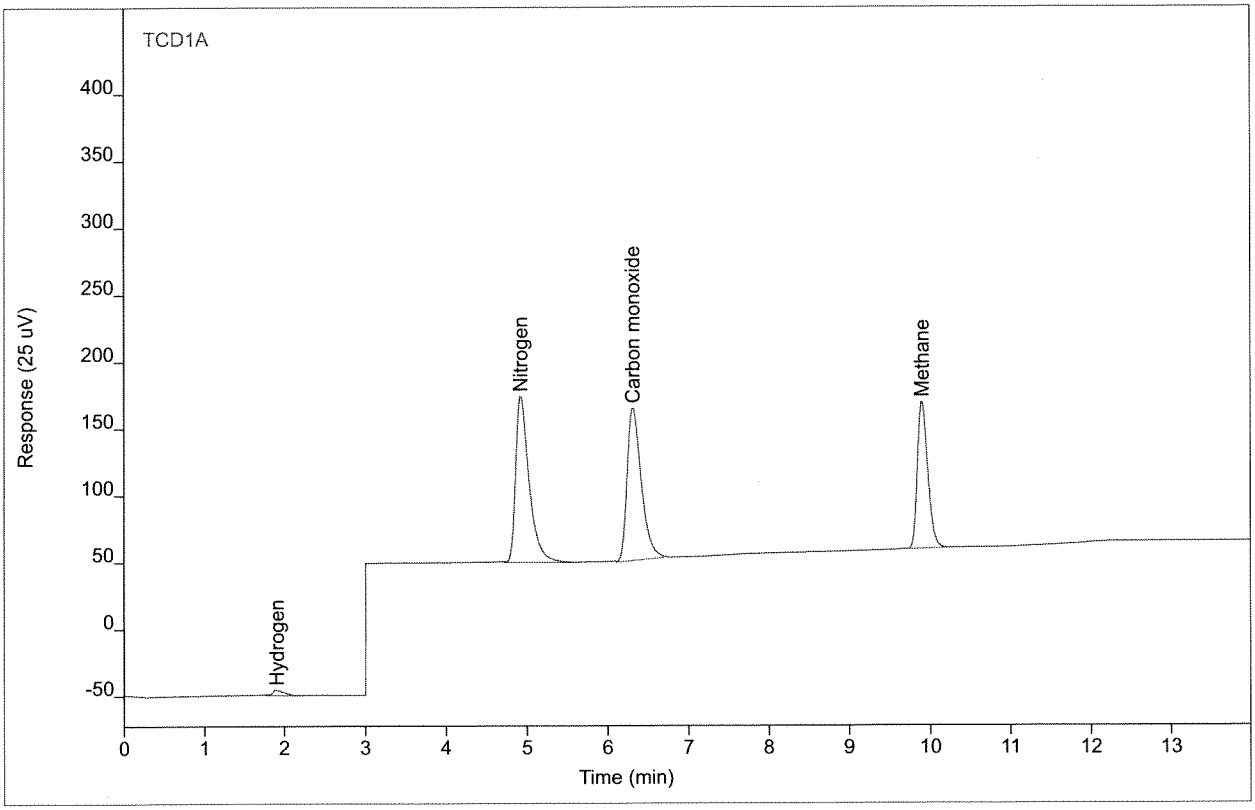
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.90	110.203	11.8418	7.60439	1	7.60439	%
Nitrogen	VB	4.88	3782.61	318.019	9.75369	1	9.75369	%
Carbon monoxide	BB	6.26	3699.62	280.667	9.62867	1	9.62867	%
Methane	BB	9.86	2565.36	275.714	7.75410	1	7.75410	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP338 ver.3
Data File	009F0801.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 7:44 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



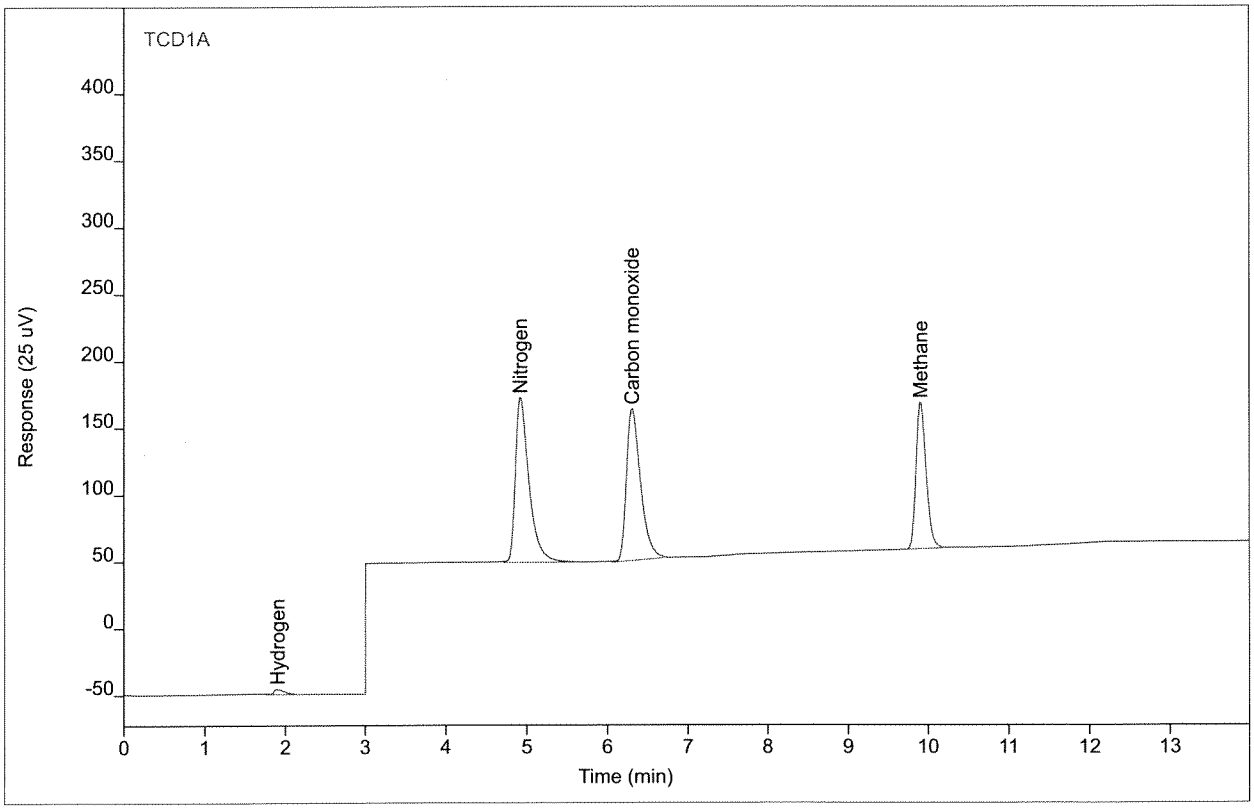
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.91	42.1630	4.43367	2.88227	1	2.88227	%
Nitrogen	VB	4.93	1448.19	124.799	3.65904	1	3.65904	%
Carbon monoxide	BB	6.31	1383.47	114.559	3.57702	1	3.57702	%
Methane	BB	9.90	970.170	110.193	2.90289	1	2.90289	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP338 ver.3
Data File	009F0802.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 8:08 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



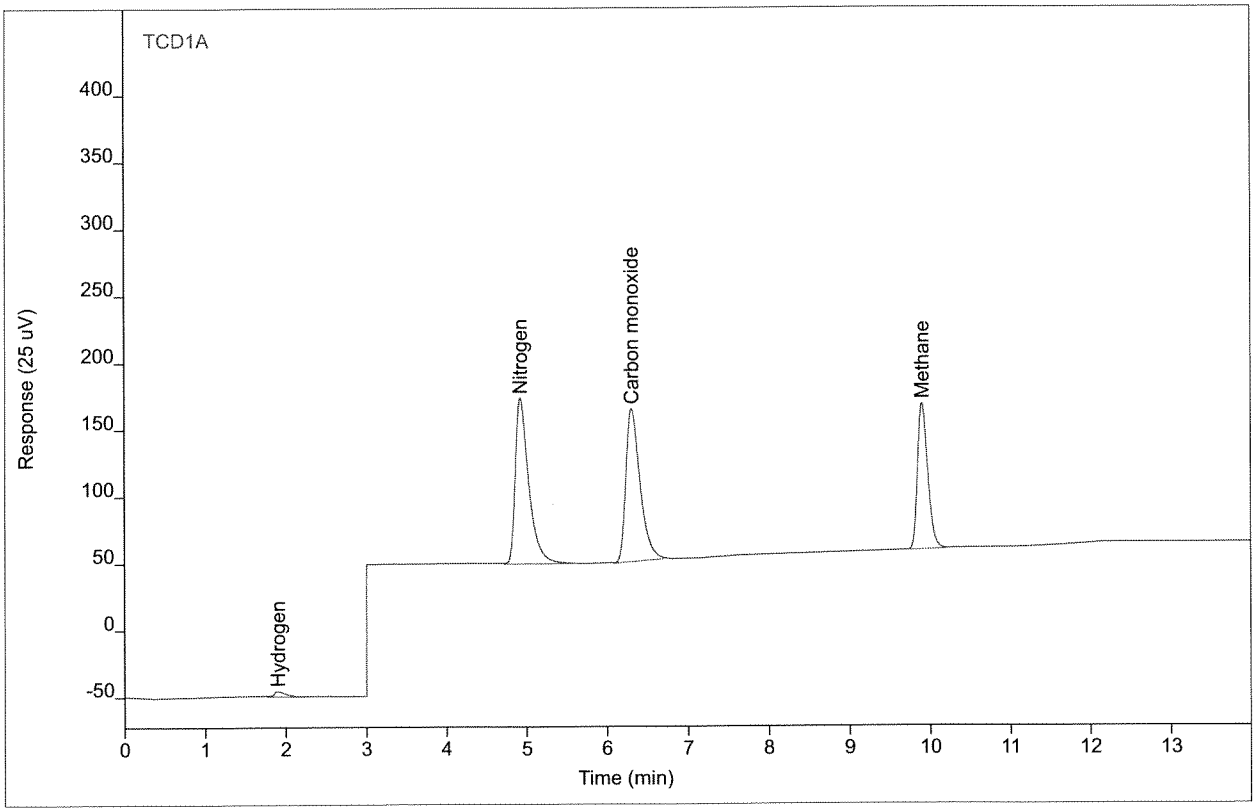
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.90	40.1210	4.31515	2.74055	1	2.74055	%
Nitrogen	VB	4.93	1430.23	123.313	3.61216	1	3.61216	%
Carbon monoxide	BB	6.31	1375.20	113.556	3.55541	1	3.55541	%
Methane	BB	9.90	963.281	109.584	2.88194	1	2.88194	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP338 ver.3
Data File	009F0803.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 8:33 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

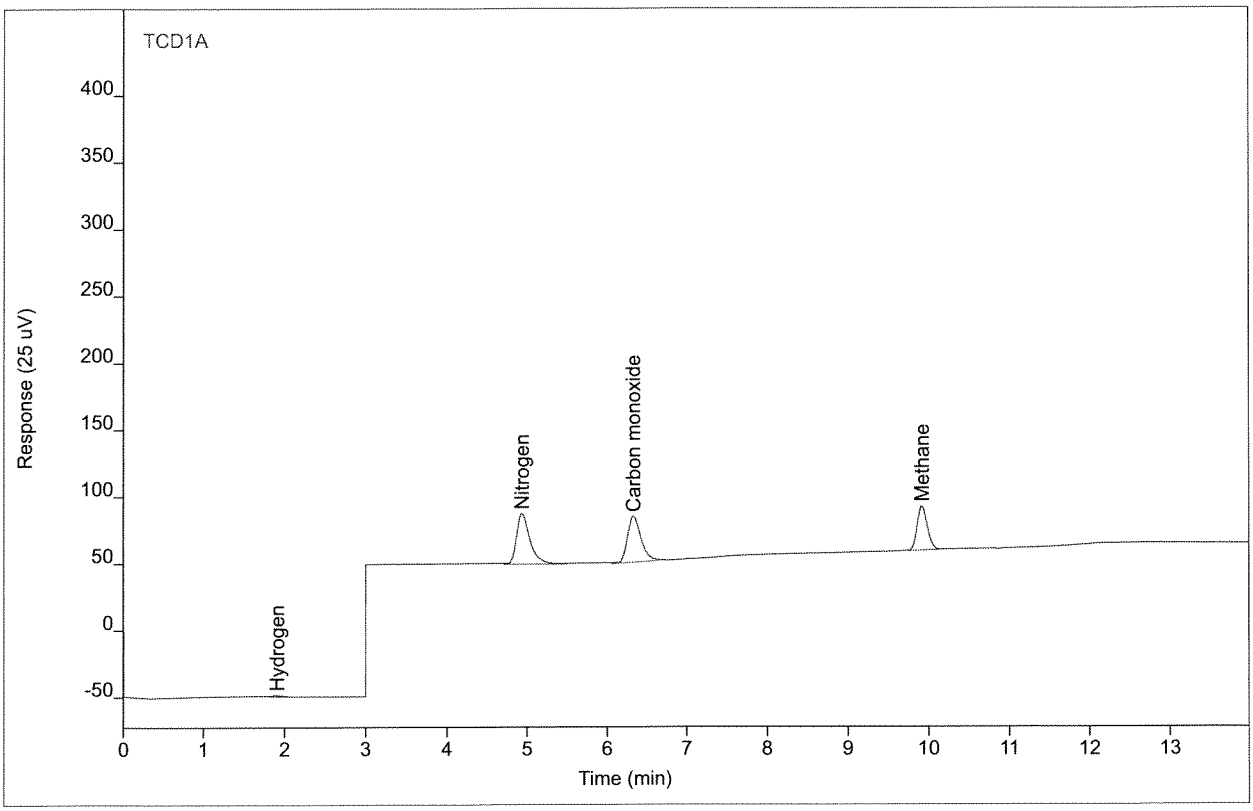


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.90	41.5040	4.39795	2.83654	1	2.83654	%
Nitrogen	VB	4.93	1444.26	124.092	3.64880	1	3.64880	%
Carbon monoxide	BB	6.31	1386.71	114.651	3.58548	1	3.58548	%
Methane	BB	9.90	964.424	109.451	2.88542	1	2.88542	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F0901.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 3
Injection Date	3/8/2016 8:57 PM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 2:30 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Nicholas Traversa	Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	11.7895	1.33243	0.77430	1	0.77430	%
Nitrogen	VB	4.94	438.574	37.9344	1.02317	1	1.02317	%
Carbon monoxide	VB	6.33	401.406	34.4962	1.01109	1	1.01109	%
Methane	BB	9.92	285.620	33.2135	0.82107	1	0.82107	%

Analyst Peak Integration Comments

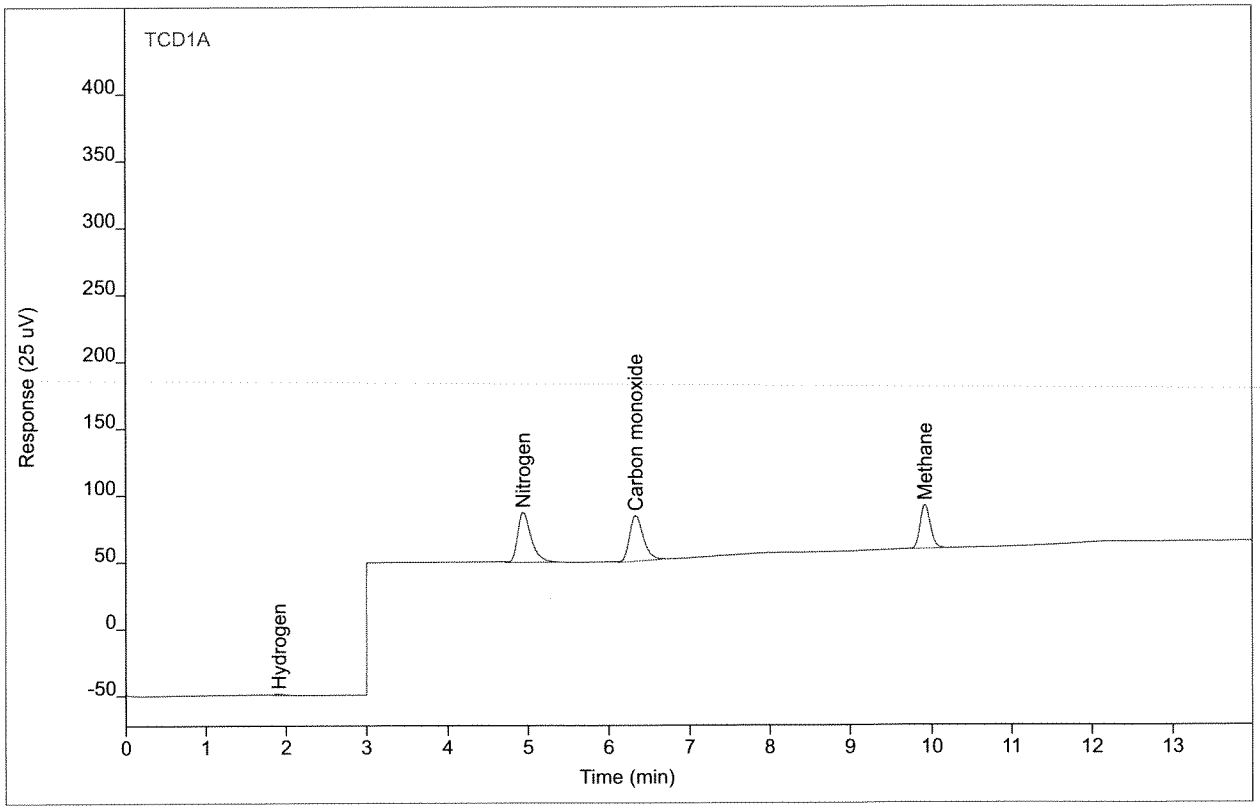
08:59:29 03/09/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)
Sequence Name	BETTYP338 ver.3
Data File	009F0902.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 9:21 PM
File Modified	3/10/2016 2:30 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	11.9883	1.40042	0.78810	1	0.78810	%
Nitrogen	VB	4.94	432.946	37.8657	1.00848	1	1.00848	%
Carbon monoxide	BB	6.33	401.265	34.4190	1.01072	1	1.01072	%
Methane	BB	9.92	284.301	32.9372	0.81706	1	0.81706	%

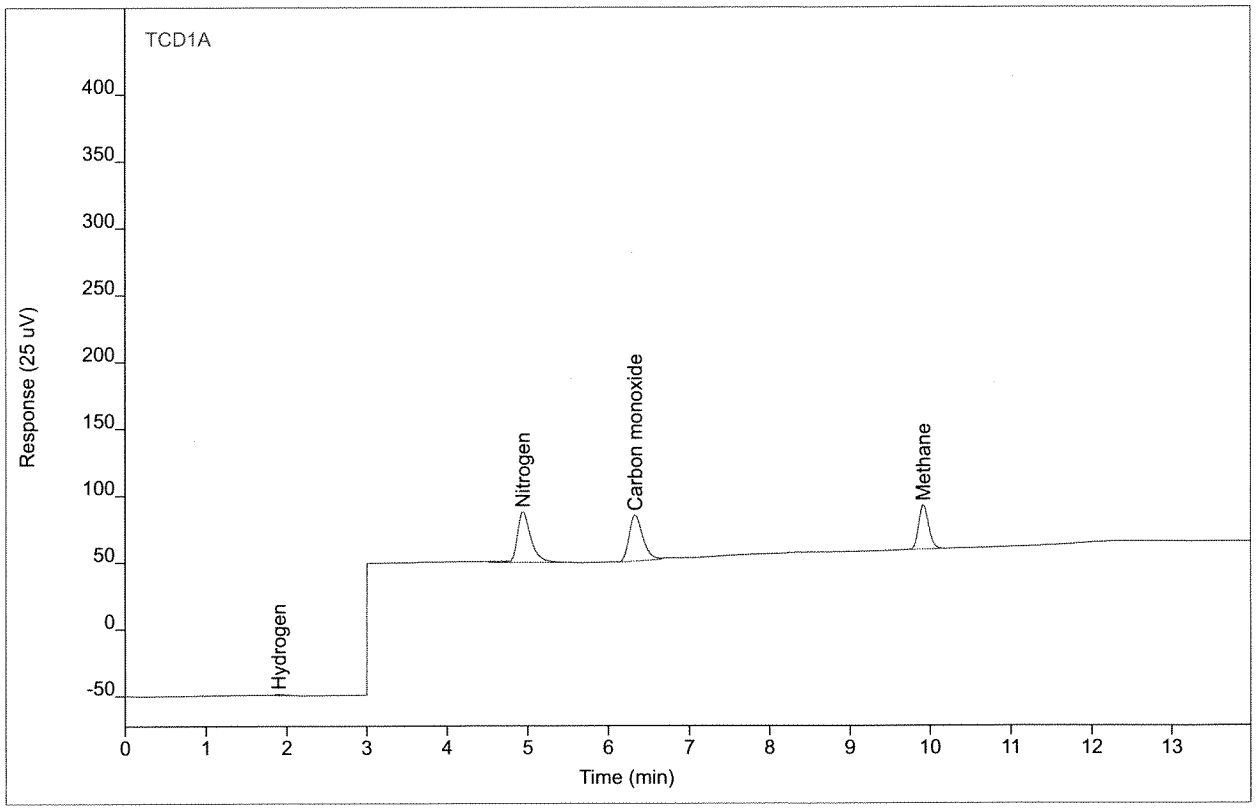
Analyst Peak Integration Comments

09:00:18 03/09/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F0903.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 3
Injection Date	3/8/2016 9:45 PM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 2:31 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Nicholas Traversa	Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.90	11.5218	1.30186	0.75572	1	0.75572	%
Nitrogen	BB	4.94	439.735	38.0820	1.02620	1	1.02620	%
Carbon monoxide	BB	6.33	402.436	34.4670	1.01378	1	1.01378	%
Methane	BB	9.92	285.227	33.1581	0.81988	1	0.81988	%

Analyst Peak Integration Comments

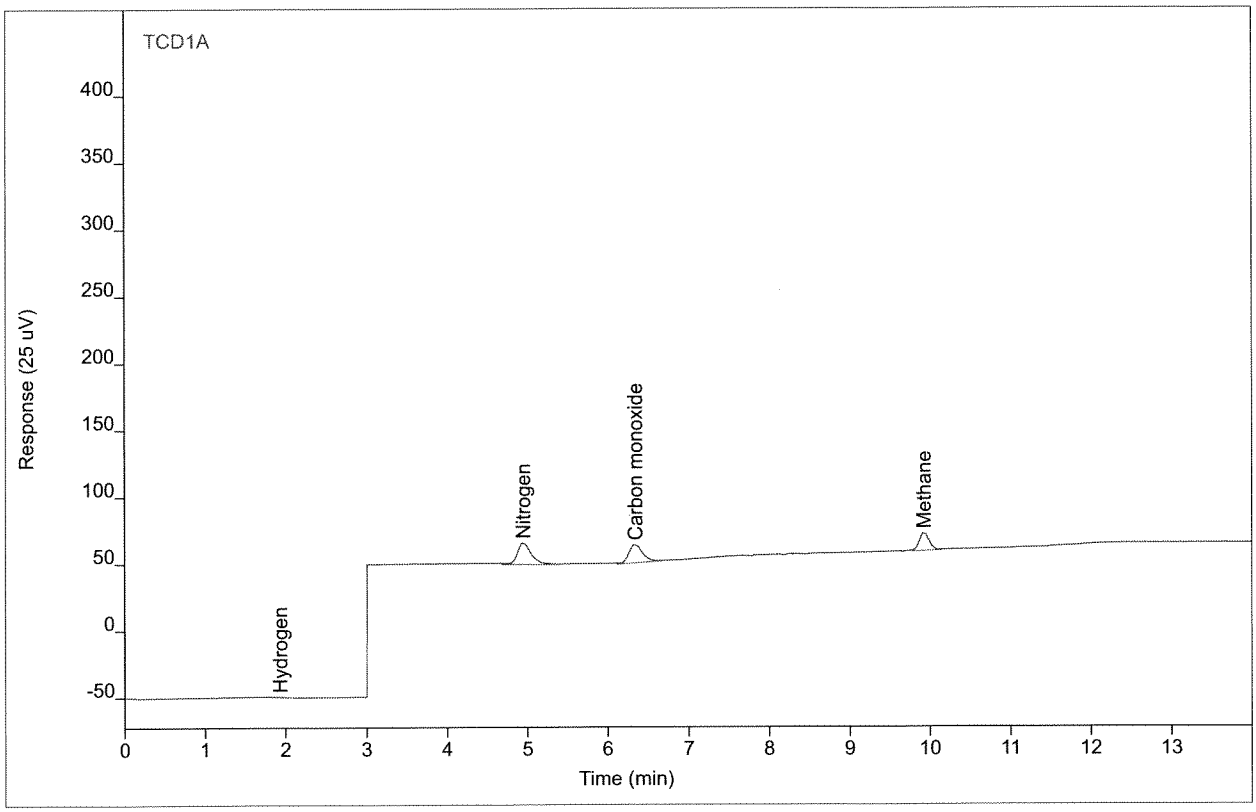
09:00:47 03/09/16 Nicholas Traversa II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP338 ver.3
Data File	009F1001.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 10:09 PM
File Modified	3/10/2016 2:31 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.93	5.13970	0.52556	0.31279	1	0.31279	%
Nitrogen	VV	4.95	196.149	16.2957	0.39025	1	0.39025	%
Carbon monoxide	MM	6.34	157.913	13.6648	0.37535	1	0.37535	%
Methane	BB	9.92	114.772	13.3437	0.30263	1	0.30263	%

Analyst Peak Integration Comments

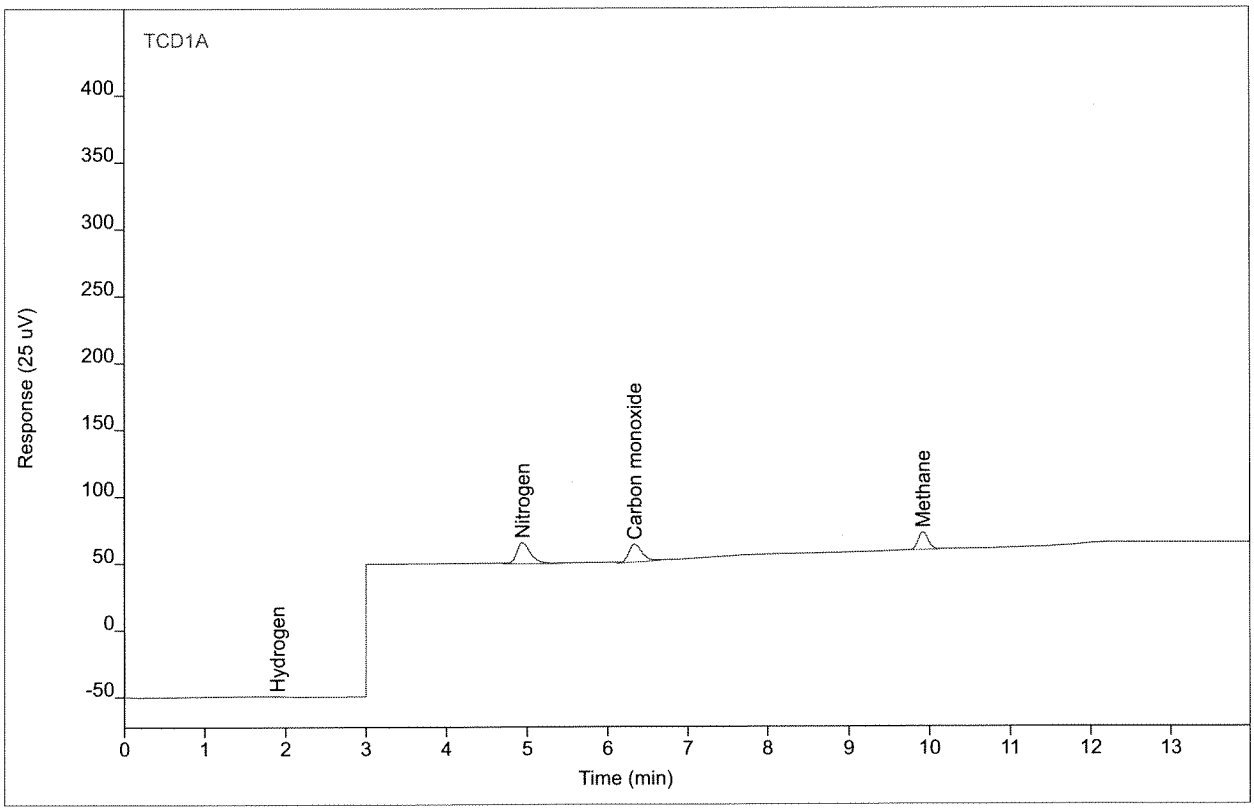
11:32:14 03/09/16 Justin Guenzler II-FP
11:48:09 03/09/16 Justin Guenzler II-Baseline
13:33:59 03/09/16 Nicholas Traversa II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)
Sequence Name	BETTYP338 ver.3
Data File	009F1002.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 10:33 PM
File Modified	3/10/2016 2:31 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.90	5.14901	0.57666	0.31344	1	0.31344	%
Nitrogen	VB	4.95	186.256	16.0015	0.36821	1	0.36821	%
Carbon monoxide	BB	6.34	154.003	13.5688	0.36606	1	0.36606	%
Methane	BB	9.93	114.057	13.2736	0.30074	1	0.30074	%

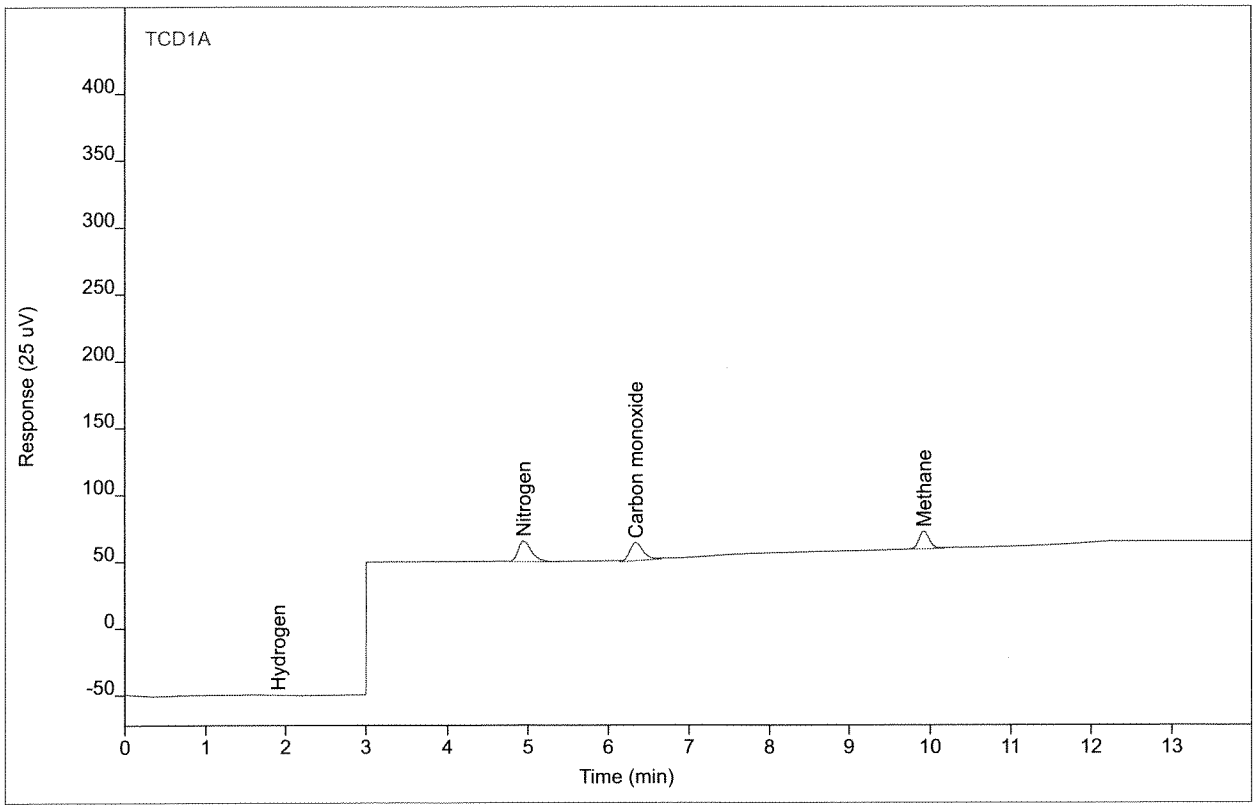
Analyst Peak Integration Comments

13:34:17 03/09/16 Nicholas Traversa II
13:34:47 03/09/16 Nicholas Traversa II
13:36:03 03/09/16 Nicholas Traversa II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.55)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F1003.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 3
Injection Date	3/8/2016 10:57 PM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 2:31 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Nicholas Traversa	Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	5.12162	0.56365	0.31154	1	0.31154	%
Nitrogen	BB	4.95	180.108	15.8393	0.35605	1	0.35605	%
Carbon monoxide	BB	6.34	156.014	13.6775	0.37084	1	0.37084	%
Methane	BB	9.93	113.947	13.1993	0.30045	1	0.30045	%

Analyst Peak Integration Comments

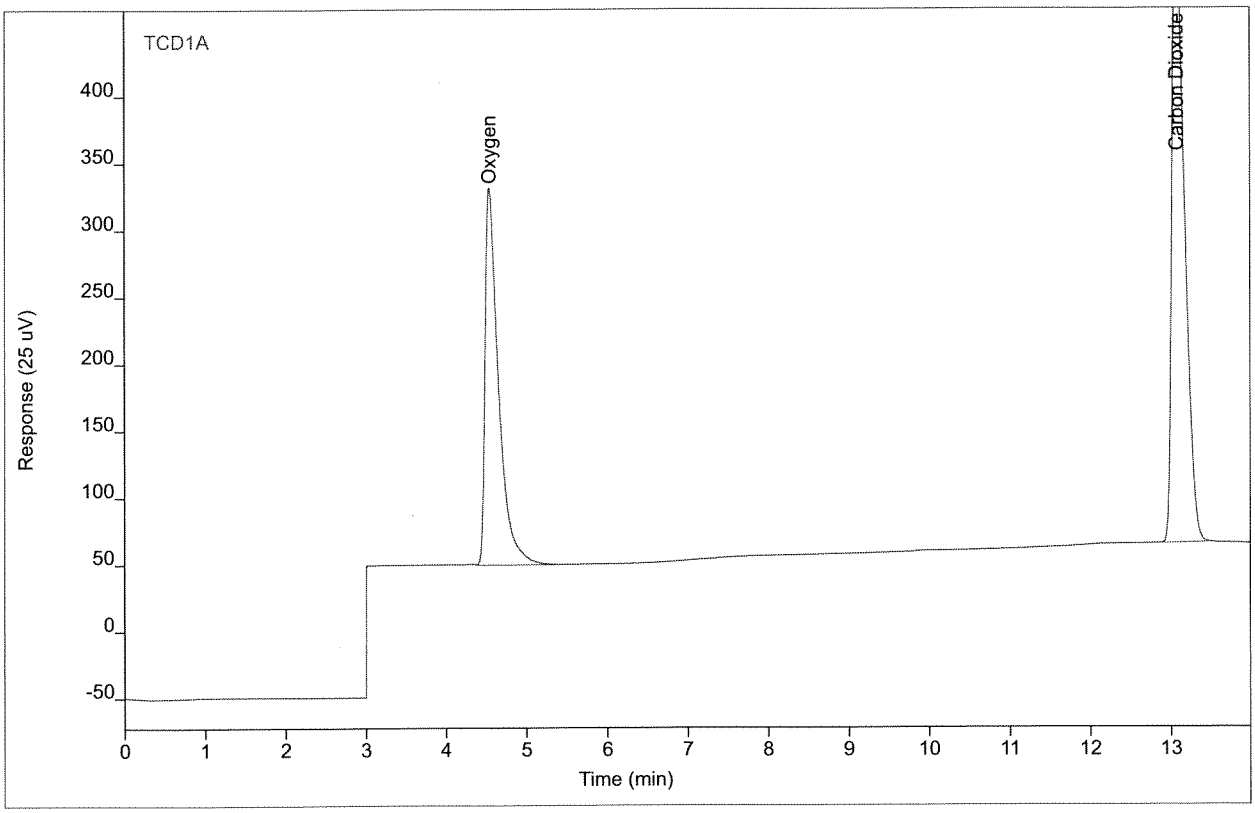
13:34:59 03/09/16 Nicholas Traversa II

Chromatogram Report

Sample Name	BettyP300 #FG4 ENV(1=0,2=358.93)
Sequence Name	BETTYP338 ver.3
Data File	009F1101.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 11:20 PM
File Modified	3/10/2016 1:45 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



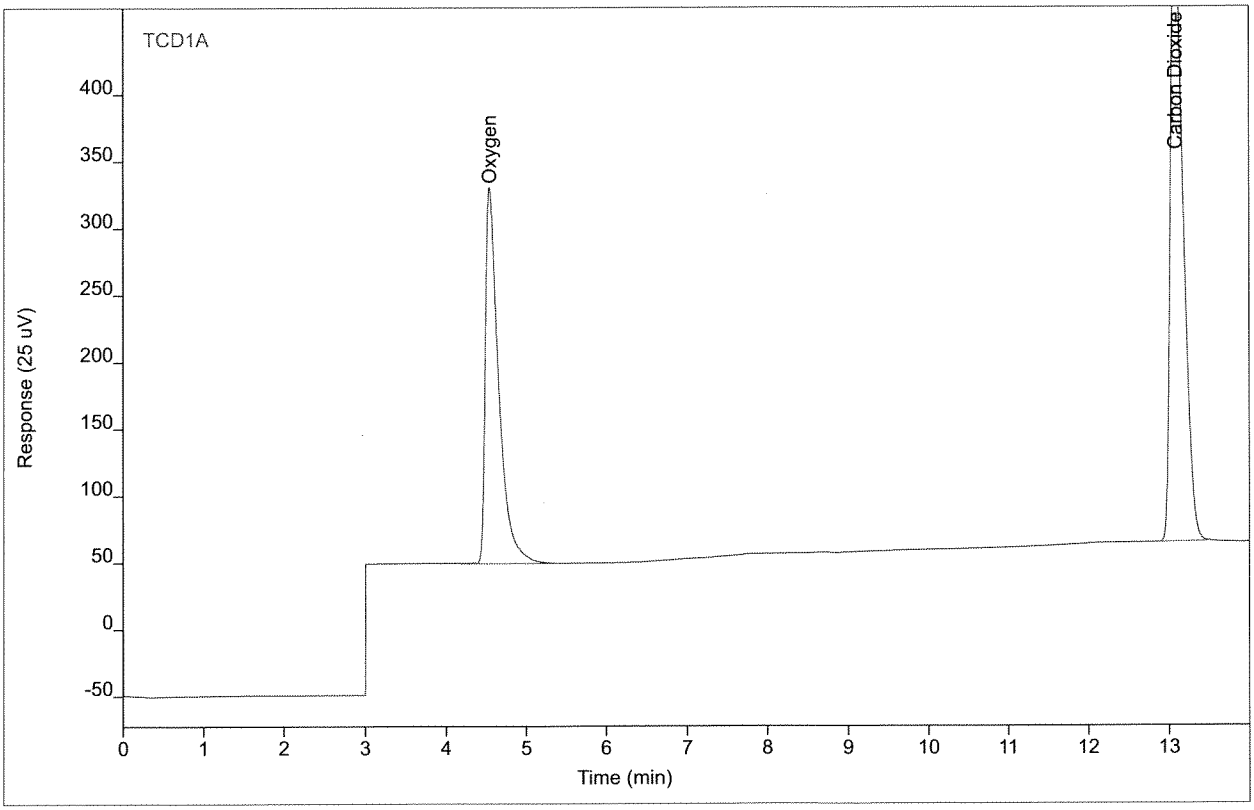
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	3318.33	282.002	9.67796	1	9.67796	%
Carbon Dioxide	BB	13.08	5051.10	464.310	9.61814	1	9.61814	%

Chromatogram Report

Sample Name	BettyP300 #FG4 ENV(1=0,2=358.93)
Sequence Name	BETTYP338 ver.3
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/8/2016 11:44 PM
File Modified	3/10/2016 1:45 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



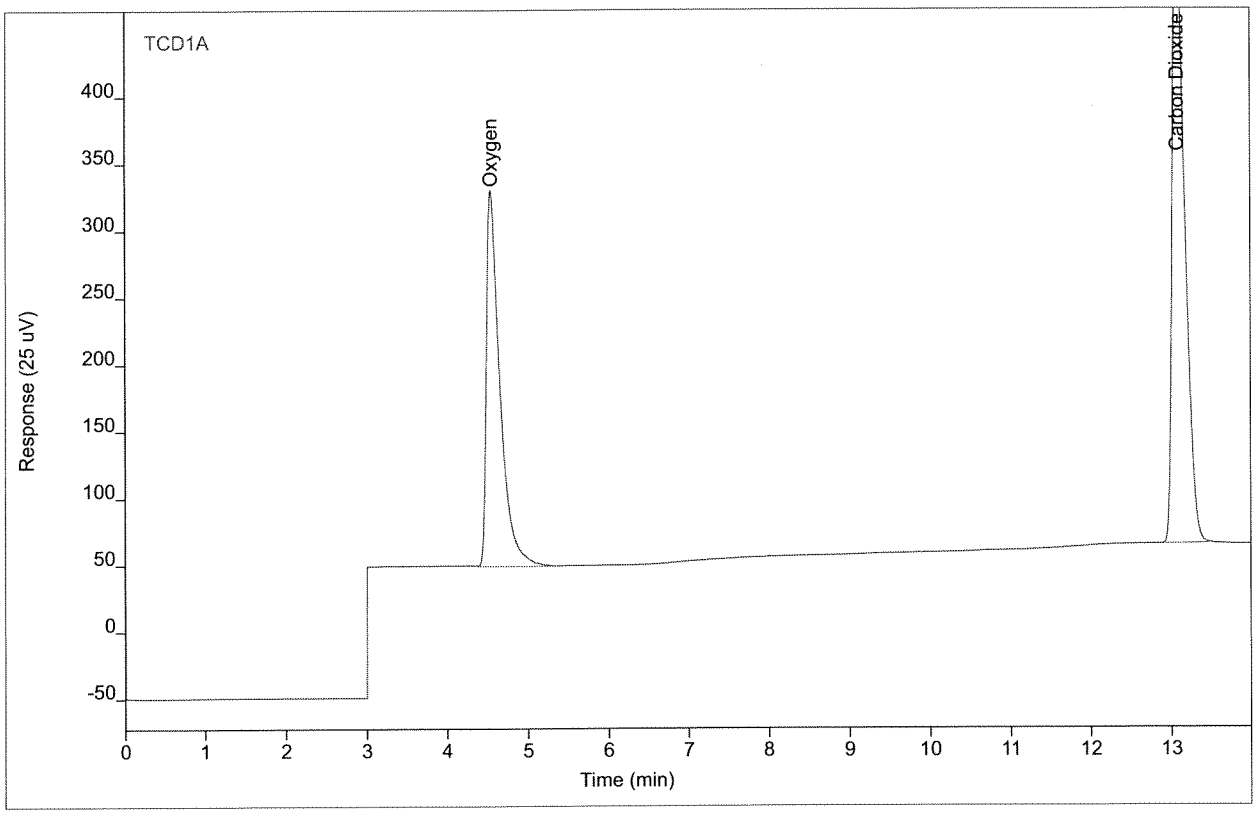
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	3309.76	281.240	9.65266	1	9.65266	%
Carbon Dioxide	BB	13.08	5048.59	463.156	9.61331	1	9.61331	%

Chromatogram Report

Sample Name	BettyP300 #FG4 ENV(1=0,2=358.93)
Sequence Name	BETTYP338 ver.3
Data File	009F1103.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 12:08 AM
File Modified	3/10/2016 1:45 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

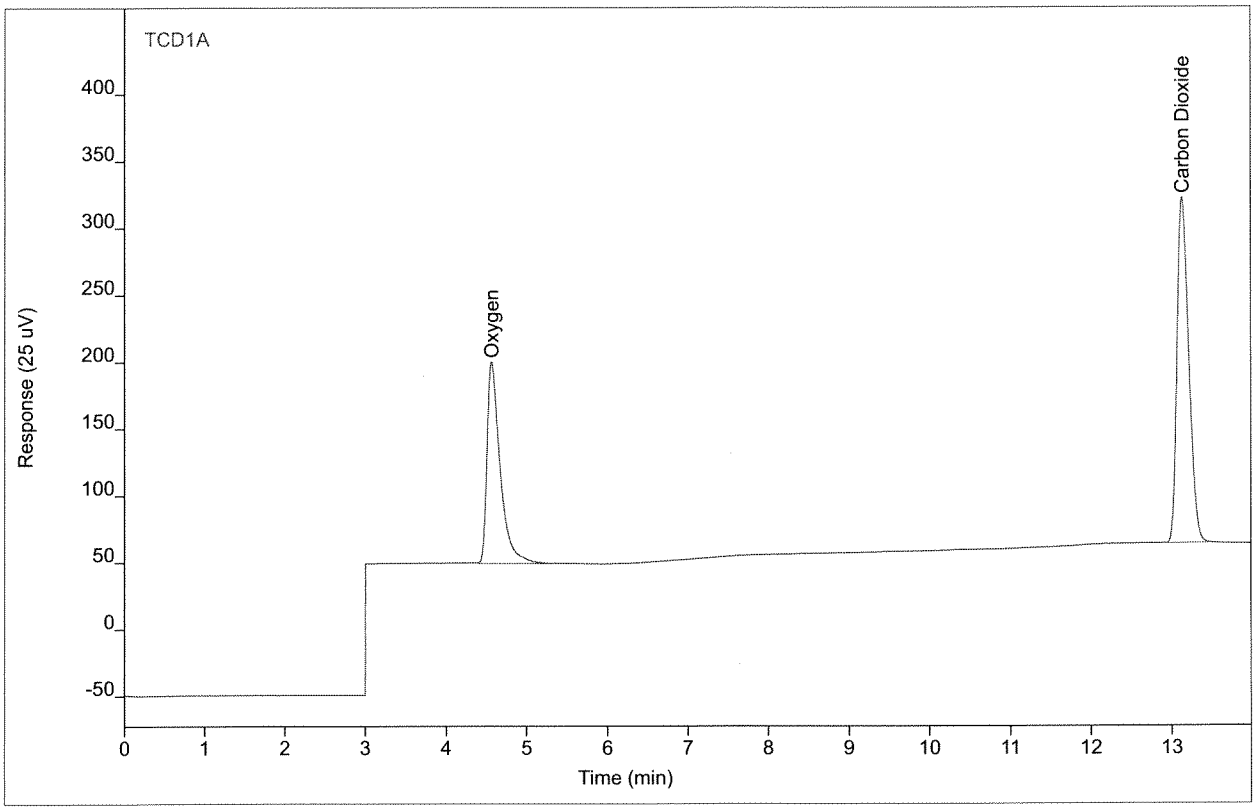


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.54	3294.35	280.788	9.60718	1	9.60718	%
Carbon Dioxide	BB	13.08	5056.72	465.904	9.62894	1	9.62894	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F1201.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 3
Injection Date	3/9/2016 12:31 AM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 1:45 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Nicholas Traversa	Printed	3/10/2016 2:39 PM



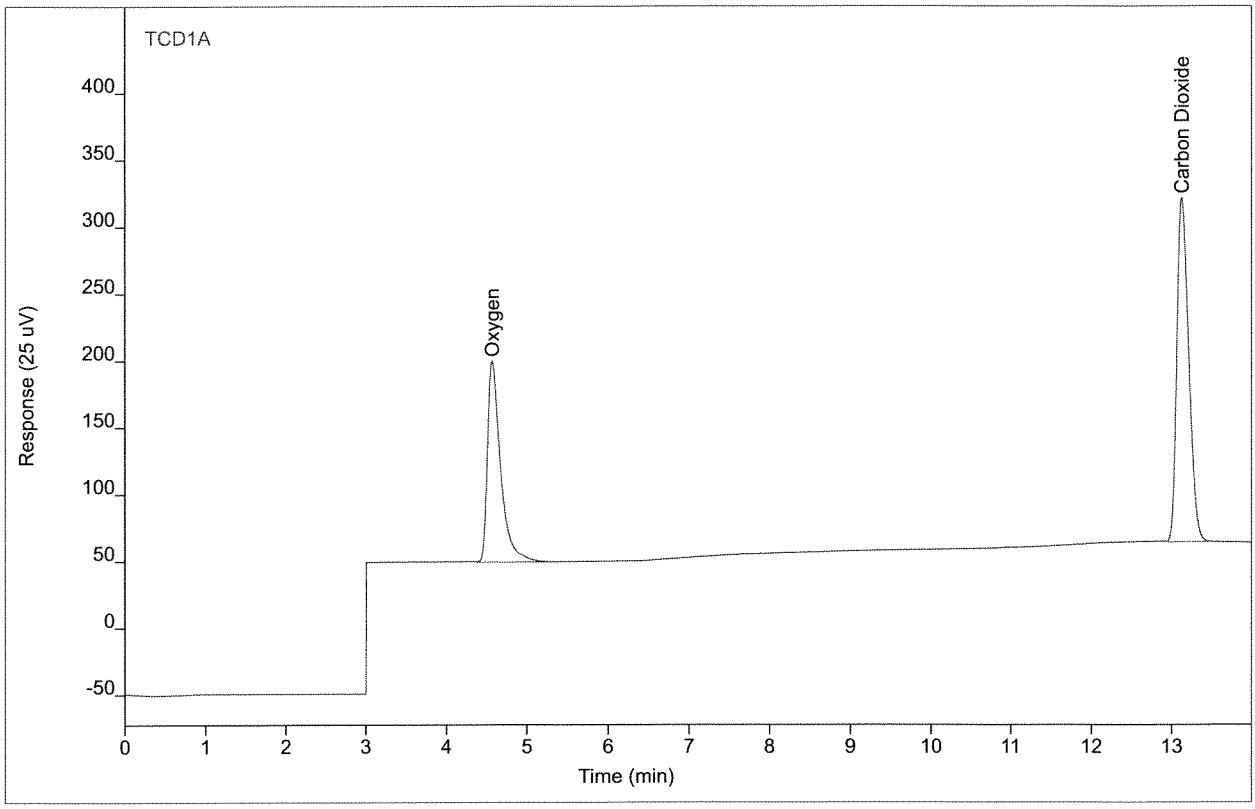
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.57	1739.71	150.765	5.01735	1	5.01735	%
Carbon Dioxide	BB	13.13	2629.40	258.086	4.96461	1	4.96461	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP338 ver.3
Data File	009F1202.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 12:55 AM
File Modified	3/10/2016 1:45 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



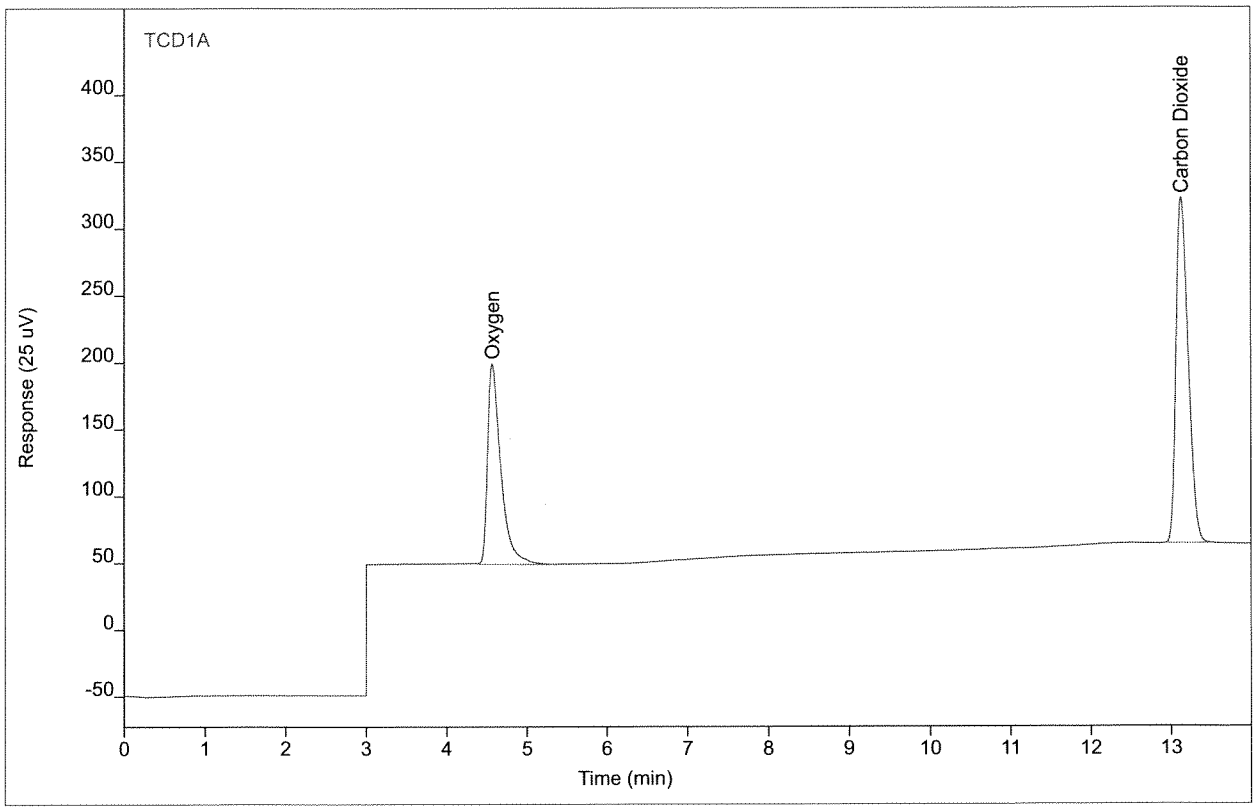
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.57	1738.50	150.539	5.01378	1	5.01378	%
Carbon Dioxide	BB	13.13	2620.32	257.299	4.94716	1	4.94716	%

Chromatogram Report

Sample Name	BettyP300 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP338 ver.3
Data File	009F1203.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 1:19 AM
File Modified	3/10/2016 1:45 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

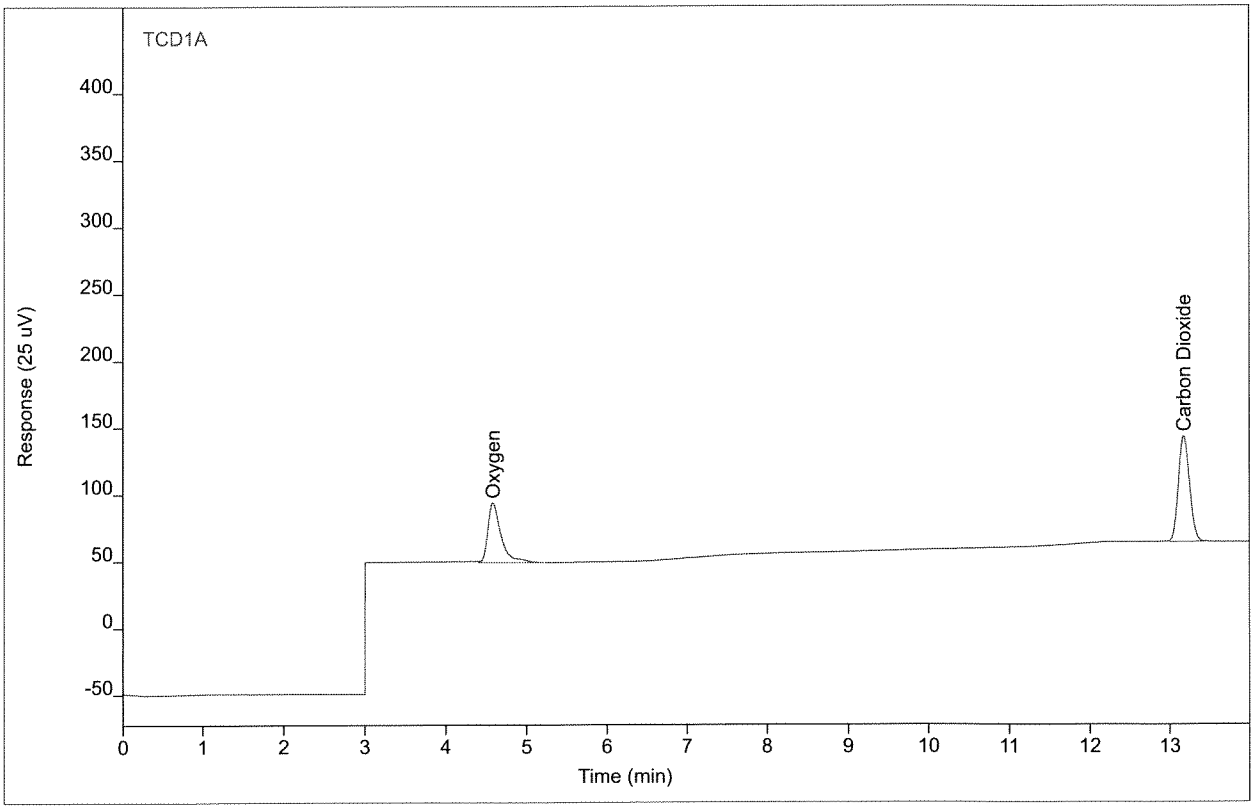


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.57	1730.16	150.425	4.98917	1	4.98917	%
Carbon Dioxide	BB	13.13	2635.38	258.129	4.97610	1	4.97610	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG2 ENV(1=1272.08,2=219.9)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F1301.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 3
Injection Date	3/9/2016 1:42 AM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 1:45 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Nicholas Traversa	Printed	3/10/2016 2:39 PM



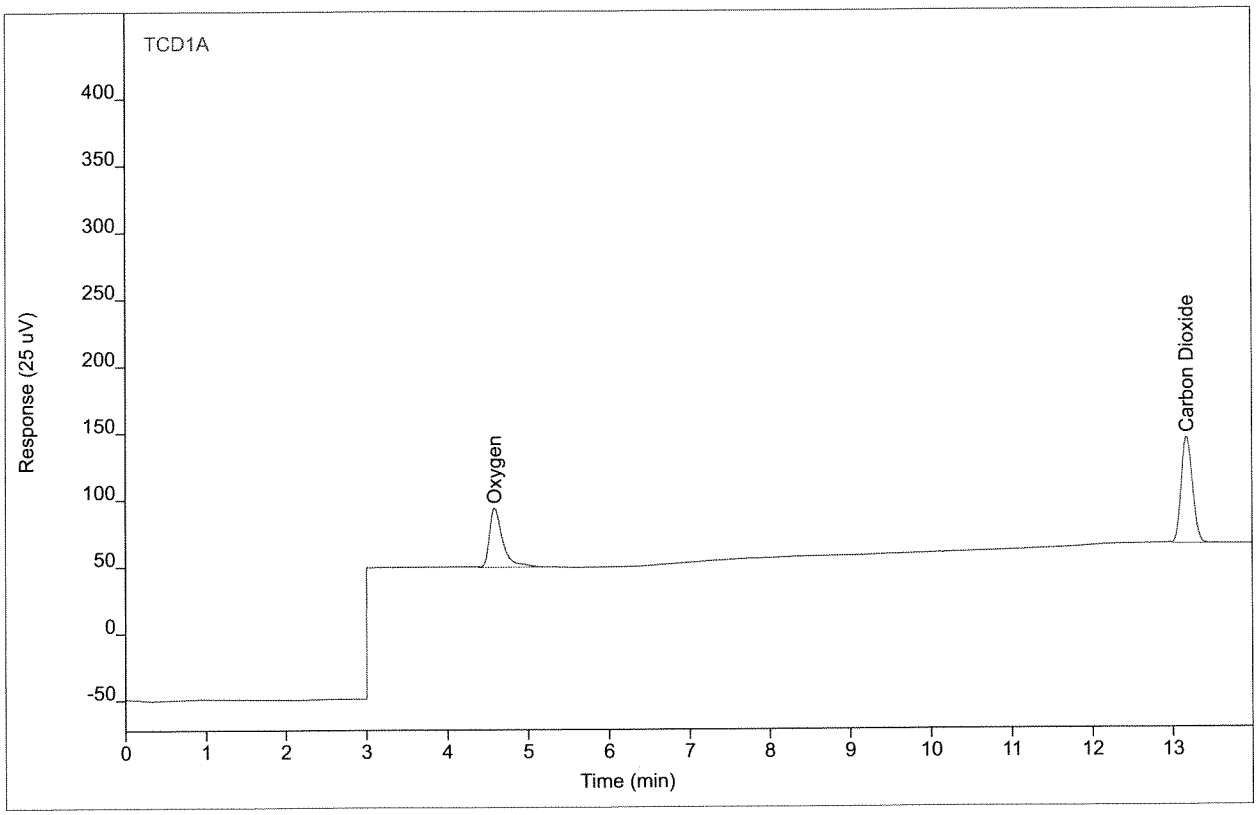
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.59	520.372	44.9374	1.41747	1	1.41747	%
Carbon Dioxide	BB	13.18	768.688	79.1765	1.38908	1	1.38908	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG2 ENV(1=1272.08,2=219.9)
Sequence Name	BETTYP338 ver.3
Data File	009F1302.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 2:06 AM
File Modified	3/10/2016 1:45 PM
Instrument	Betty
Operator	Nicholas Traversa

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

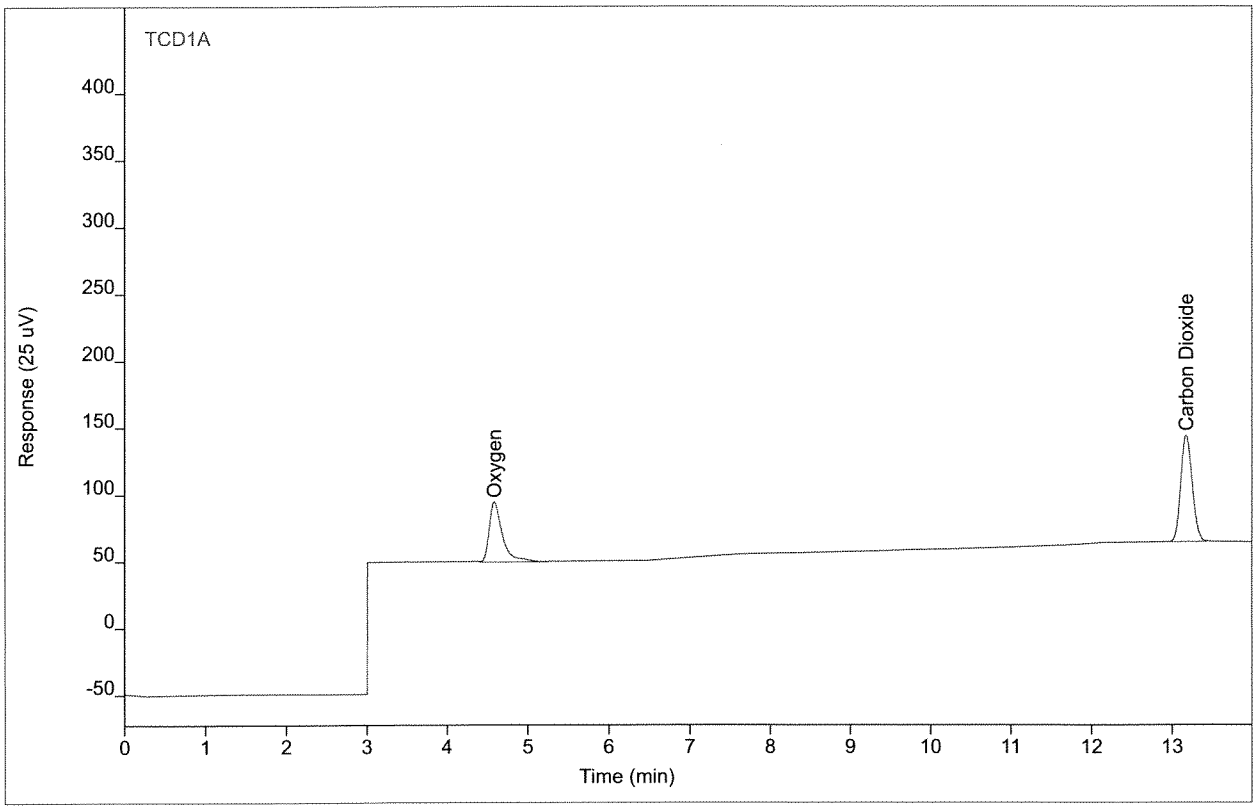


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.59	521.822	44.5866	1.42175	1	1.42175	%
Carbon Dioxide	BB	13.17	780.639	79.5744	1.41205	1	1.41205	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG2 ENV(1=1272.08,2=219.9)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F1303.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	3 of 3
Injection Date	3/9/2016 2:29 AM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 1:45 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Nicholas Traversa	Printed	3/10/2016 2:39 PM



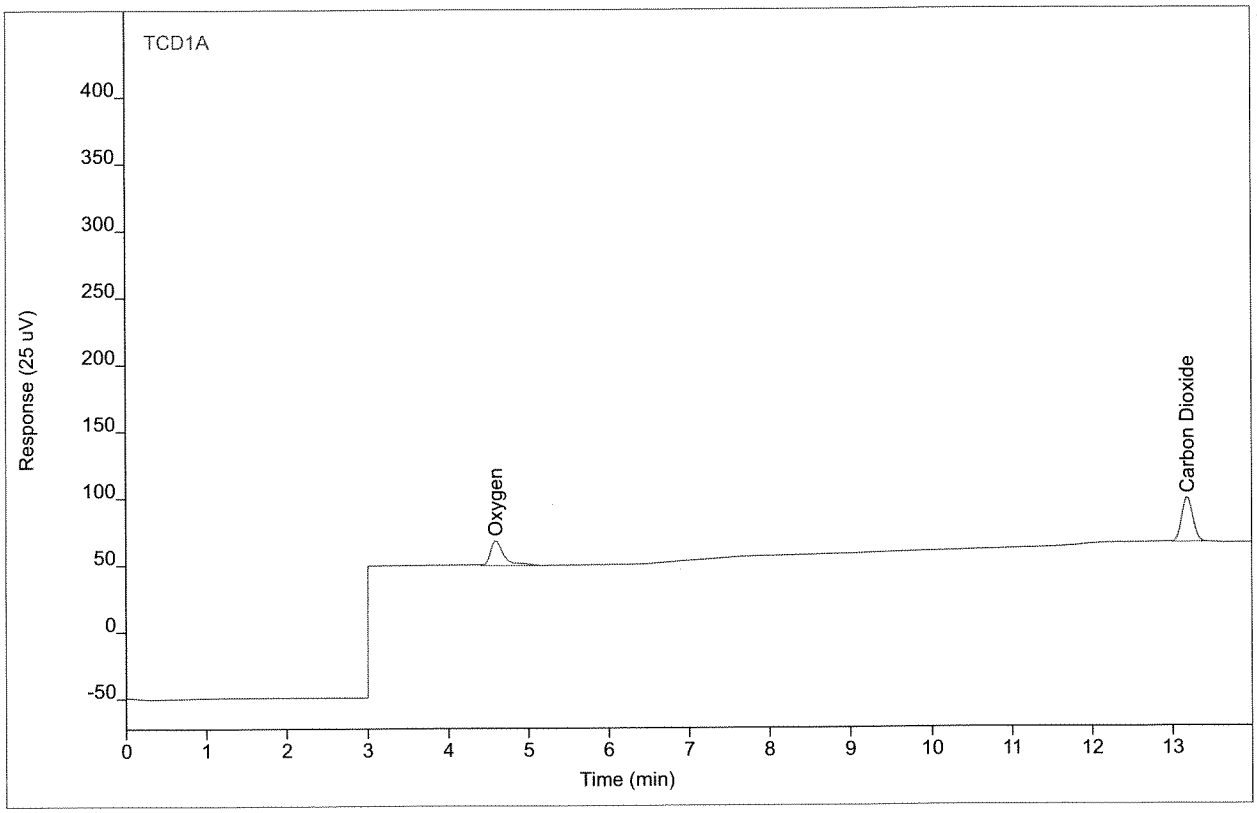
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.59	519.673	44.9618	1.41541	1	1.41541	%
Carbon Dioxide	BB	13.17	777.539	79.5533	1.40609	1	1.40609	%

Chromatogram Report

Sample Name	BettyP300 #FG1 ENV(1=3392.23,2=219.9)
Sequence Name	BETTYP338 ver.3
Data File	009F1701.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 9:57 AM
File Modified	3/10/2016 1:46 PM
Instrument	Betty
Operator	Nicholas Traversa

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM R	4.59	220.948	18.8062	0.53518	1	0.53518	%
Carbon Dioxide	BB	13.19	323.812	33.2633	0.53544	1	0.53544	%

Analyst Peak Integration Comments

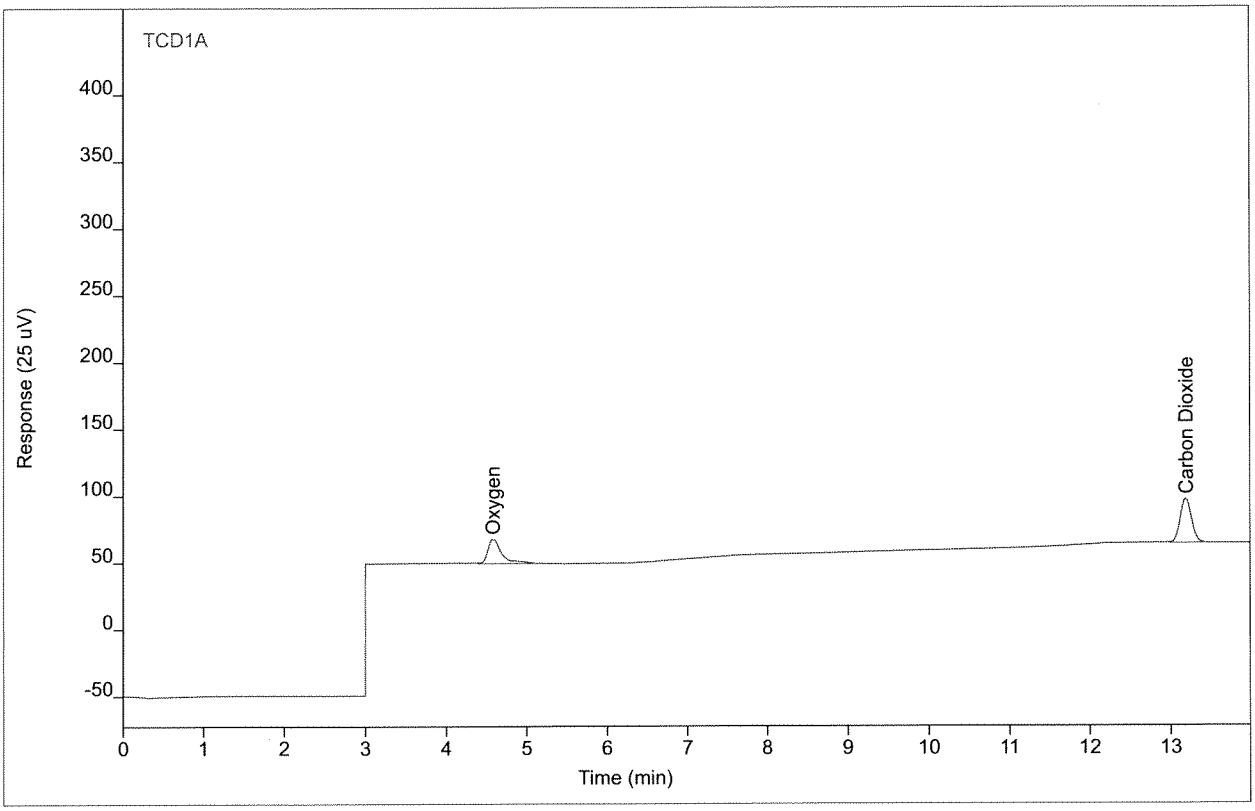
11:15:19 03/09/16 Justin Guenzler II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG1 ENV(1=3392.23,2=219.9)
Sequence Name	BETTYP338 ver.3
Data File	009F1702.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 10:21 AM
File Modified	3/10/2016 1:46 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM R	4.59	219.311	18.7047	0.53122	1	0.53122	%
Carbon Dioxide	BB	13.19	321.107	33.0732	0.53096	1	0.53096	%

Analyst Peak Integration Comments

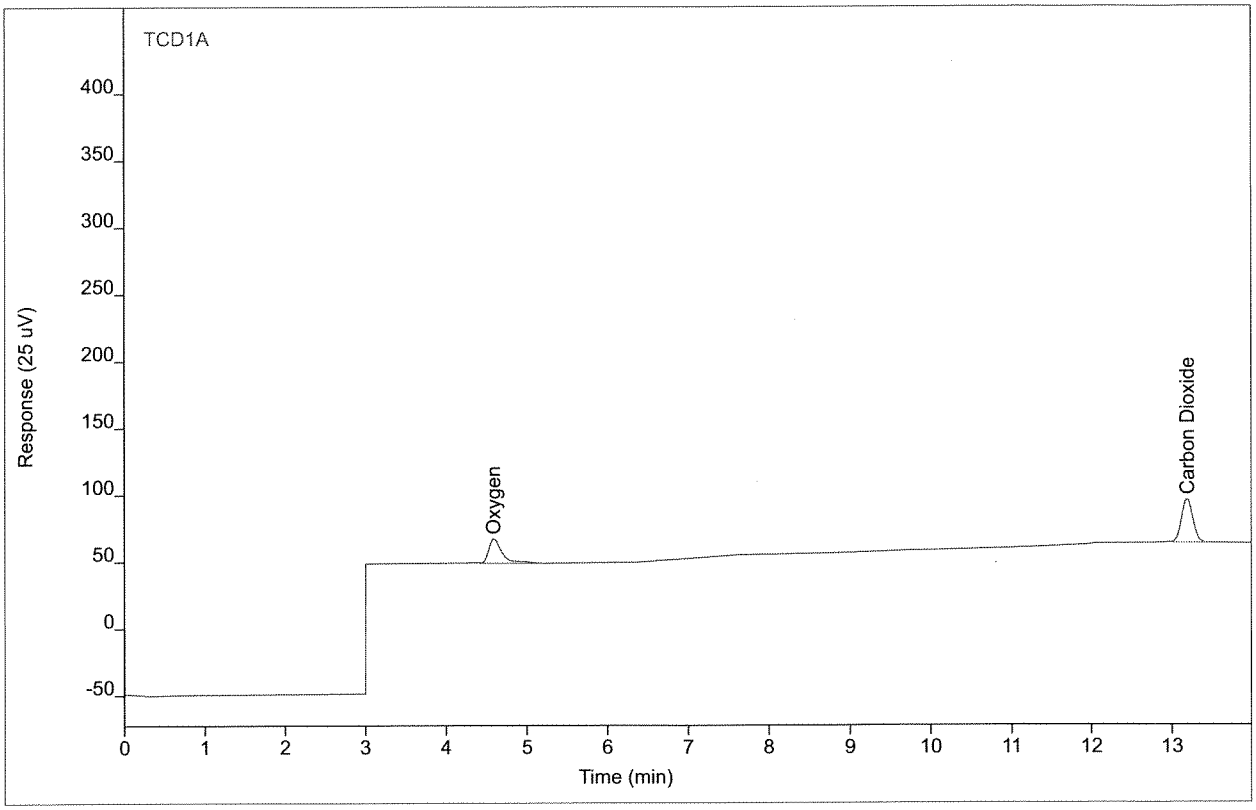
11:16:01 03/09/16 Justin Guenzler II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG1 ENV(1=3392.23,2=219.9)
Sequence Name	BETTYP338 ver.3
Data File	009F1703.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 10:44 AM
File Modified	3/10/2016 1:46 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM R	4.58	215.514	18.5604	0.52202	1	0.52202	%
Carbon Dioxide	BB	13.19	319.110	32.6769	0.52766	1	0.52766	%

Analyst Peak Integration Comments

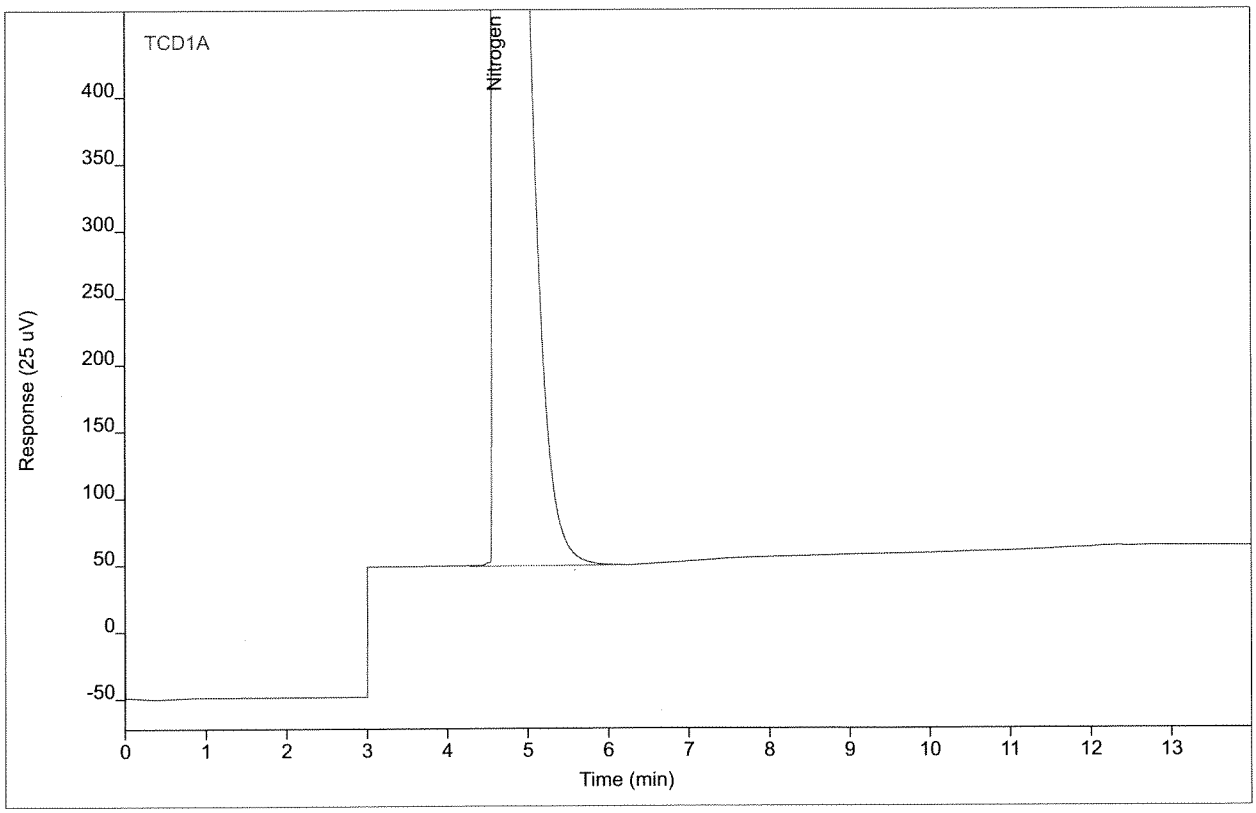
11:16:42 03/09/16 Justin Guenzler II-Baseline

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG22 ENV(1=0,5=450)
Sequence Name	BETTYP338 ver.3
Data File	009F1802.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 11:31 AM
File Modified	3/10/2016 2:29 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



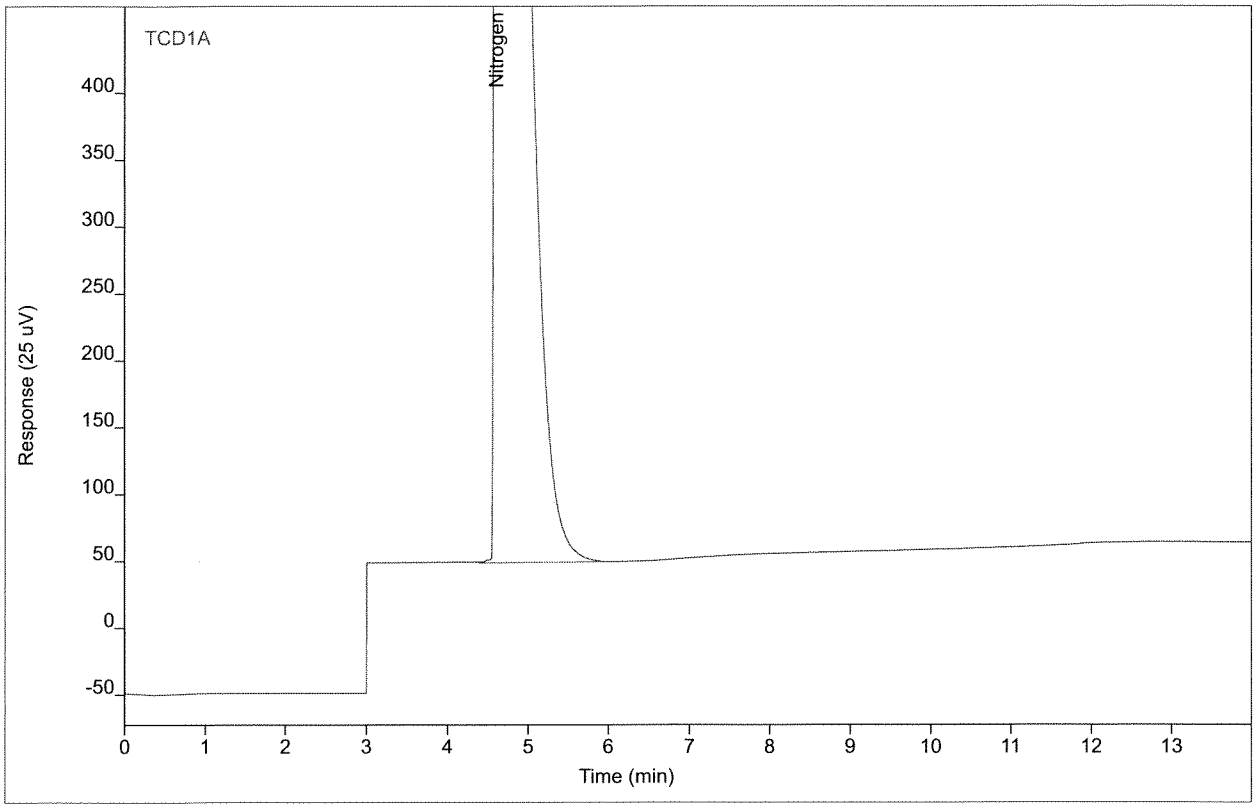
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	BB	4.60	34921.3	1683.94	91.0497	1	91.0497	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG22 ENV(1=0,5=450)
Sequence Name	BETTYP338 ver.3
Data File	009F1803.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 11:54 AM
File Modified	3/10/2016 2:29 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	MM	4.60	34690.7	1678.97	90.4477	1	90.4477	%

Analyst Peak Integration Comments

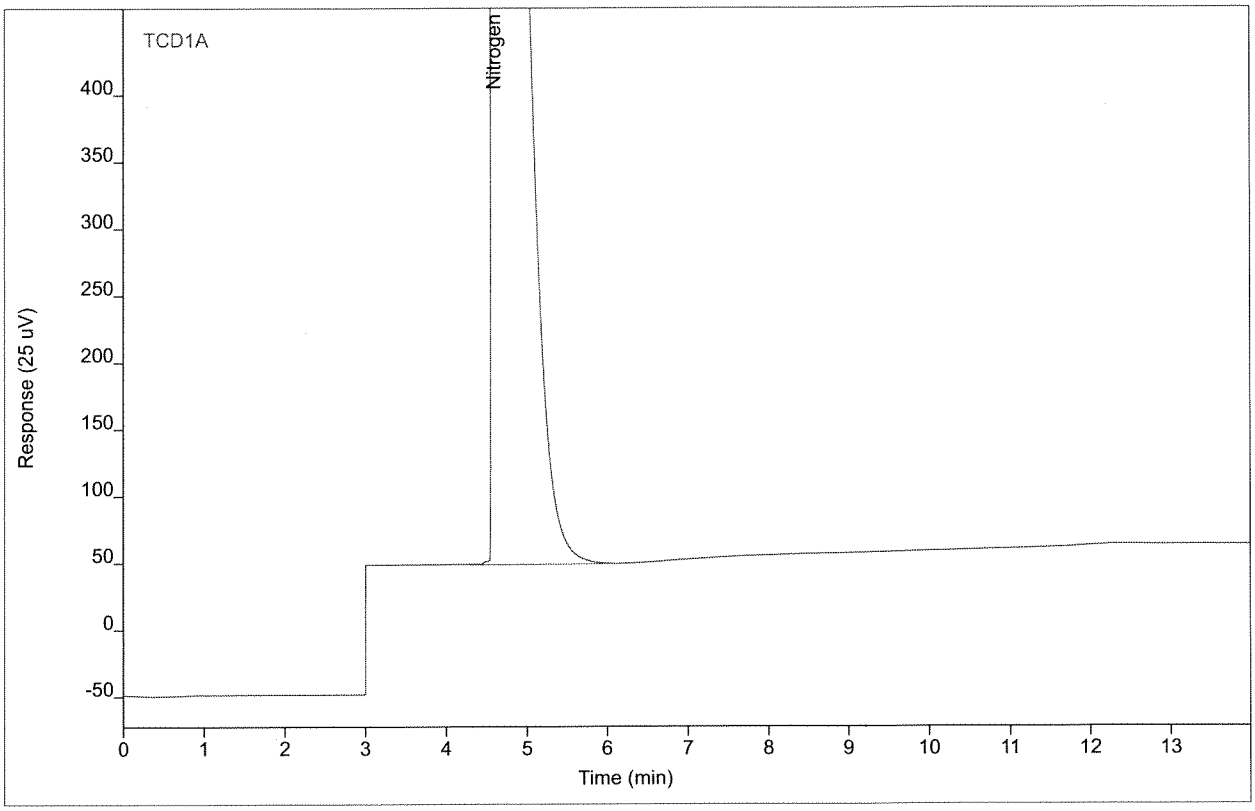
12:31:42 03/09/16 Nicholas Traversa II-Baseline
14:28:45 03/10/16 Nicholas Traversa II-Baseline

Chromatogram Report

Sample Name	BettyP300 #FG22 ENV(1=0,5=450)
Sequence Name	BETTYP338 ver.3
Data File	009F1804.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 12:18 PM
File Modified	3/10/2016 2:29 PM
Instrument	Betty
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



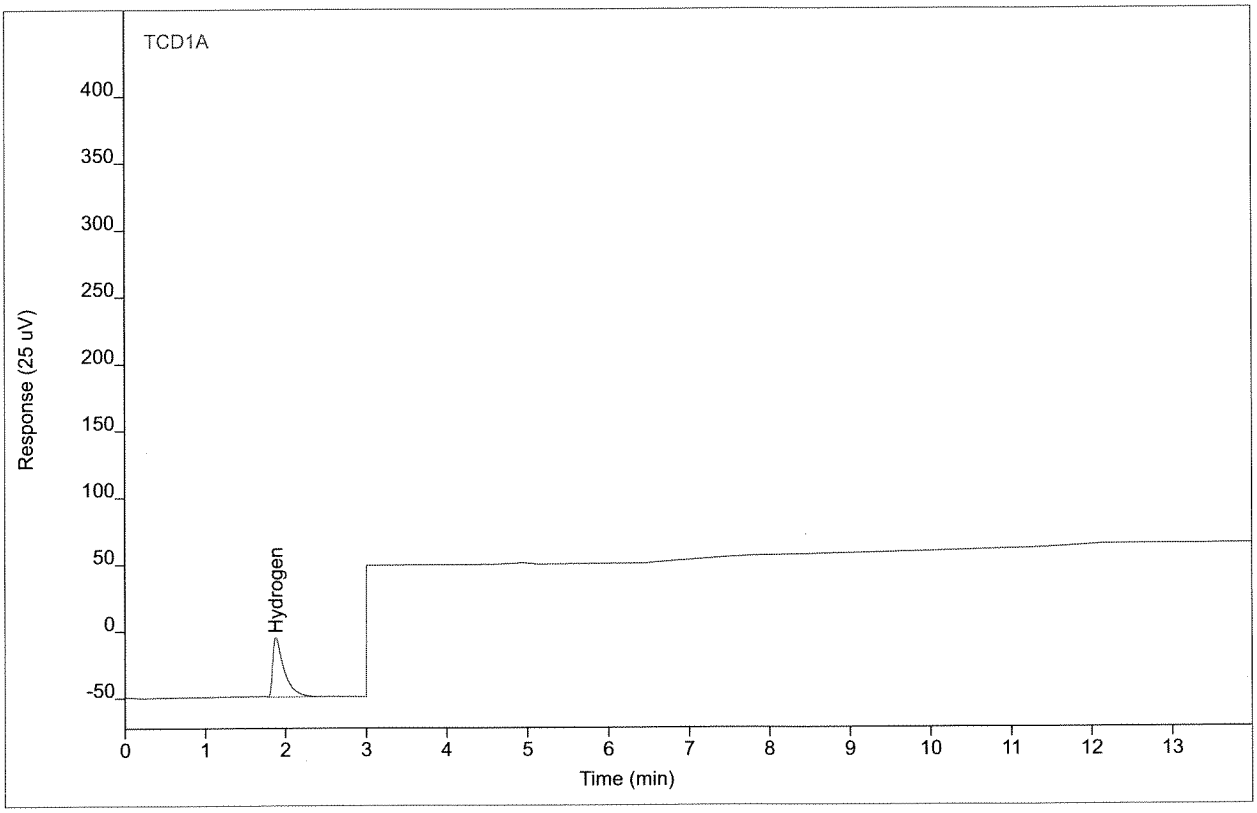
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	VB	4.60	34948.4	1686.87	91.1206	1	91.1206	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)
Sequence Name	BETTYP338 ver.3
Data File	009F1903.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 1:28 PM
File Modified	3/10/2016 1:46 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM



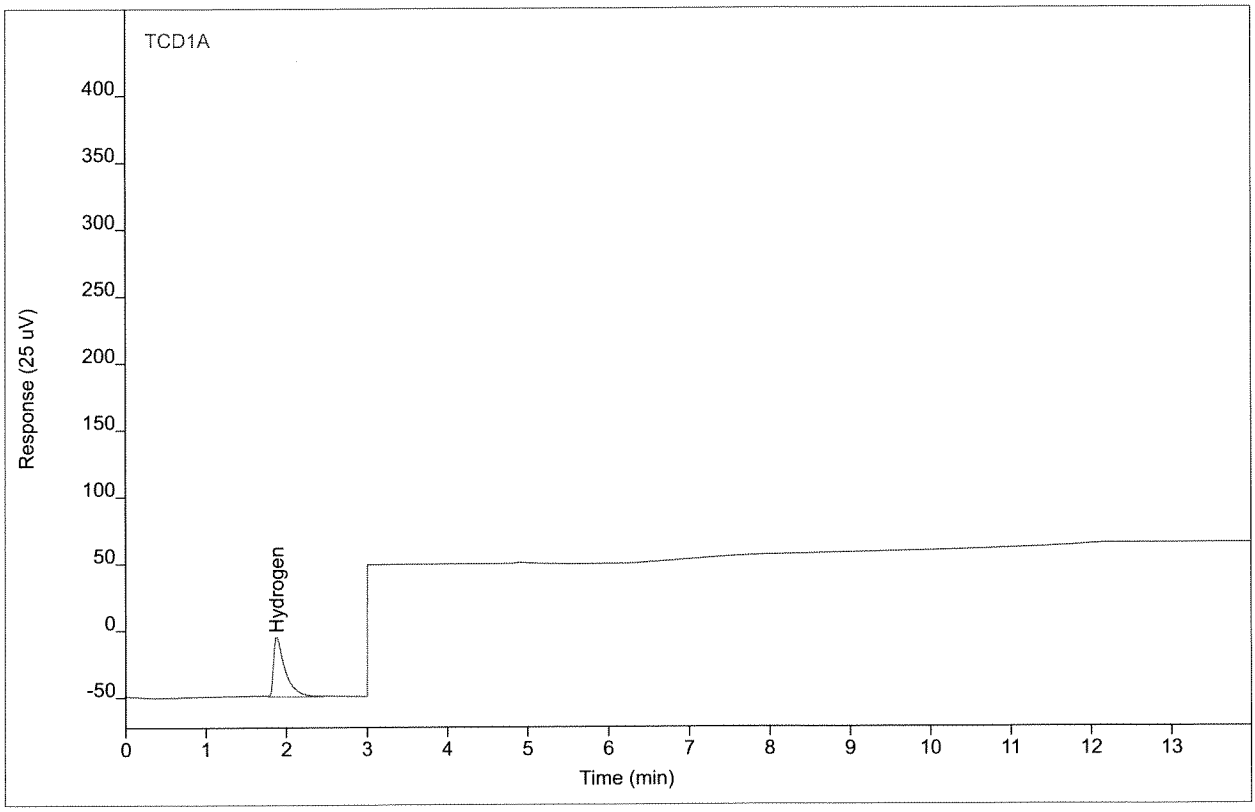
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	437.560	44.7558	30.3235	1	30.3235	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)
Sequence Name	BETTYP338 ver.3
Data File	009F1904.D
File Location	GC/2016/Betty/Quarter 1
Injection Date	3/9/2016 1:52 PM
File Modified	3/10/2016 1:47 PM
Instrument	Betty
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP338_FGA.M
Method Modified	3/10/2016 10:02 AM
Printed	3/10/2016 2:39 PM

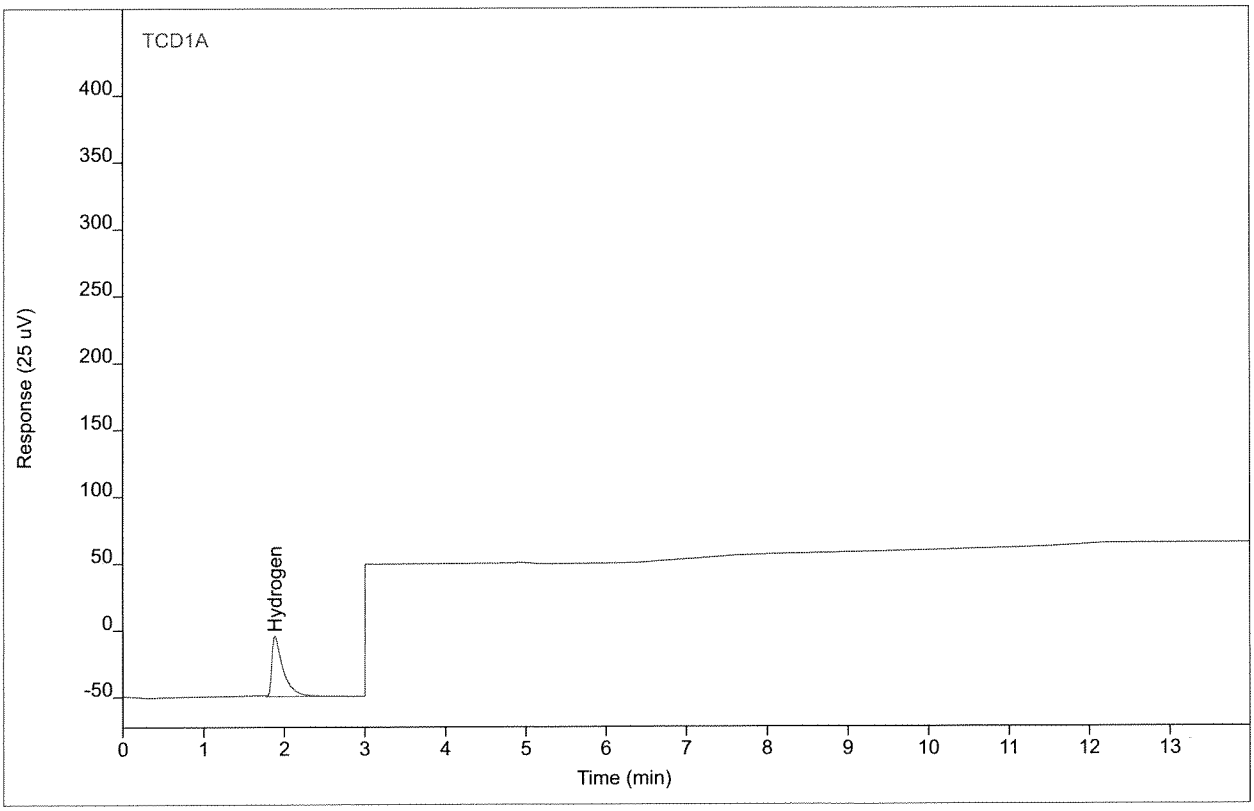


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	441.824	44.9430	30.6195	1	30.6195	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP338 ver.3	Vial Number	Vial 9
Data File	009F2001.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 1	Injection	1 of 1
Injection Date	3/9/2016 2:16 PM	Acquisition Method	GC142P133_CAL.M
File Modified	3/10/2016 1:47 PM	Analysis Method	BETTYP338_FGA.M
Instrument	Betty	Method Modified	3/10/2016 10:02 AM
Operator	Justin Guenzler	Printed	3/10/2016 2:39 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.88	442.603	45.1298	30.6735	1	30.6735	%

Calibration Table

Calib. Data Modified : 10/25/2016 12:49:44 PM

Rel. Reference Window : 2.000 %
Abs. Reference Window : 0.000 min
Rel. Non-ref. Window : 2.000 %
Abs. Non-ref. Window : 0.200 min
Uncalibrated Peaks : not reported
Partial Calibration : Yes, identified peaks are recalibrated
Correct All Ret. Times: No, only for identified peaks

Curve Type : Linear
Origin : Connected
Weight : Quadratic (Amnt)

Recalibration Settings:
Average Response : Average all calibrations
Average Retention Time: Floating Average New 75%

Calibration Report Options :
Printout of recalibrations within a sequence:
Calibration Table after Recalibration
Normal Report after Recalibration
If the sequence is done with bracketing:
Results of first cycle (ending previous bracket)

Signal 1: TCD1 A,
Signal 2: FID2 B,

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref Grp	Name
1.893	1	6	7.90000e-1	11.94261	6.61497e-2		Hydrogen
		7	2.76000	36.20618	7.62301e-2		
		8	8.20000	107.43602	7.63245e-2		
		29	28.54000	390.91725	7.30078e-2		
4.491	1	1	4.98000e-1	226.57674	2.19793e-3		Oxygen
		2	1.99300	630.13298	3.16282e-3		
		3	4.14900	1183.64978	3.50526e-3		
		4	9.96500	2544.88387	3.91570e-3		
		23	99.99900	2.80863e4	3.56042e-3		
4.959	1	5	3.80000e-1	469.30671	8.09705e-4		Nitrogen
		6	9.60000e-1	654.43241	1.46692e-3		
		7	3.37000	1486.29041	2.26739e-3		
		8	10.00000	3780.69214	2.64502e-3		
		22	99.90000	3.15955e4	3.16184e-3		
6.334	1	5	3.80000e-1	123.66729	3.07276e-3		Carbon monoxide
		6	9.60000e-1	322.17124	2.97978e-3		
		7	3.37000	1131.57751	2.97814e-3		
		8	10.00000	3386.74316	2.95269e-3		
		25	99.50000	3.05190e4	3.26027e-3		
9.882	1	5	3.10000e-1	91.51786	3.38732e-3		Methane
		6	7.70000e-1	222.88861	3.45464e-3		
		7	2.70000	790.80257	3.41425e-3		
		8	8.00000	2316.33724	3.45373e-3		
		24	99.99900	2.69590e4	3.70930e-3		
13.207	1	1	4.97000e-1	239.96081	2.07117e-3		Carbon Dioxide
		2	1.98700	936.67039	2.12134e-3		
		3	4.13600	1892.34001	2.18565e-3		

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
	4		9.93500	4333.68115	2.29251e-3			
	21		99.99000	4.20524e4	2.37775e-3			

More compound-specific settings:

Compound: Hydrogen
  Time Window : From 1.775 min To 2.011 min

Compound: Oxygen
  Time Window : From 4.208 min To 4.647 min

Compound: Nitrogen
  Time Window : From 4.619 min To 5.159 min

Compound: Carbon monoxide
  Time Window : From 5.734 min To 6.484 min

Compound: Methane
  Time Window : From 9.464 min To 10.232 min

Compound: Carbon Dioxide
  Time Window : From 12.592 min To 13.437 min

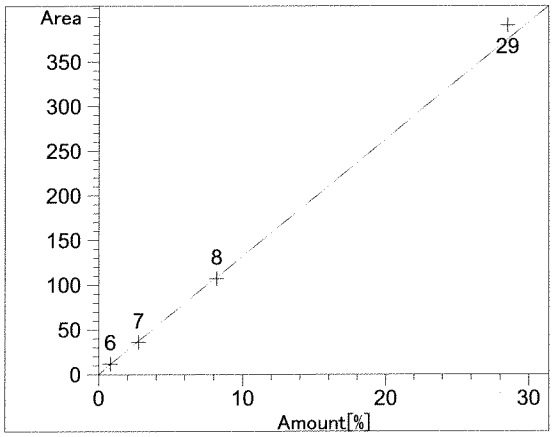
1 Warnings or Errors :

Warning : Overlapping peak time windows at 4.491 min, signal 1

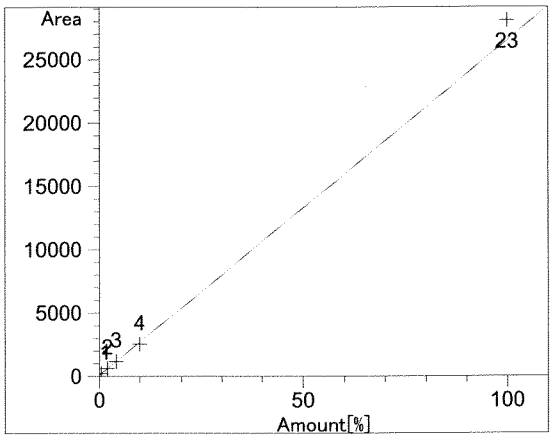
Peak Sum Table

No Entries in table

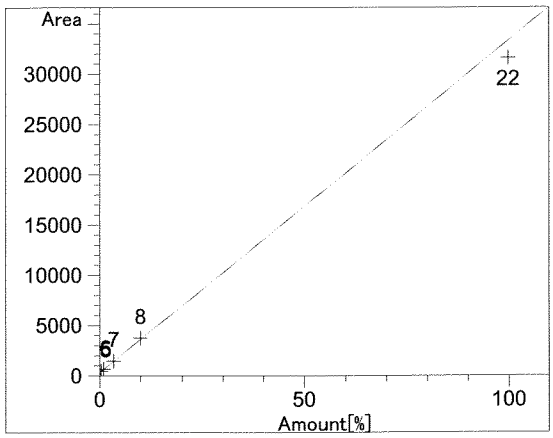
Calibration Curves



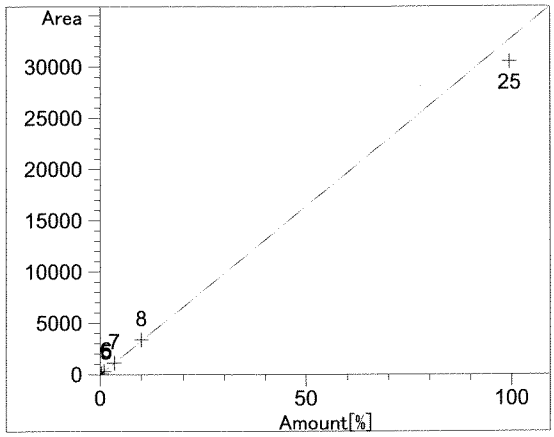
Hydrogen at exp. RT: 1.893
TCD1 A,
Correlation: 0.99917
Residual Std. Dev.: 11.09375
Formula: y = mx + b
m: 13.10047
b: 1.47476
x: Amount
y: Area
Calibration Level Weights:
Level 6 : 1
Level 7 : 0.081929
Level 8 : 0.009282
Level 29 : 0.000766



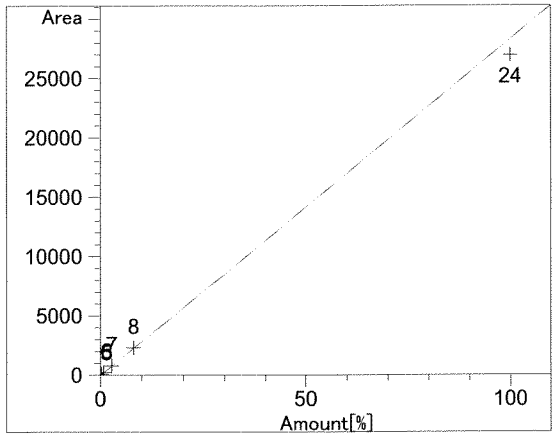
Oxygen at exp. RT: 4.491
TCD1 A,
Correlation: 0.99861
Residual Std. Dev.: 916.55463
Formula: y = mx + b
m: 264.14551
b: 95.04970
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.062437
Level 3 : 0.014407
Level 4 : 0.002497
Level 23 : 0.000025



Nitrogen at exp. RT: 4.959
TCD1 A,
Correlation: 0.99906
Residual Std. Dev.: 1001.97239
Formula: y = mx + b
m: 330.14932
b: 343.46831
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 22 : 0.000014

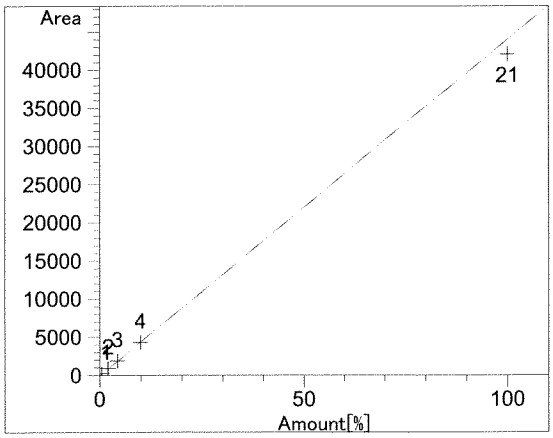


Carbon monoxide at exp. RT: 6.334
TCD1 A,
Correlation: 0.99892
Residual Std. Dev.: 1224.78295
Formula: y = mx + b
m: 328.01027
b: 5.29763e-1
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.156684
Level 7 : 0.012715
Level 8 : 0.001444
Level 25 : 0.000015



Methane at exp. RT: 9.882
TCD1 A,
Correlation: 0.99939
Residual Std. Dev.: 782.68881
Formula: y = mx + b
m: 283.09685
b: 4.21975
x: Amount
y: Area
Calibration Level Weights:
Level 5 : 1
Level 6 : 0.162085
Level 7 : 0.013182
Level 8 : 0.001502

Level 24 : 9.61019e-006



Carbon Dioxide at exp. RT: 13.207
TCD1 A,
Correlation: 0.99920
Residual Std. Dev.: 1122.48517
Formula: y = mx + b
m: 439.74711
b: 24.33258
x: Amount
y: Area
Calibration Level Weights:
Level 1 : 1
Level 2 : 0.062563
Level 3 : 0.014439
Level 4 : 0.002503
Level 21 : 0.000025

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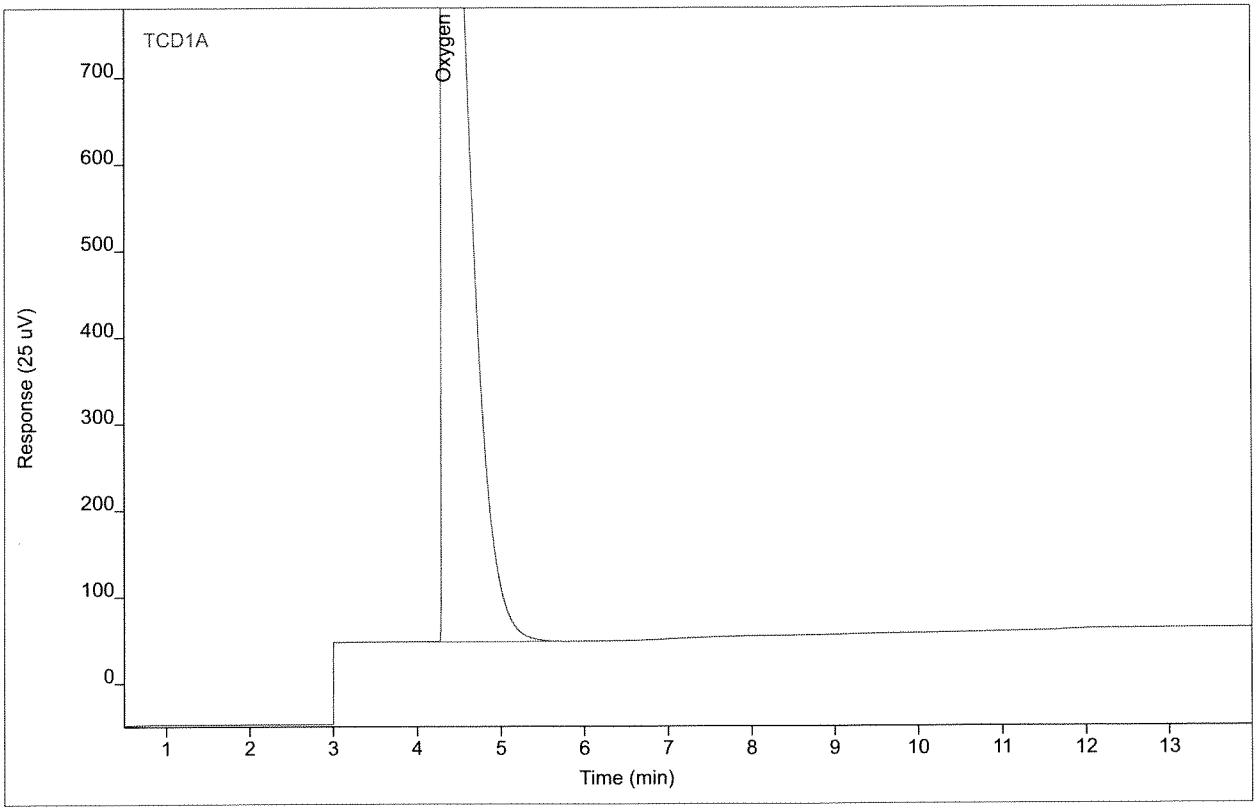
Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.99% #FG23 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0202.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 11:18 AM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.34	27946.7	1471.51	105.441	1	105.441	%

Analyst Peak Integration Comments

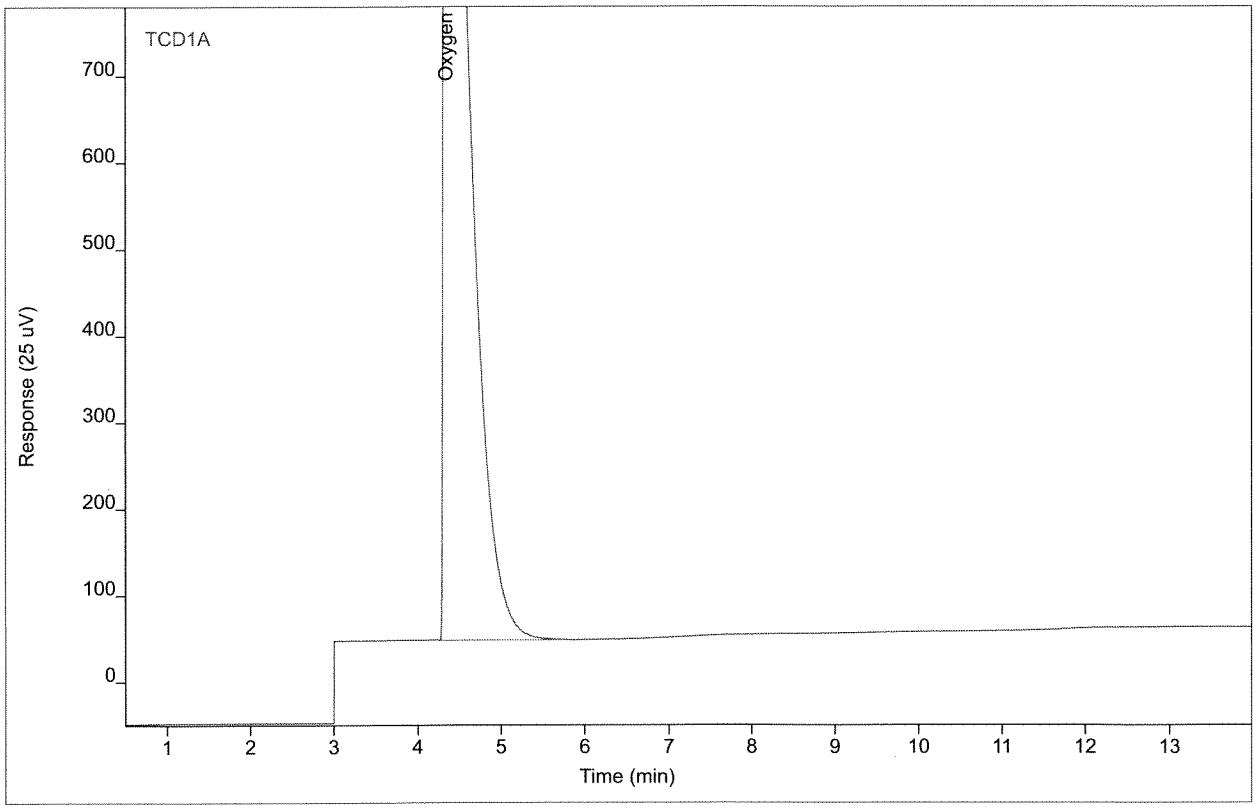
06:38:12 10/25/16 Justin Guenzler false positive

Chromatogram Report

Enthalpy Analytical

Sample Name	O2 99.99% #FG23 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0203.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 11:42 AM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MM	4.33	28183.8	1481.20	106.338	1	106.338	%

Analyst Peak Integration Comments

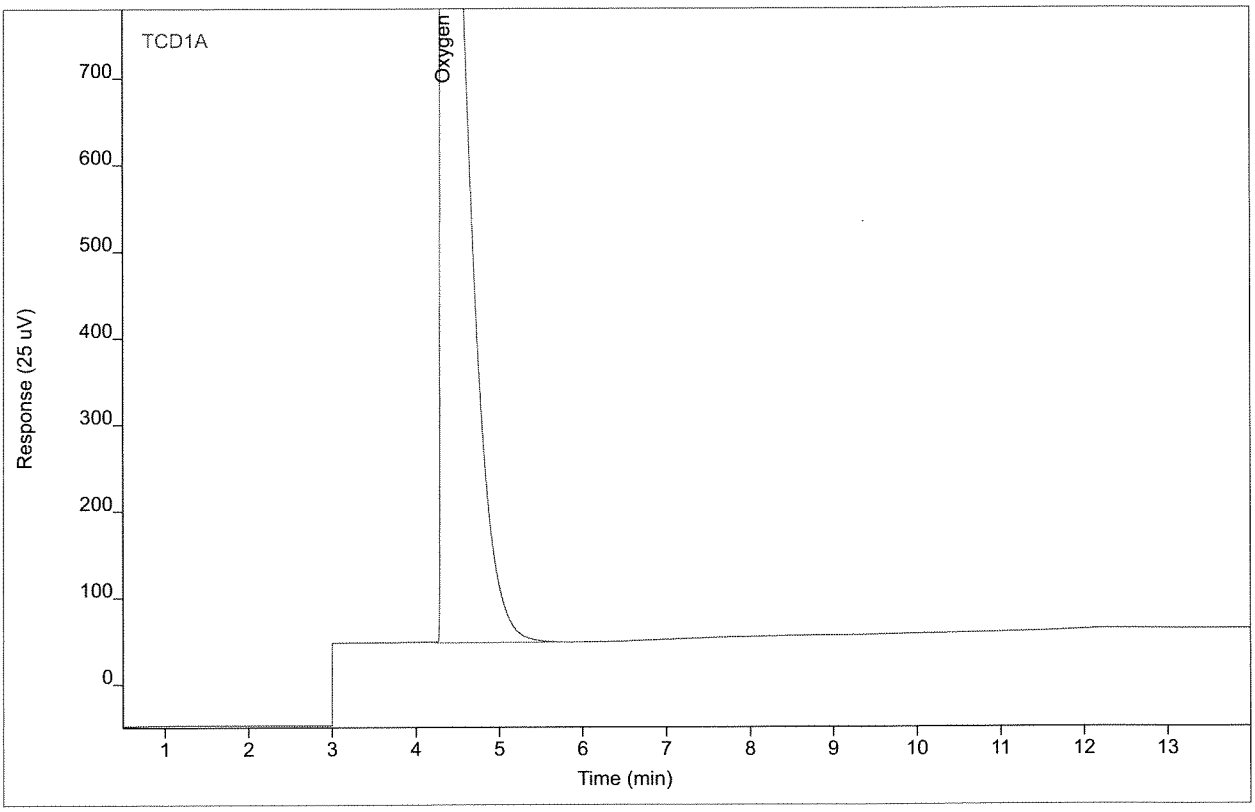
12:29:13 10/24/16 Justin Guenzler II
06:38:24 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	O2 99.99% #FG23 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0204.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 12:05 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BB	4.34	28128.3	1474.40	106.128	1	106.128	%

Analyst Peak Integration Comments

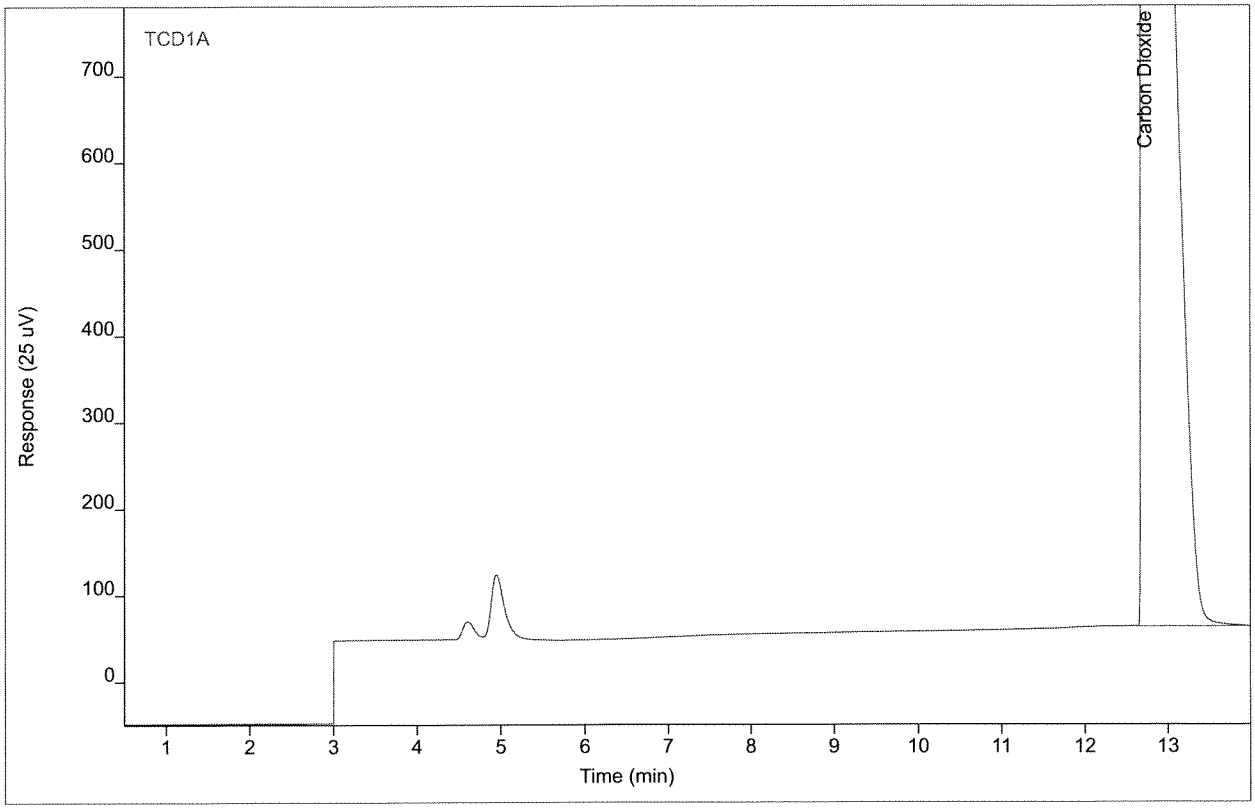
06:38:35 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CO2 99.99% #FG21 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0402.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 1:10 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.73	42183.8	2043.74	95.8720	1	95.8720	%

Analyst Peak Integration Comments

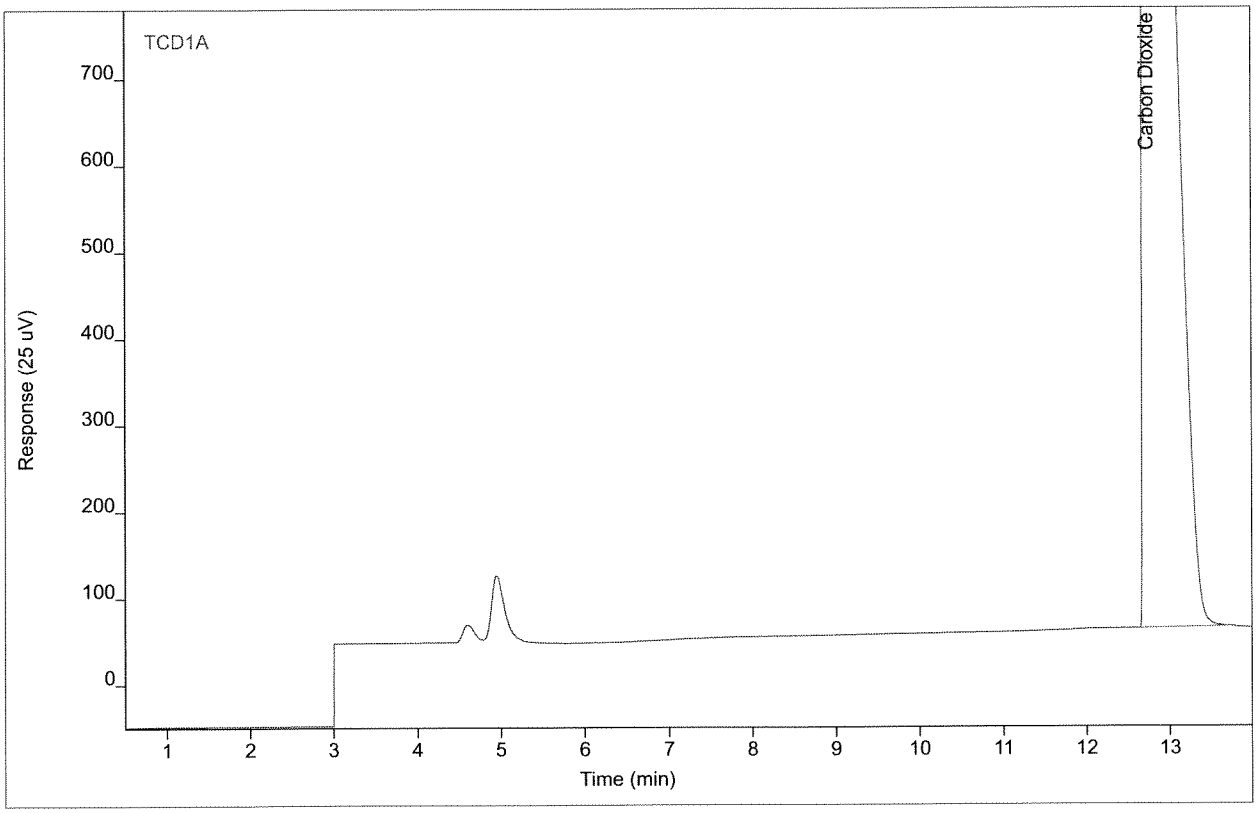
13:26:55 10/24/16 Justin Guenzler II
06:39:52 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CO2 99.99% #FG21 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 1:34 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.73	42014.6	2045.76	95.4873	1	95.4873	%

Analyst Peak Integration Comments

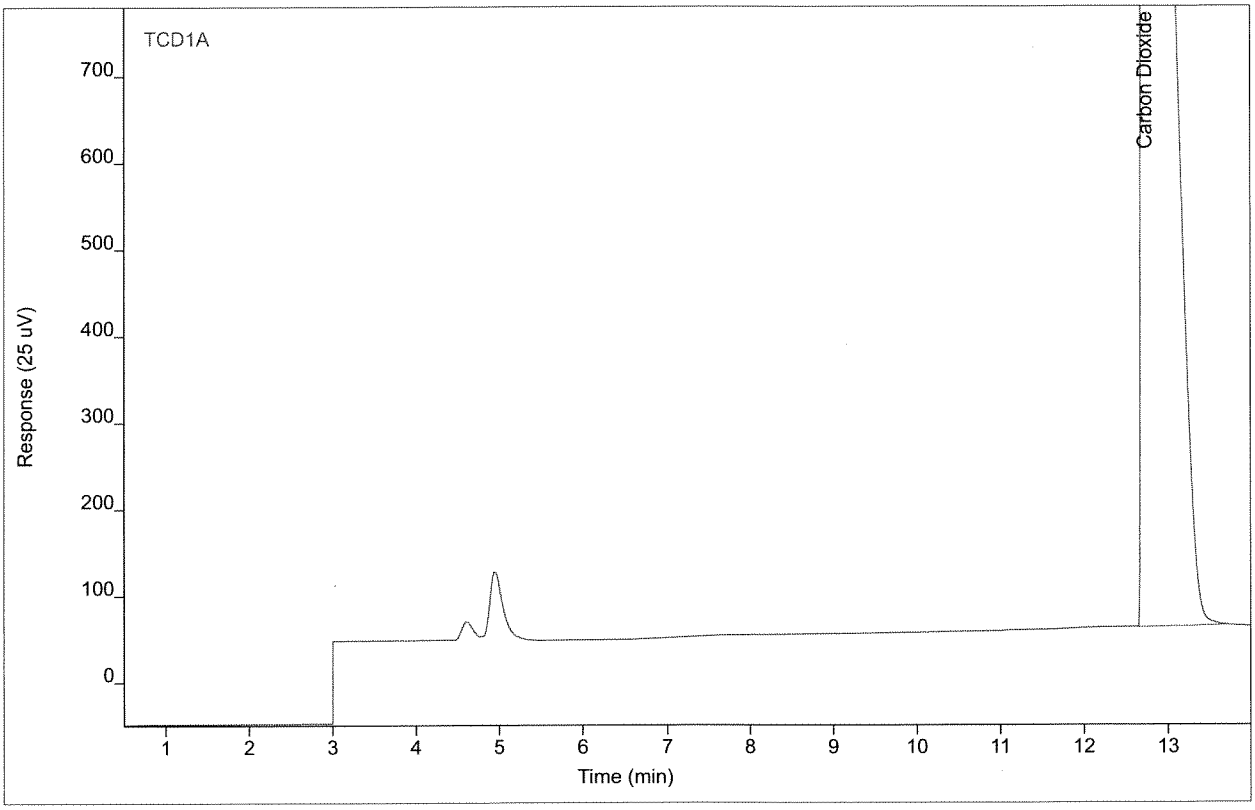
14:13:30 10/24/16 Justin Guenzler II
06:39:59 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CO2 99.99% #FG21 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0404.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 1:58 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon Dioxide	MM	12.73	41958.7	2022.87	95.3602	1	95.3602	%

Analyst Peak Integration Comments

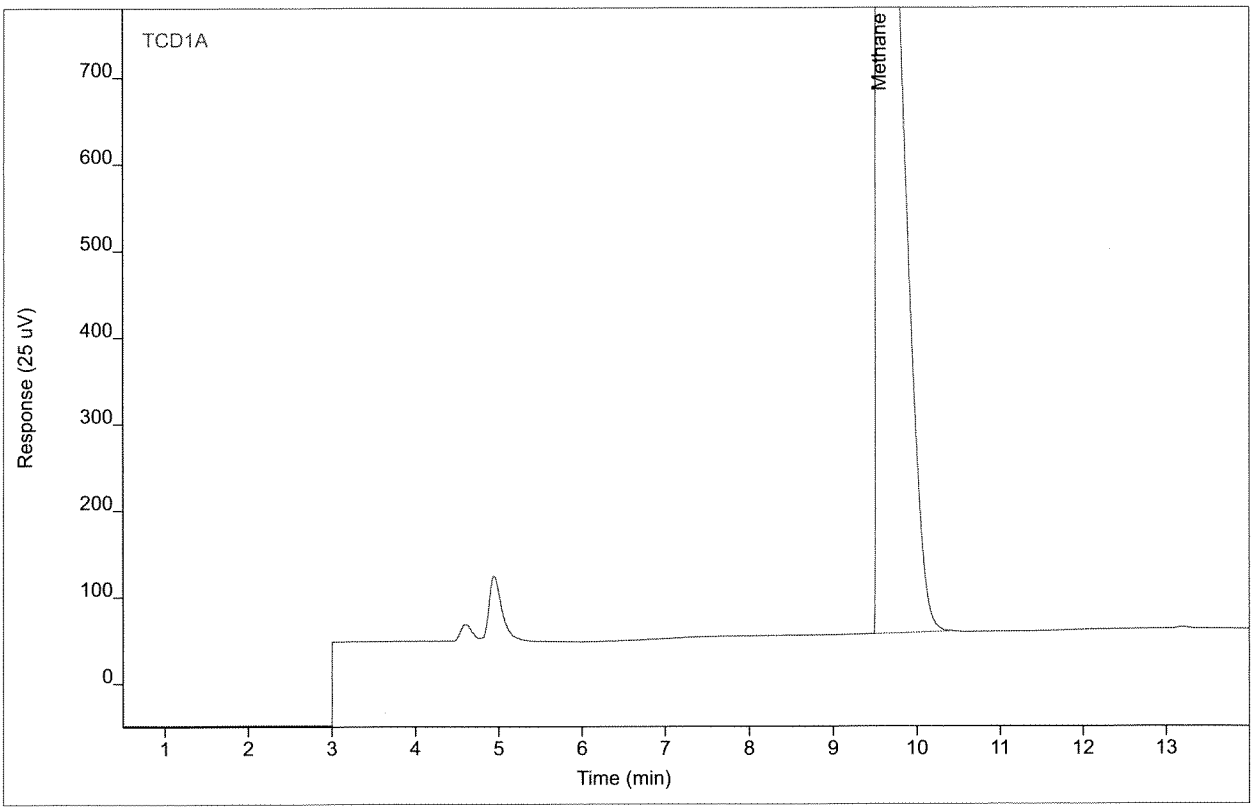
14:13:38 10/24/16 Justin Guenzler II
06:40:05 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CH4 99.999% #FG24 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0502.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 3:03 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.56	26969.8	1531.86	95.2521	1	95.2521	%

Analyst Peak Integration Comments

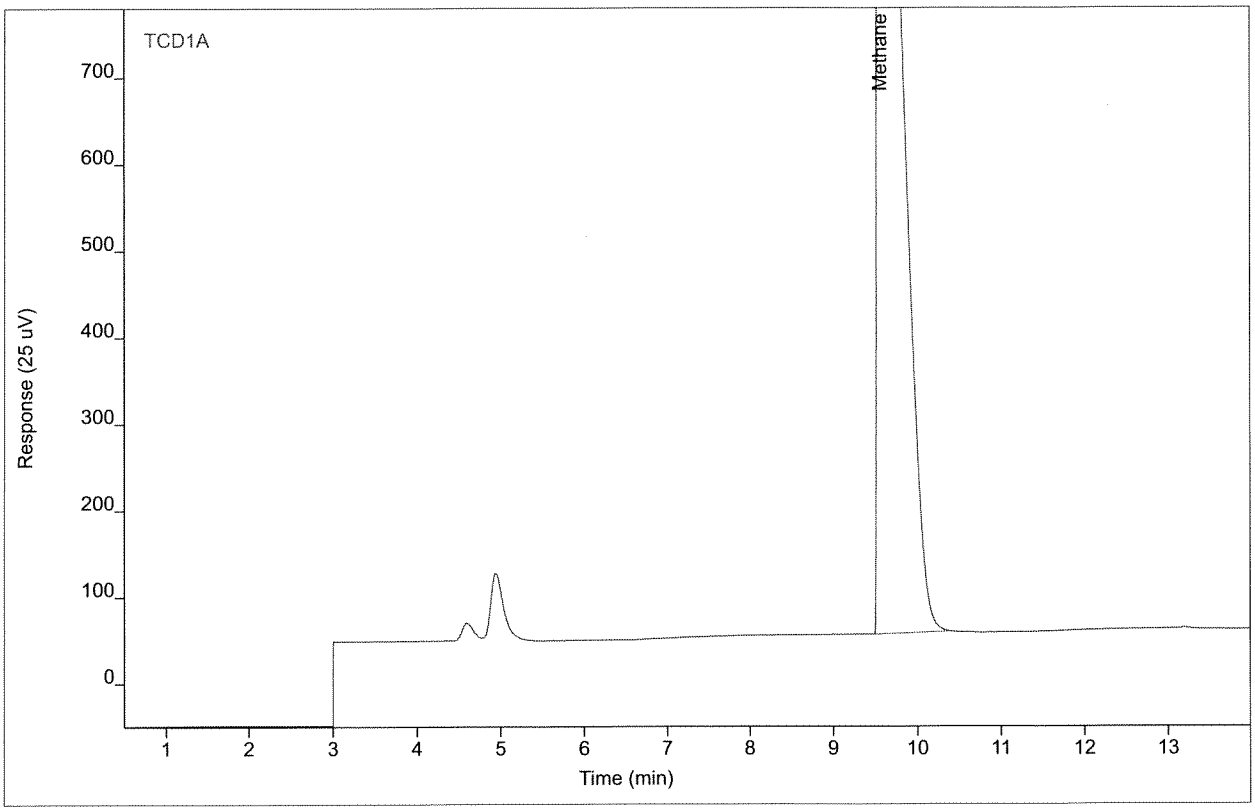
06:40:17 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CH4 99.999% #FG24 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0503.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 3:27 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.56	27076.7	1525.04	95.6297	1	95.6297	%

Analyst Peak Integration Comments

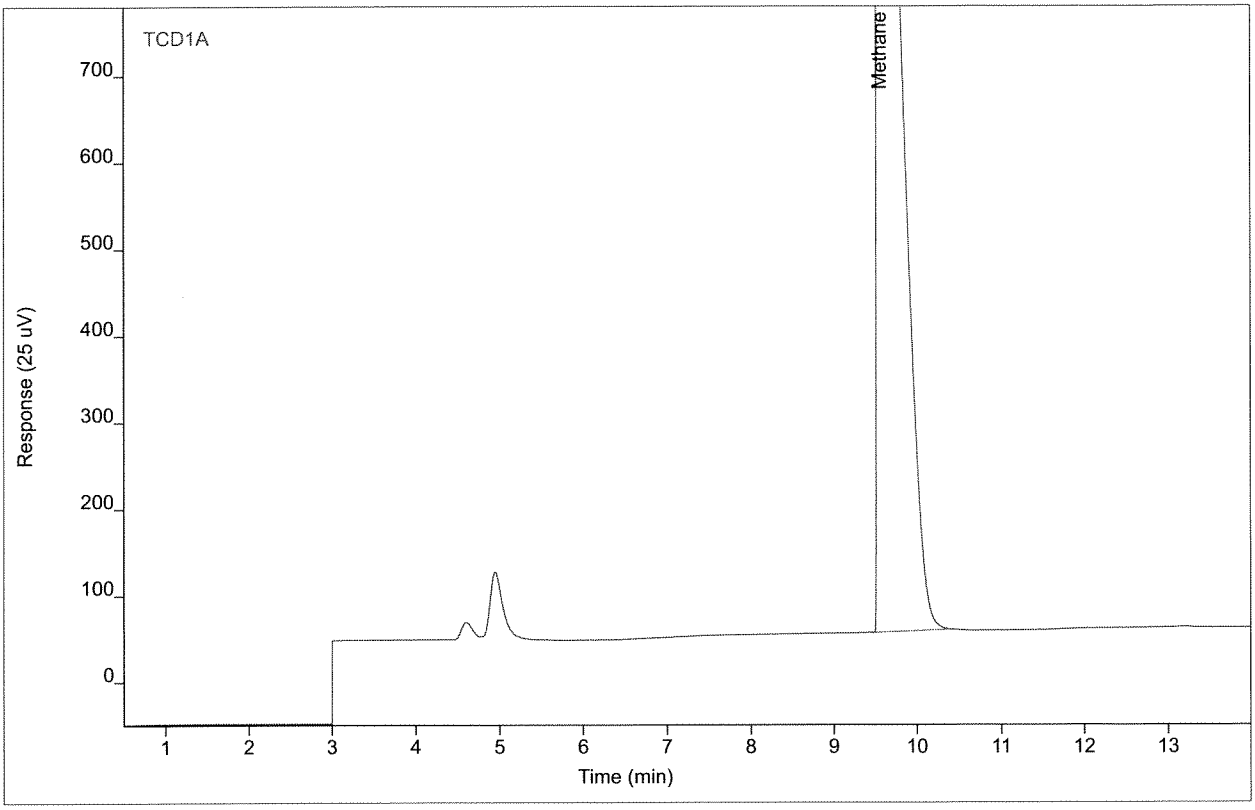
06:40:22 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CH4 99.999% #FG24 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0504.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 3:51 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Methane	BB	9.56	26830.4	1522.41	94.7598	1	94.7598	%

Analyst Peak Integration Comments

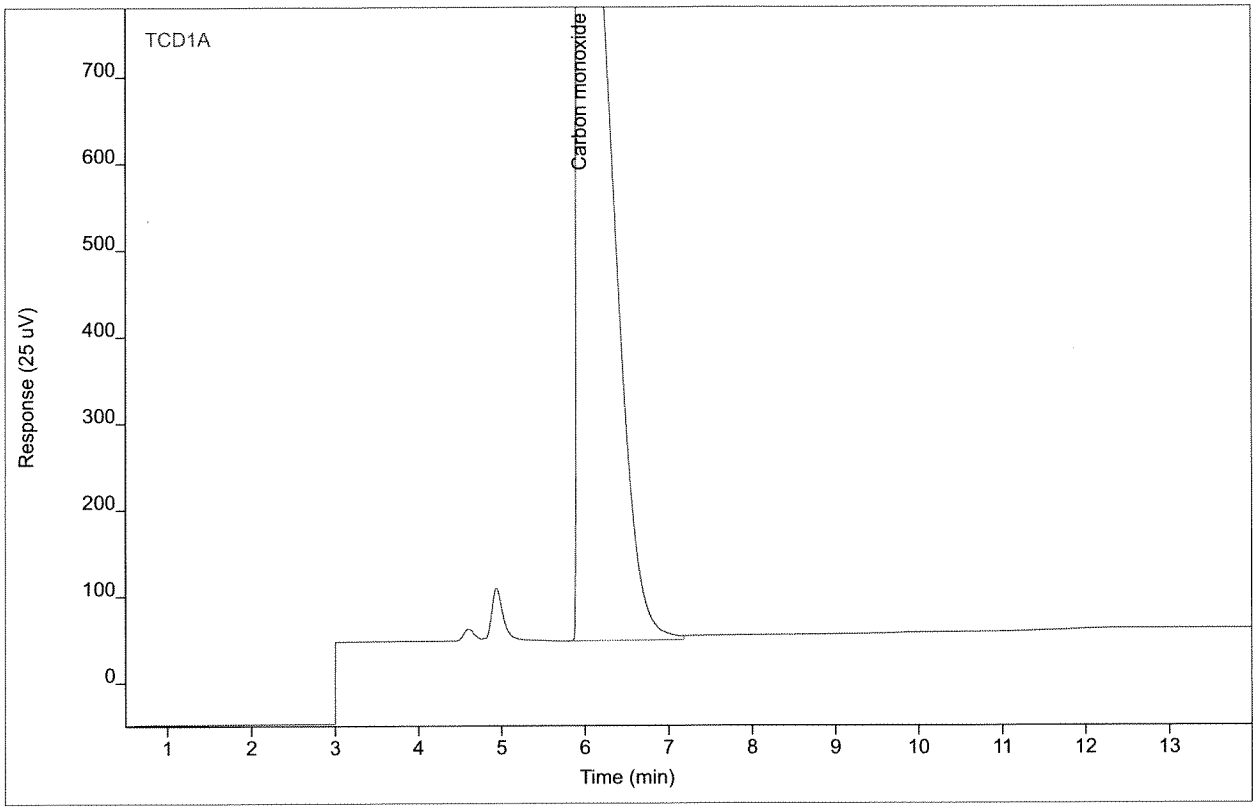
06:40:32 10/25/16 Justin Guenzler false positive

Chromatogram Report

Enthalpy Analytical

Sample Name	CO 99.5% #FG25 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0702.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 4:54 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	MM	5.95	30642.8	1271.63	93.4186	1	93.4186	%

Analyst Peak Integration Comments

06:37:11 10/25/16 Justin Guenzler II

Chromatogram Report

Sample Name	CO 99.5% #FG25 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0703.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 5:18 PM
File Modified	10/25/2016 12:43 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
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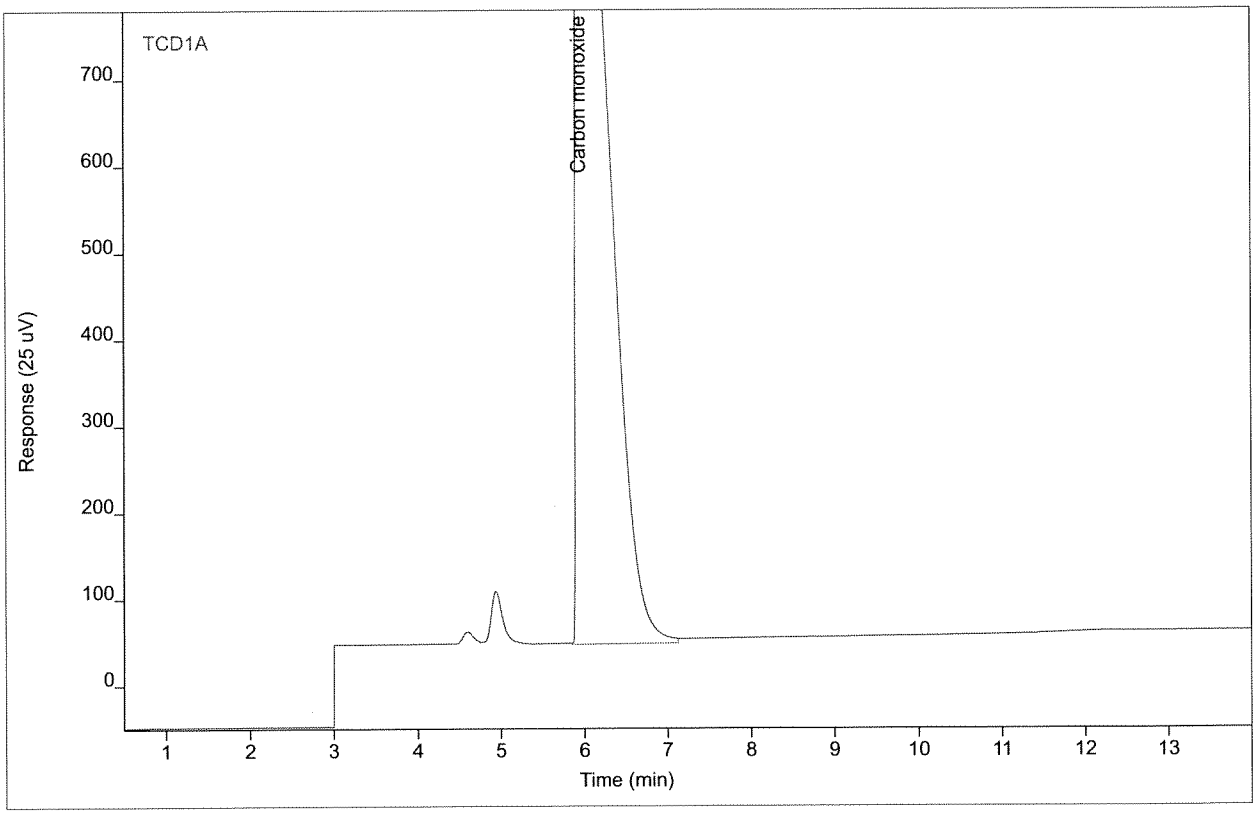


Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	MM	5.95	30488.6	1265.70	92.9485	1	92.9485	%

Analyst Peak Integration Comments

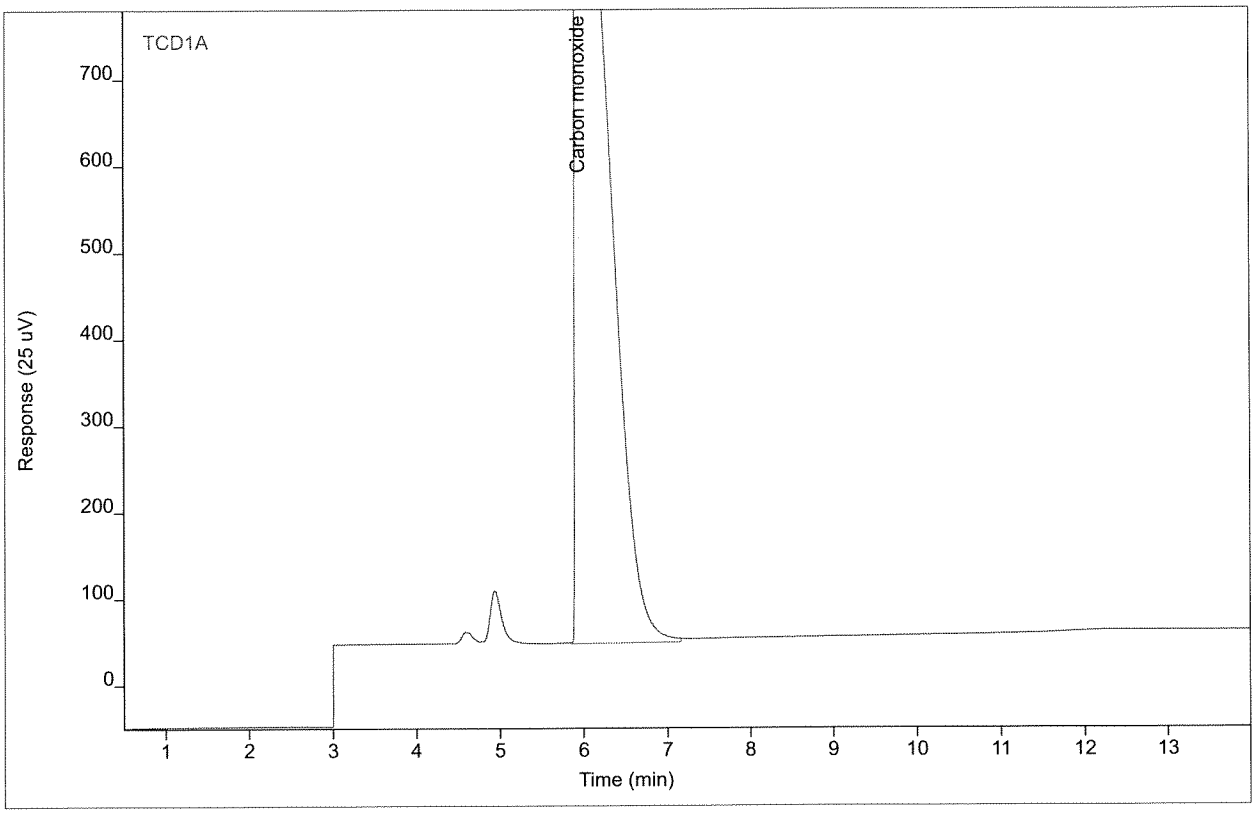
06:37:27 10/25/16 Justin Guenzler II
06:40:51 10/25/16 Justin Guenzler false positive

Chromatogram Report

Sample Name	CO 99.5% #FG25 ENV(1=0,5=450)
Sequence Name	BETTYP472 ver.2
Data File	009F0704.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 5:42 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Carbon monoxide	MM	5.95	30425.6	1260.25	92.7565	1	92.7565	%

Analyst Peak Integration Comments

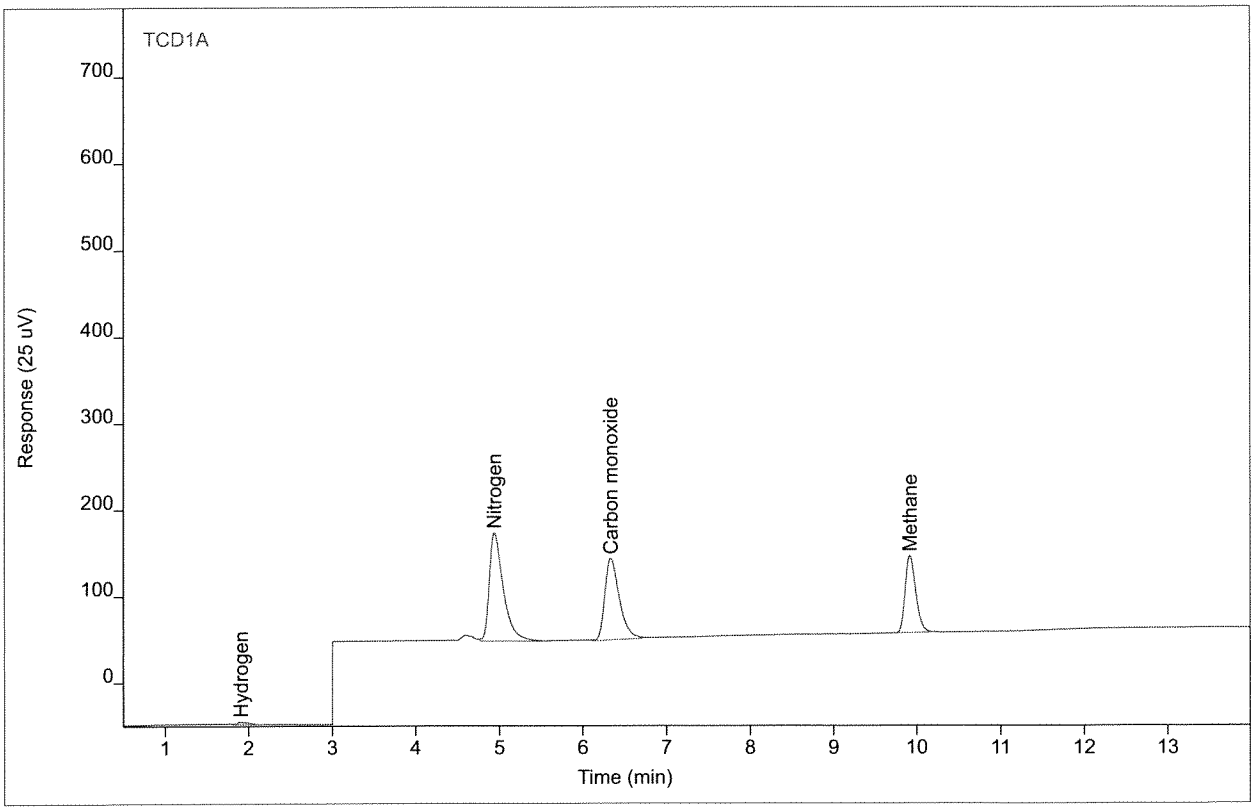
06:37:39 10/25/16 Justin Guenzler II
06:40:58 10/25/16 Justin Guenzler false positive

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP472 ver.2
Data File	009F0902.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 7:55 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	36.1384	3.84601	2.64598	1	2.64598	%
Nitrogen	VB	4.94	1468.75	125.422	3.40840	1	3.40840	%
Carbon monoxide	BB	6.33	1137.53	94.2899	3.46636	1	3.46636	%
Methane	BB	9.92	785.127	89.0266	2.75845	1	2.75845	%

Analyst Peak Integration Comments

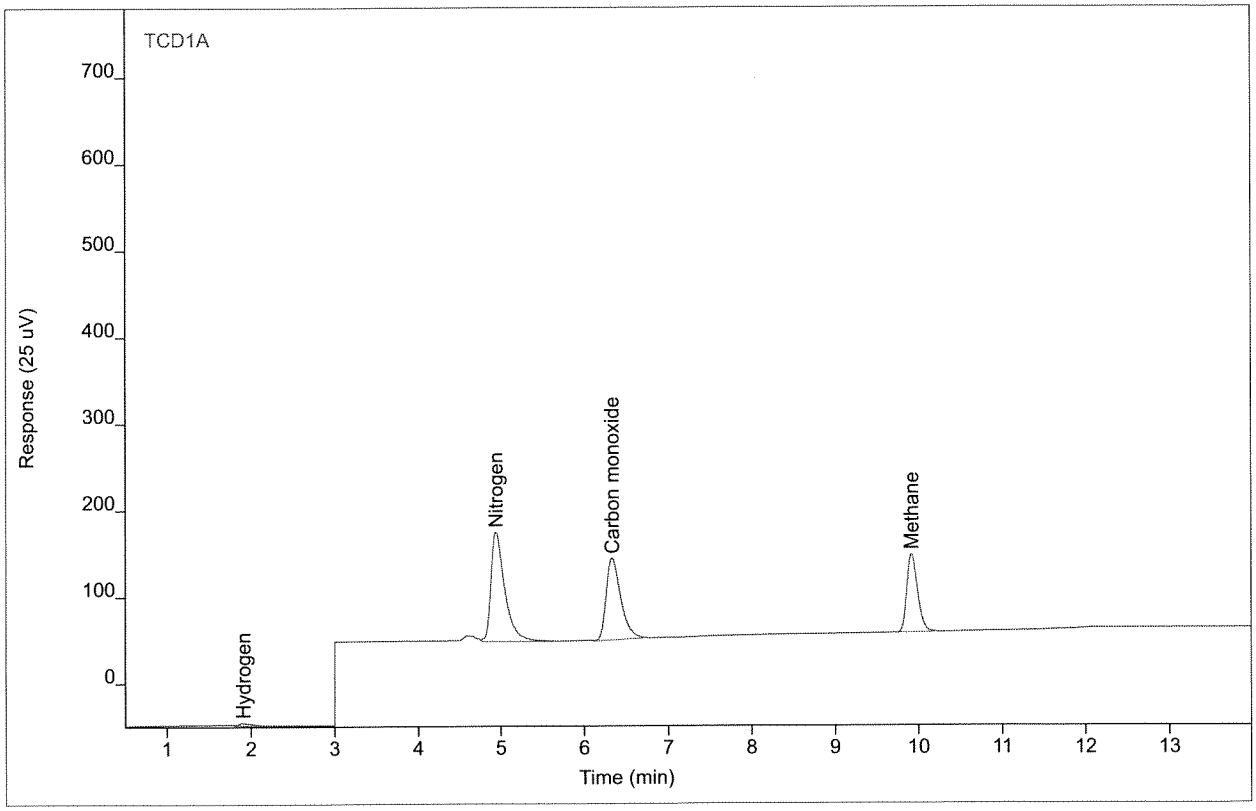
06:42:13 10/25/16 Justin Guenzler false positive
06:42:25 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP472 ver.2
Data File	009F0903.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 8:19 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	36.0630	3.78111	2.64023	1	2.64023	%
Nitrogen	VB	4.94	1497.24	127.029	3.49469	1	3.49469	%
Carbon monoxide	BB	6.34	1137.15	94.9162	3.46519	1	3.46519	%
Methane	BB	9.92	795.246	90.6889	2.79419	1	2.79419	%

Analyst Peak Integration Comments

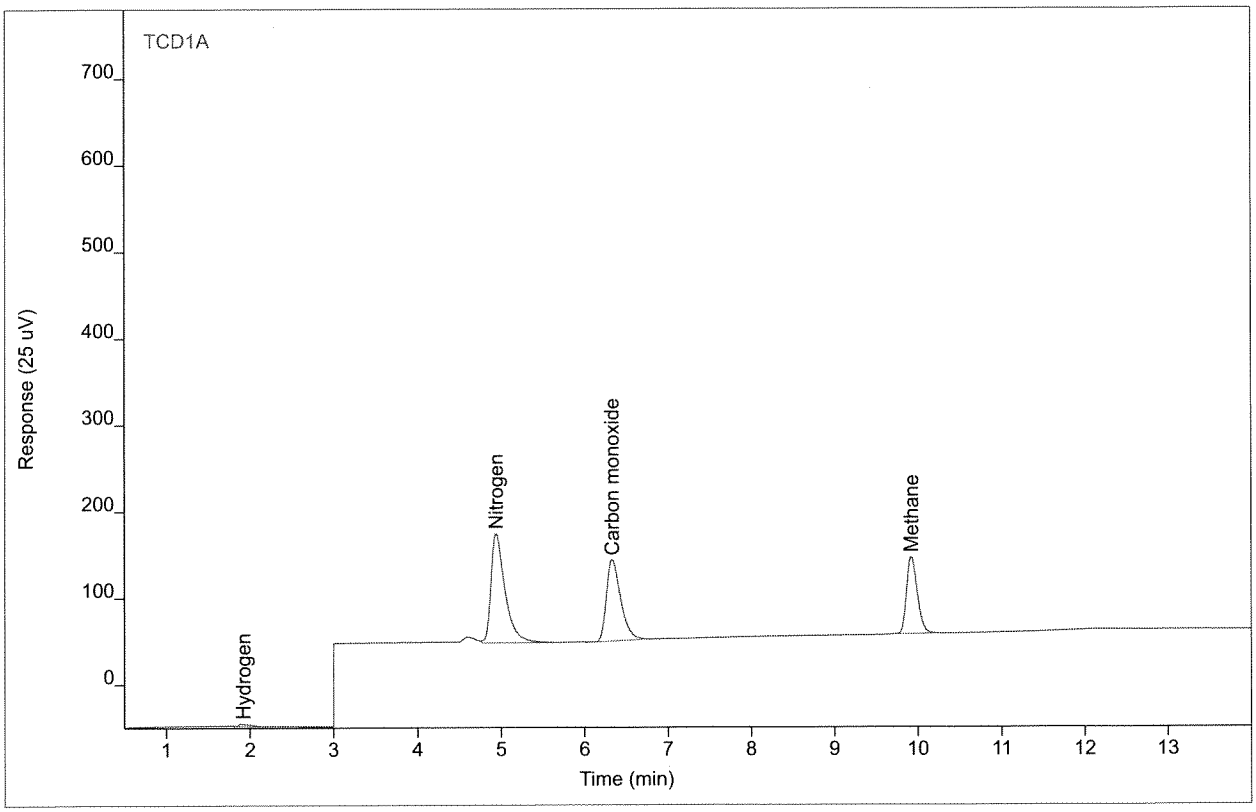
06:42:34 10/25/16 Justin Guenzler II
06:42:50 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG7 ENV(1=530,3=319.09)
Sequence Name	BETTYP472 ver.2
Data File	009F0904.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 8:42 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.92	36.4172	3.75285	2.66726	1	2.66726	%
Nitrogen	VB	4.94	1492.88	126.742	3.48150	1	3.48150	%
Carbon monoxide	VB	6.33	1120.05	94.5258	3.41307	1	3.41307	%
Methane	BB	9.92	792.035	89.4512	2.78285	1	2.78285	%

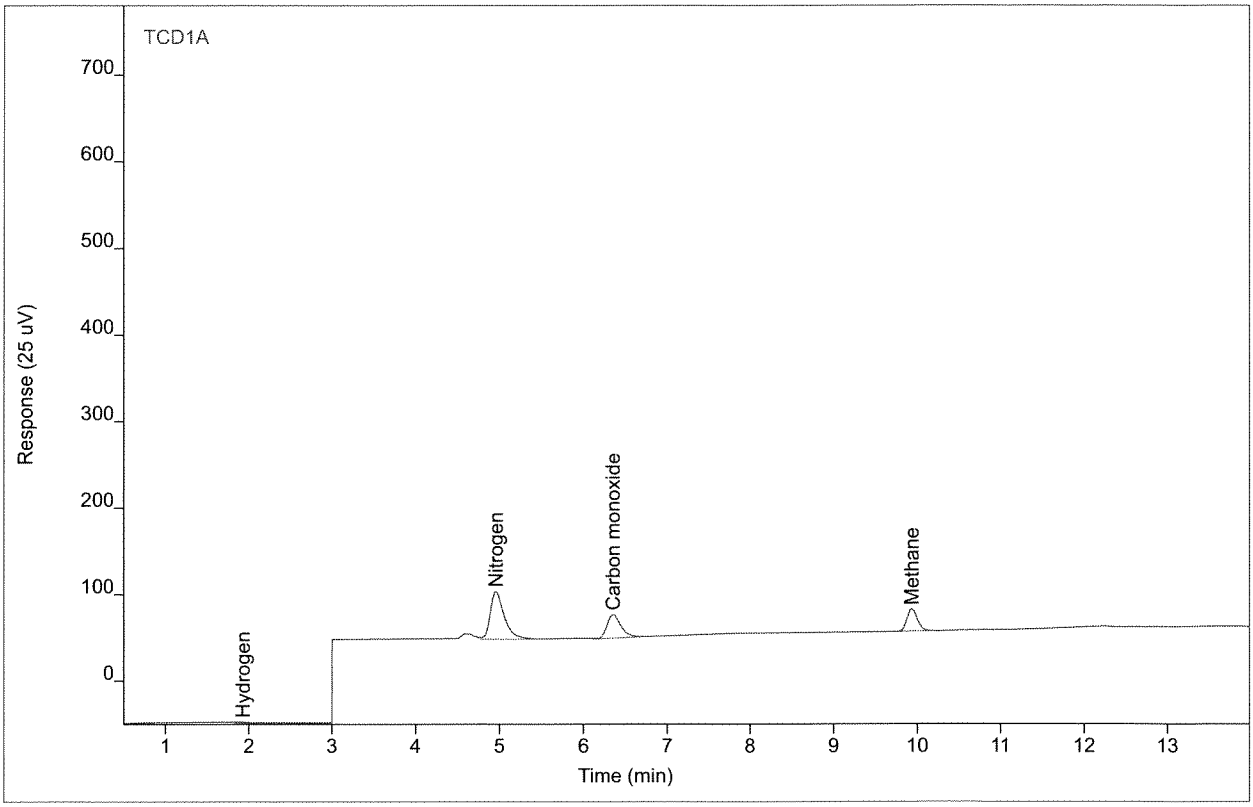
Analyst Peak Integration Comments

06:42:59 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.51)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1002.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/24/2016 9:29 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:44 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.93	11.5324	1.38659	0.77051	1	0.77051	%
Nitrogen	FM	4.96	650.780	55.5253	0.93083	1	0.93083	%
Carbon monoxide	VB	6.35	320.415	27.4556	0.97523	1	0.97523	%
Methane	BB	9.93	220.174	25.5568	0.76283	1	0.76283	%

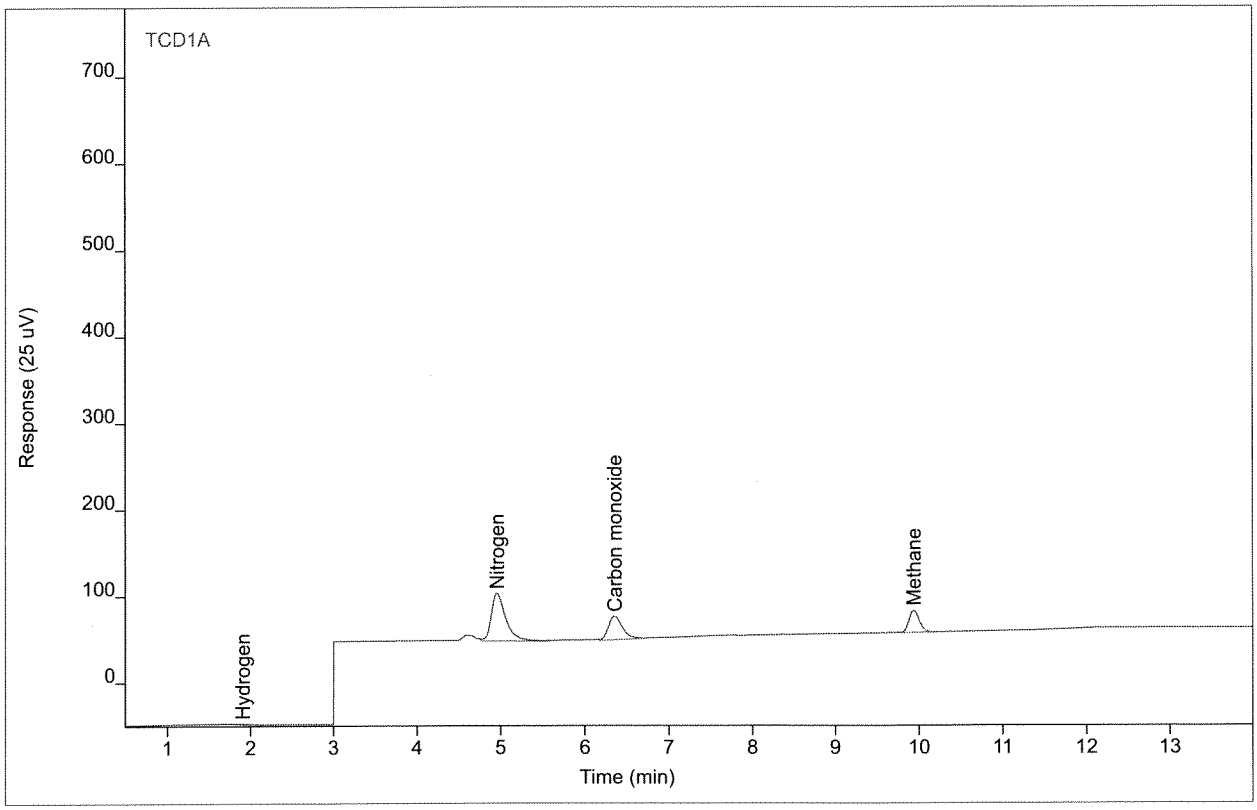
Analyst Peak Integration Comments

06:43:54 10/25/16 Justin Guenzler II
06:45:58 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.51)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1003.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 4
Injection Date	10/24/2016 9:53 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:44 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	12.2678	1.36148	0.82387	1	0.82387	%
Nitrogen	VV	4.96	662.737	55.3551	0.96704	1	0.96704	%
Carbon monoxide	MM	6.36	323.541	27.5401	0.98476	1	0.98476	%
Methane	BB	9.94	223.774	26.2482	0.77554	1	0.77554	%

Analyst Peak Integration Comments

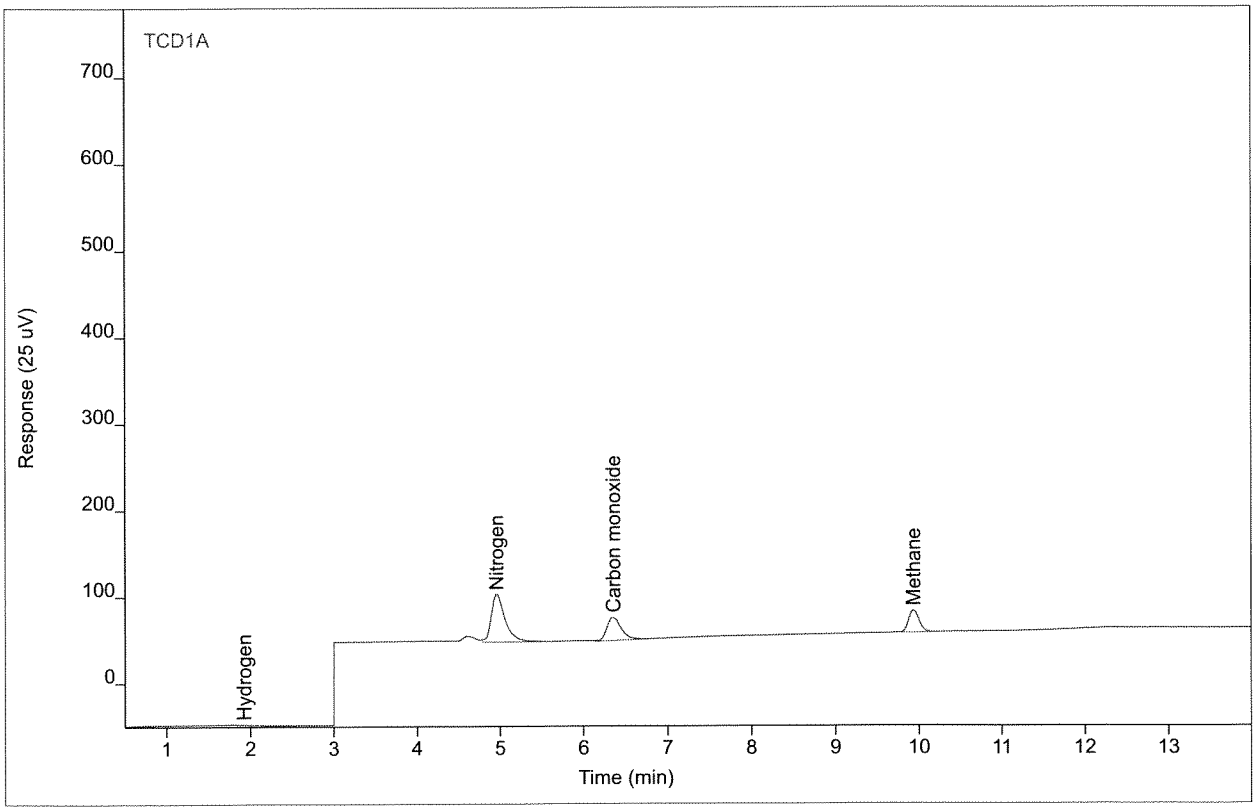
06:43:41 10/25/16 Justin Guenzler II
06:44:26 10/25/16 Justin Guenzler II
06:47:18 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG6 ENV(1=1271.99,3=159.51)
Sequence Name	BETTYP472 ver.2
Data File	009F1004.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 10:17 PM
File Modified	10/25/2016 12:44 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.93	12.0276	1.49782	0.80553	1	0.80553	%
Nitrogen	FM	4.95	649.780	55.2093	0.92780	1	0.92780	%
Carbon monoxide	MM	6.36	322.558	27.5847	0.98176	1	0.98176	%
Methane	BB	9.93	224.718	25.9494	0.77888	1	0.77888	%

Analyst Peak Integration Comments

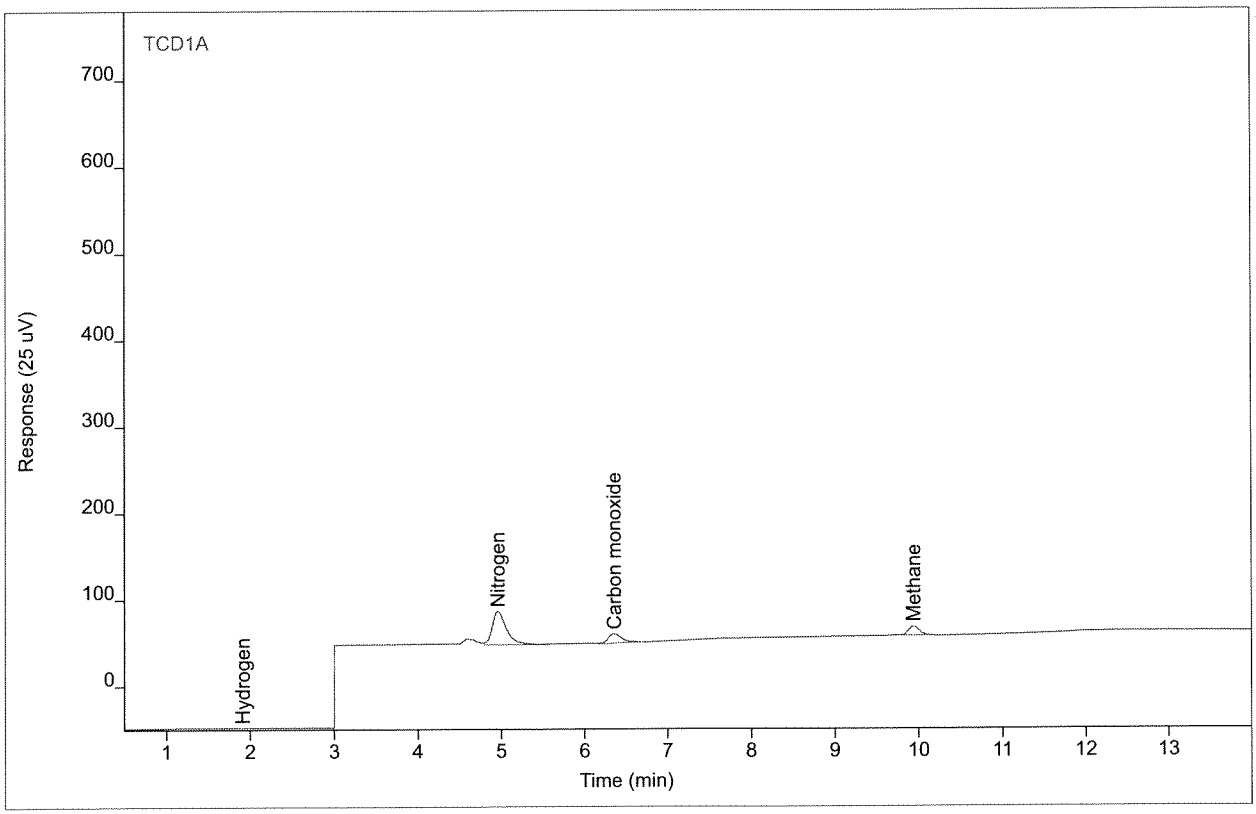
06:44:13 10/25/16 Justin Guenzler II
06:46:15 10/25/16 Justin Guenzler II
06:47:26 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.51)
Sequence Name	BETTYP472 ver.2
Data File	009F1102.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 11:04 PM
File Modified	10/25/2016 12:45 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	2.60327	0.50497	0.17393	1	0.17393	%
Nitrogen	FM	4.96	464.669	38.9811	0.37655	1	0.37655	%
Carbon monoxide	MM	6.36	125.032	11.1084	0.37957	1	0.37957	%
Methane	MM	9.94	91.5978	10.7021	0.30871	1	0.30871	%

Analyst Peak Integration Comments

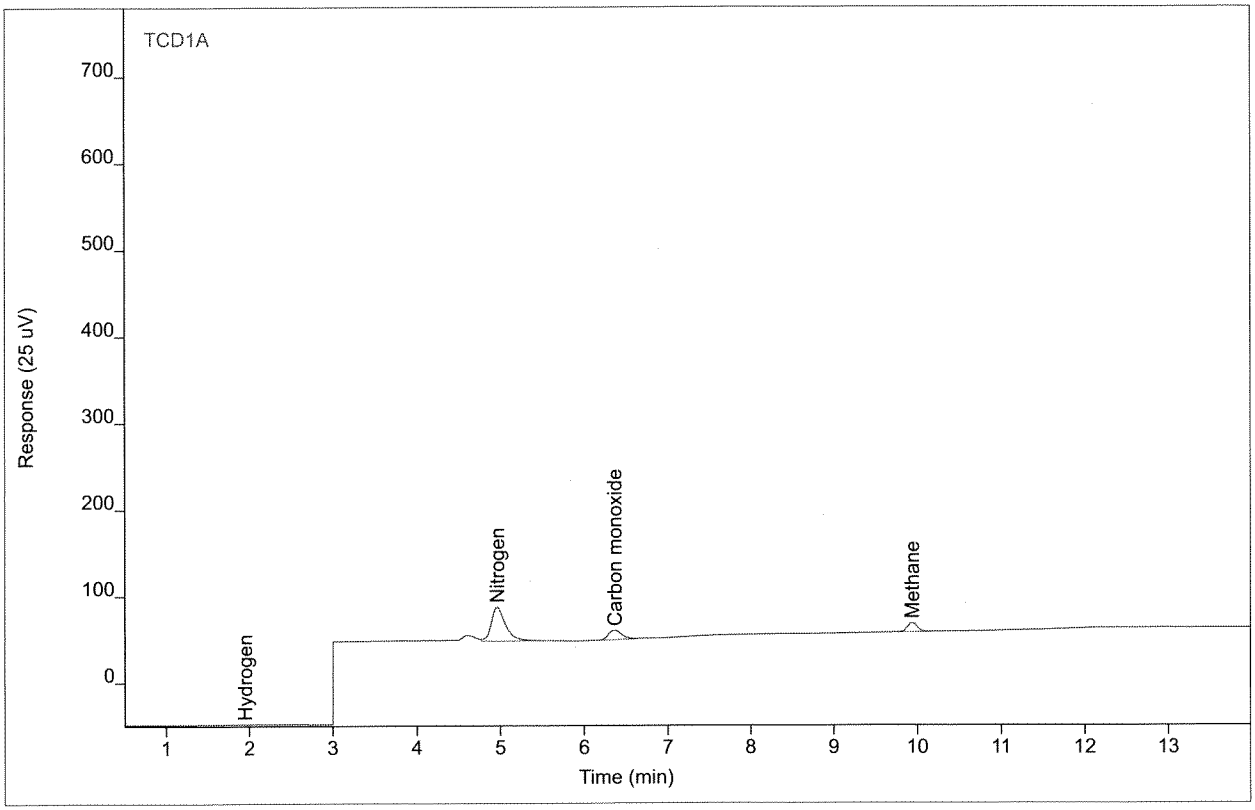
06:46:32 10/25/16 Justin Guenzler II
06:47:42 10/25/16 Justin Guenzler II
06:48:22 10/25/16 Justin Guenzler II
09:21:01 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.51)
Sequence Name	BETTYP472 ver.2
Data File	009F1103.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/24/2016 11:28 PM
File Modified	10/25/2016 12:45 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.95	3.62319	0.55435	0.24207	1	0.24207	%
Nitrogen	FM	4.96	472.128	39.7269	0.38970	1	0.38970	%
Carbon monoxide	MM	6.37	123.054	11.0457	0.37357	1	0.37357	%
Methane	BB	9.94	92.0025	10.7169	0.31008	1	0.31008	%

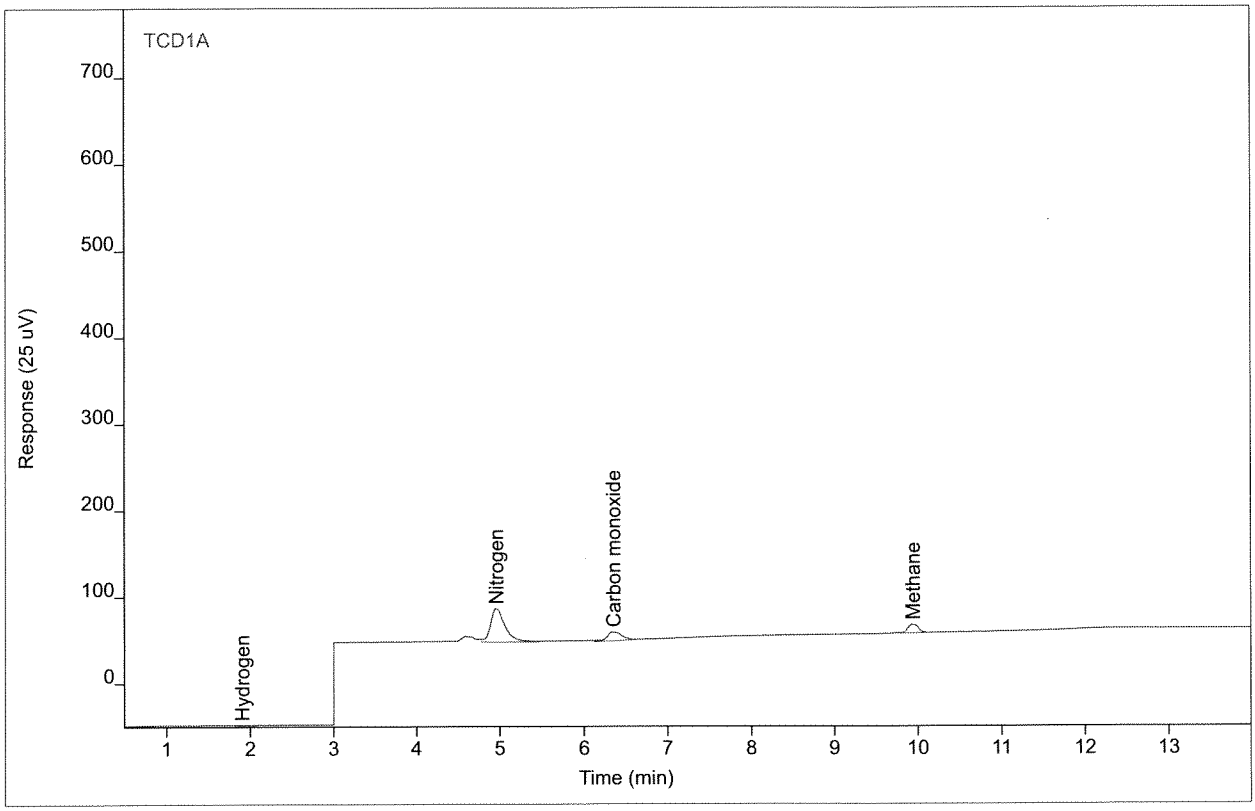
Analyst Peak Integration Comments

06:46:45 10/25/16 Justin Guenzler II
06:46:57 10/25/16 Justin Guenzler II
06:49:19 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG5 ENV(1=3391.99,3=159.51)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1104.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	4 of 4
Injection Date	10/24/2016 11:52 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:45 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/25/2016 1:37 PM



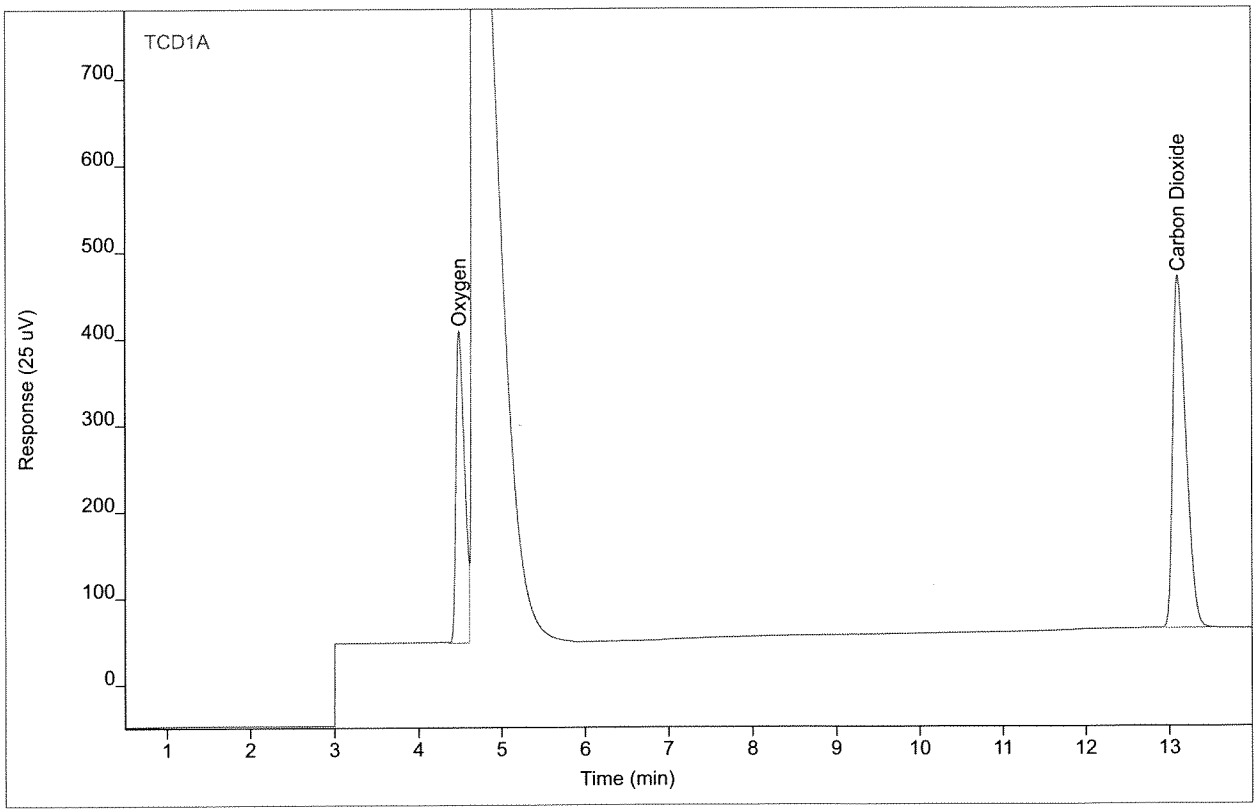
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	VB	1.91	11.6174	1.07809	0.77619	1	0.77619	%
Nitrogen	VV	4.96	471.123	39.0848	0.38666	1	0.38666	%
Carbon monoxide	VB	6.36	122.916	10.8970	0.37315	1	0.37315	%
Methane	BB	9.94	90.9533	10.8050	0.30654	1	0.30654	%

Chromatogram Report

Sample Name	BettyP472 #FG4 ENV(1=0,2=465.44)
Sequence Name	BETTYP472 ver.2
Data File	009F1202.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 12:39 AM
File Modified	10/25/2016 12:49 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



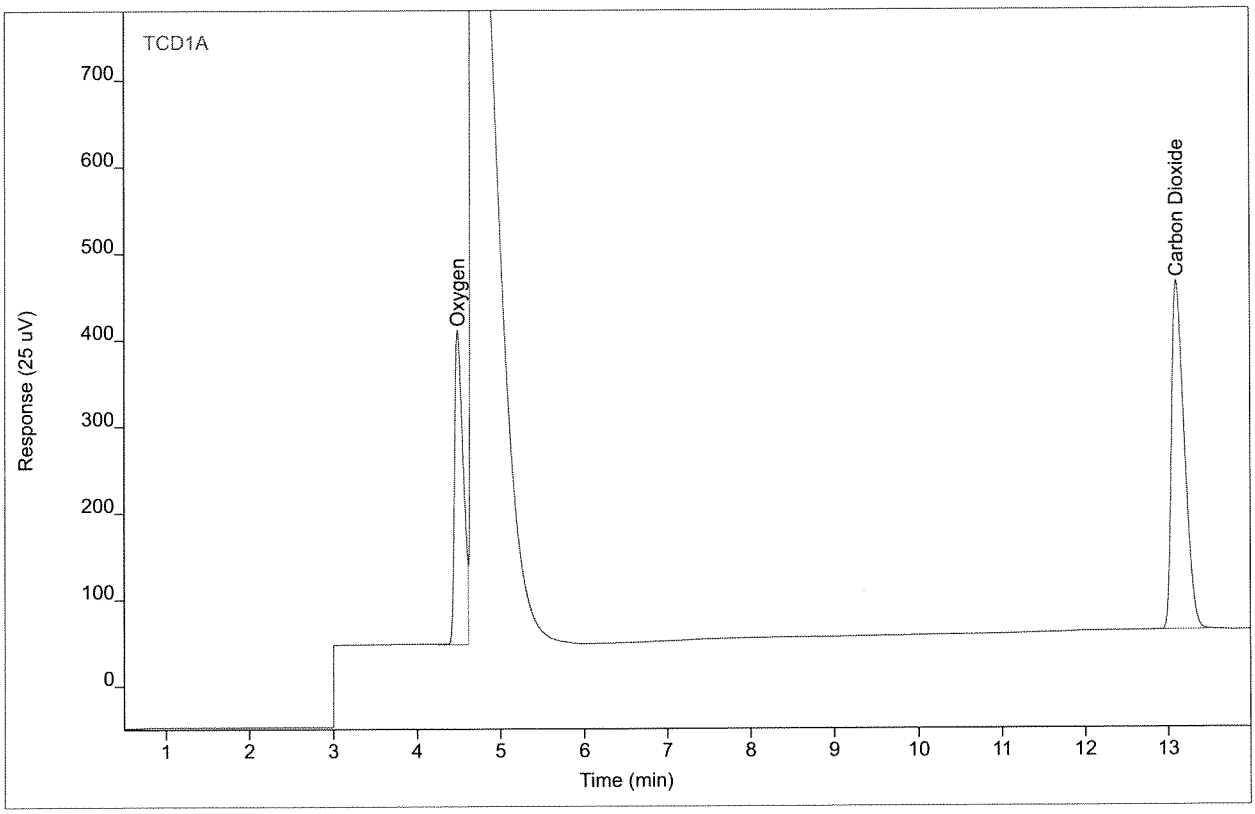
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.49	2539.12	361.137	9.25276	1	9.25276	%
Carbon Dioxide	BB	13.10	4356.60	406.606	9.85172	1	9.85172	%

Chromatogram Report

Sample Name	BettyP472 #FG4 ENV(1=0,2=465.44)
Sequence Name	BETTYP472 ver.2
Data File	009F1203.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 1:03 AM
File Modified	10/25/2016 12:49 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



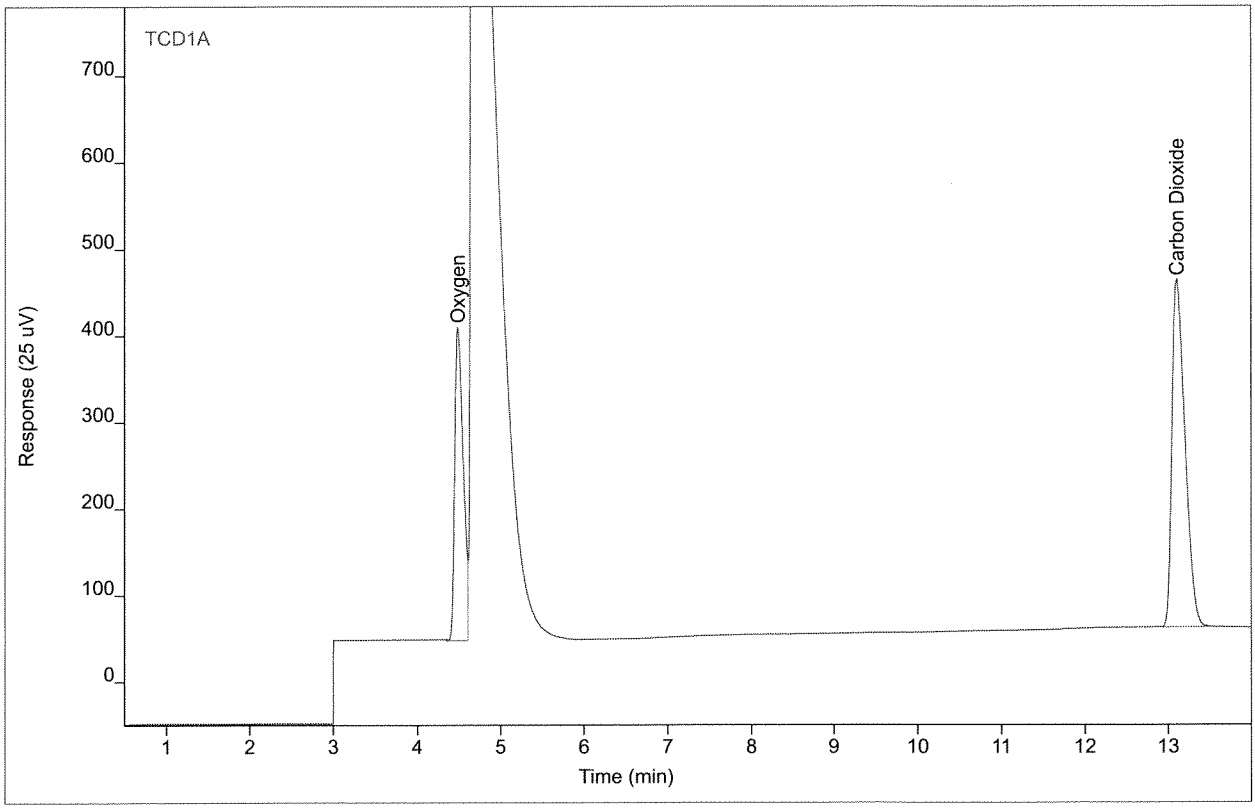
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.49	2550.34	362.850	9.29521	1	9.29521	%
Carbon Dioxide	BB	13.10	4324.79	402.311	9.77939	1	9.77939	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG4 ENV(1=0,2=465.44)
Sequence Name	BETTYP472 ver.2
Data File	009F1204.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 1:27 AM
File Modified	10/25/2016 12:49 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



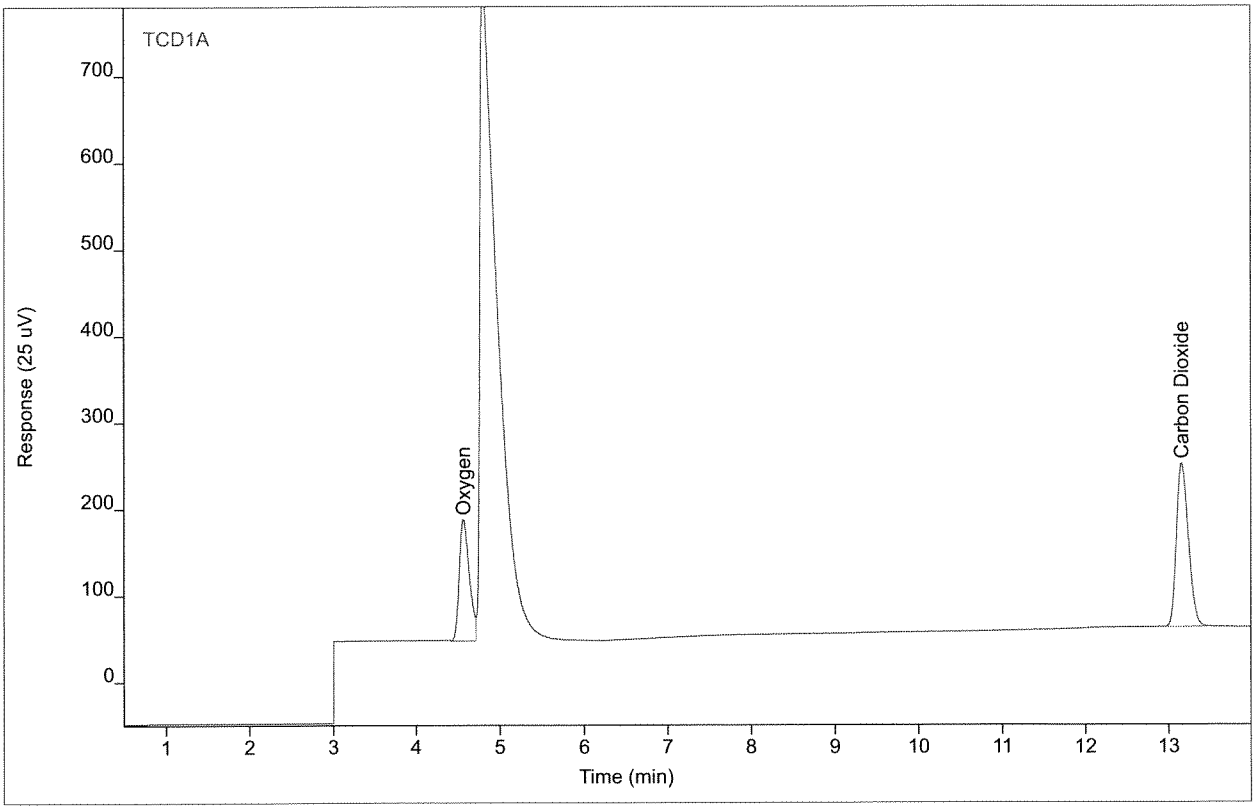
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.49	2545.19	362.353	9.27573	1	9.27573	%
Carbon Dioxide	BB	13.10	4319.65	401.133	9.76771	1	9.76771	%

Chromatogram Report

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP472 ver.2
Data File	009F1302.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 2:14 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



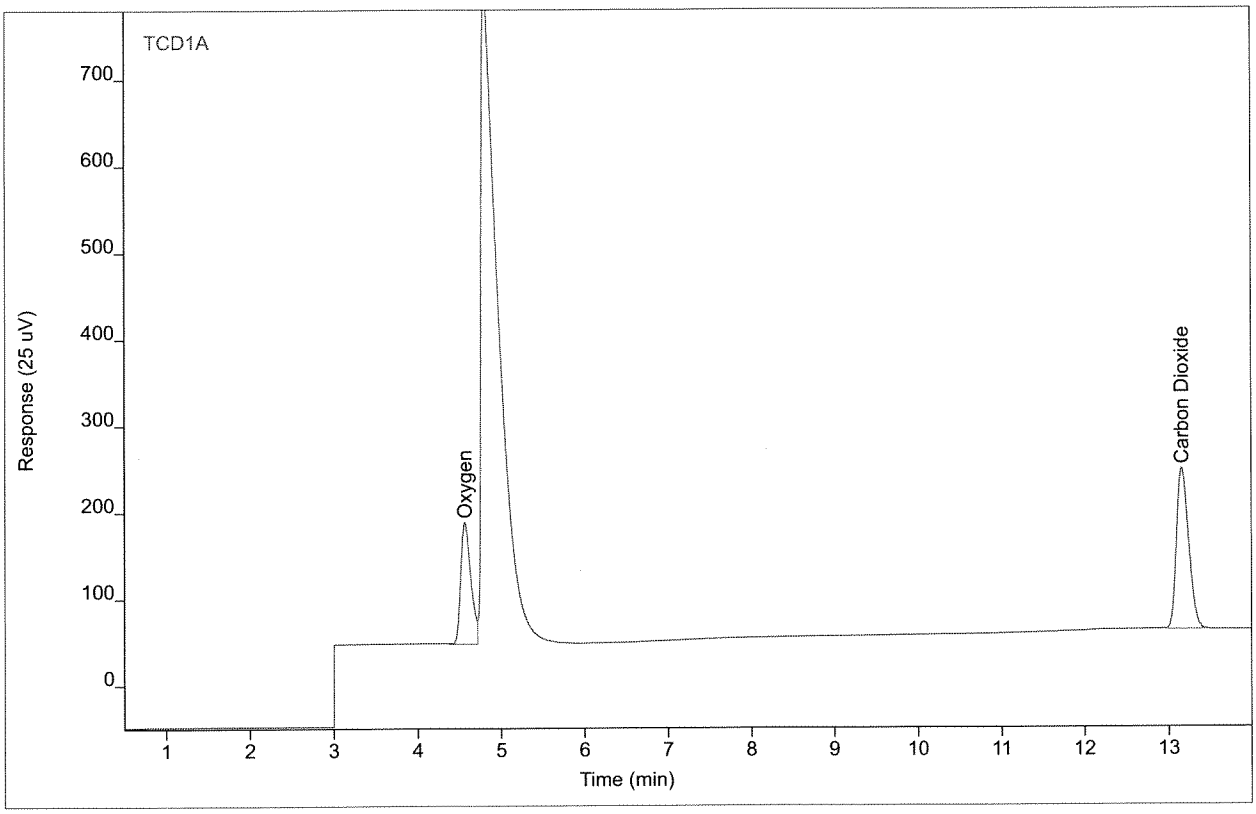
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	BV	4.56	1180.60	140.595	4.10965	1	4.10965	%
Carbon Dioxide	BB	13.16	1897.47	189.252	4.25957	1	4.25957	%

Chromatogram Report

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP472 ver.2
Data File	009F1303.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 2:38 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



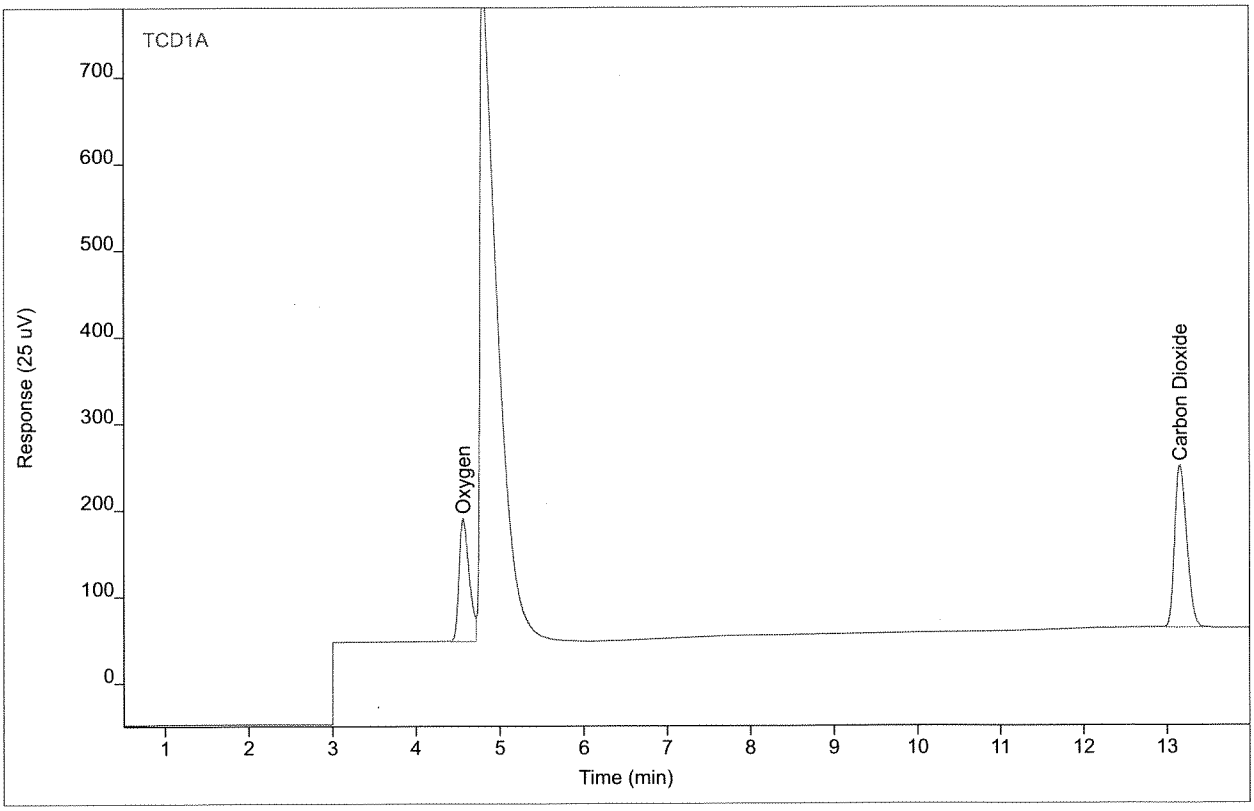
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.56	1184.49	140.756	4.12439	1	4.12439	%
Carbon Dioxide	BB	13.16	1882.48	185.731	4.22549	1	4.22549	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG3 ENV(1=374.56,2=391.07)
Sequence Name	BETTYP472 ver.2
Data File	009F1304.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 3:02 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MF	4.56	1185.87	142.736	4.12960	1	4.12960	%
Carbon Dioxide	BB	13.16	1897.07	187.503	4.25868	1	4.25868	%

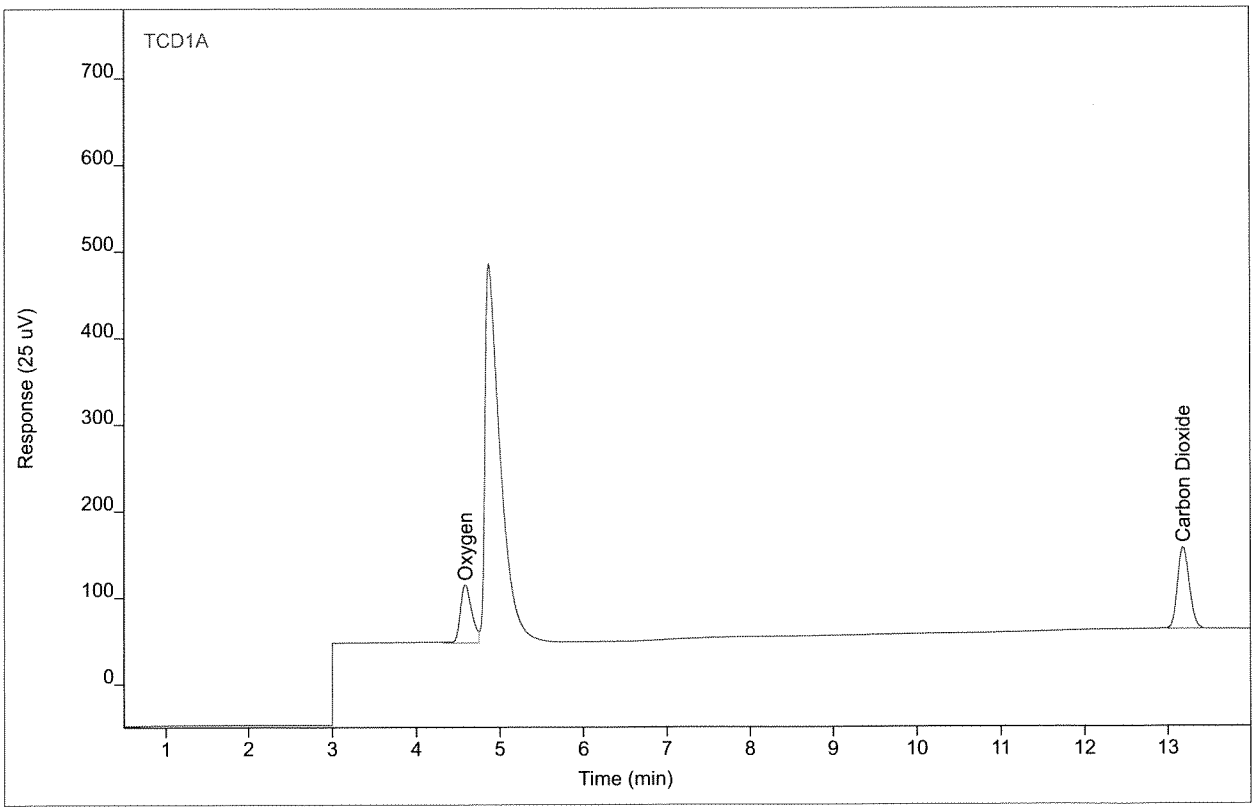
Analyst Peak Integration Comments

06:52:58 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG2 ENV(1=565.33,2=206.86)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1402.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/25/2016 3:49 AM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:50 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/25/2016 1:37 PM



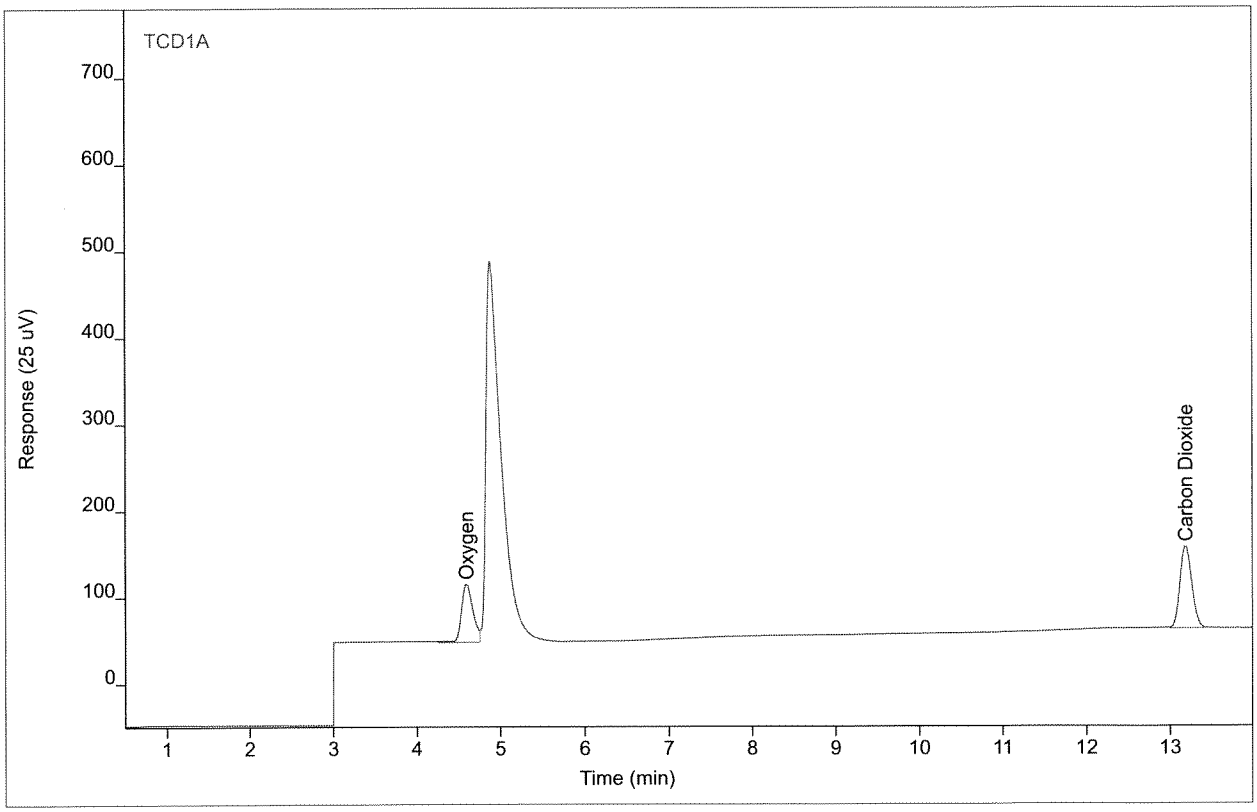
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.59	625.342	67.2184	2.00758	1	2.00758	%
Carbon Dioxide	BB	13.18	932.885	94.6177	2.06608	1	2.06608	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG2 ENV(1=565.33,2=206.86)
Sequence Name	BETTYP472 ver.2
Data File	009F1403.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 4:12 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



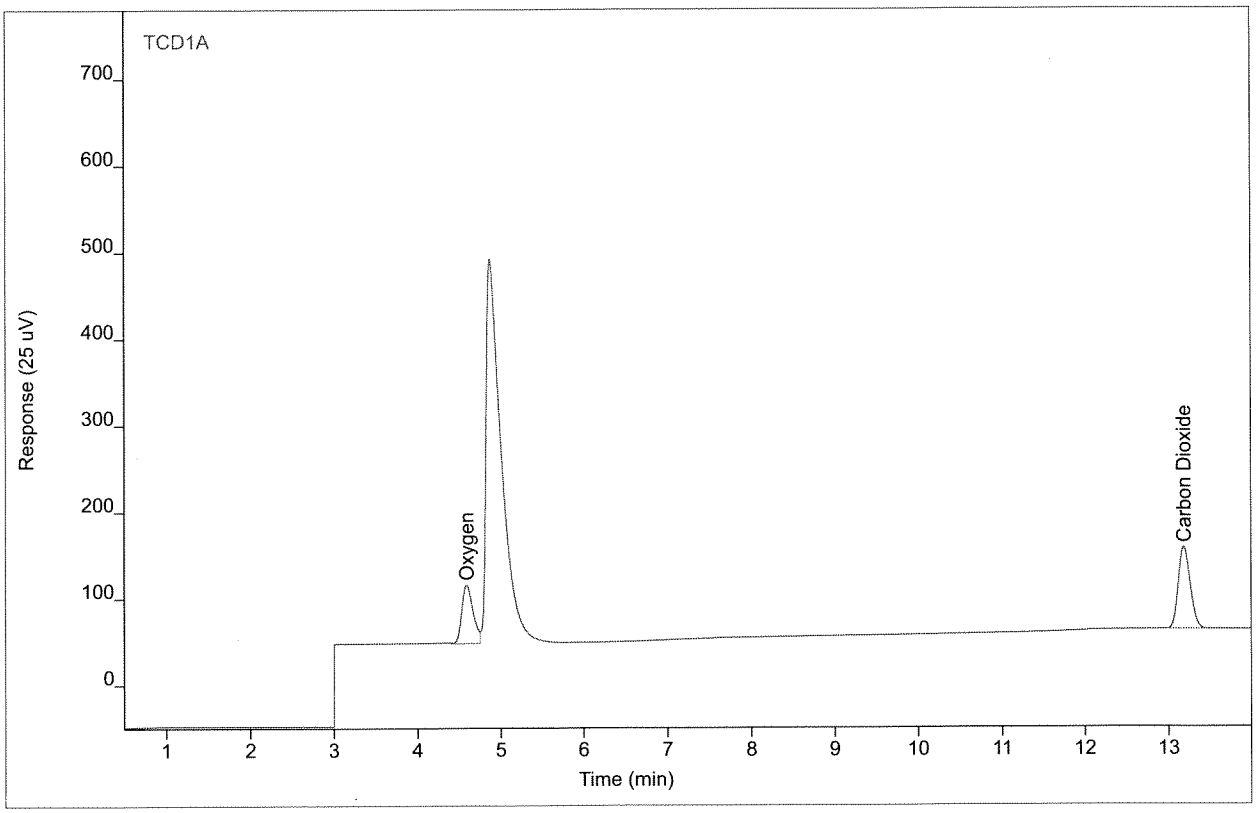
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.59	631.439	67.7020	2.03066	1	2.03066	%
Carbon Dioxide	BB	13.18	939.942	95.0105	2.08213	1	2.08213	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG2 ENV(1=565.33,2=206.86)
Sequence Name	BETTYP472 ver.2
Data File	009F1404.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 4:36 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



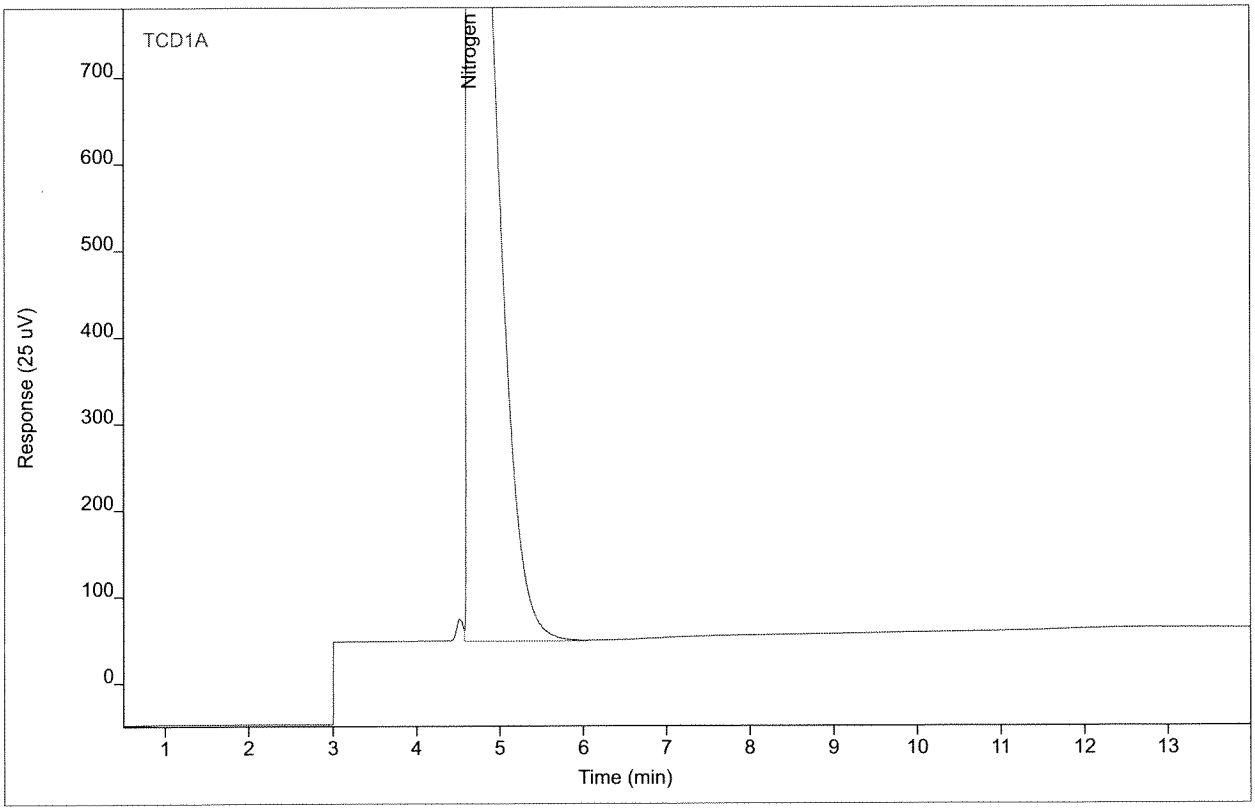
Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	VV	4.59	633.618	68.2063	2.03891	1	2.03891	%
Carbon Dioxide	BB	13.18	937.184	94.6441	2.07586	1	2.07586	%

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG22 ENV(1=0,6=450)
Sequence Name	BETTYP472 ver.2
Data File	009F1602.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 7:05 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	FM	4.64	31326.7	1562.26	93.8462	1	93.8462	%

Analyst Peak Integration Comments

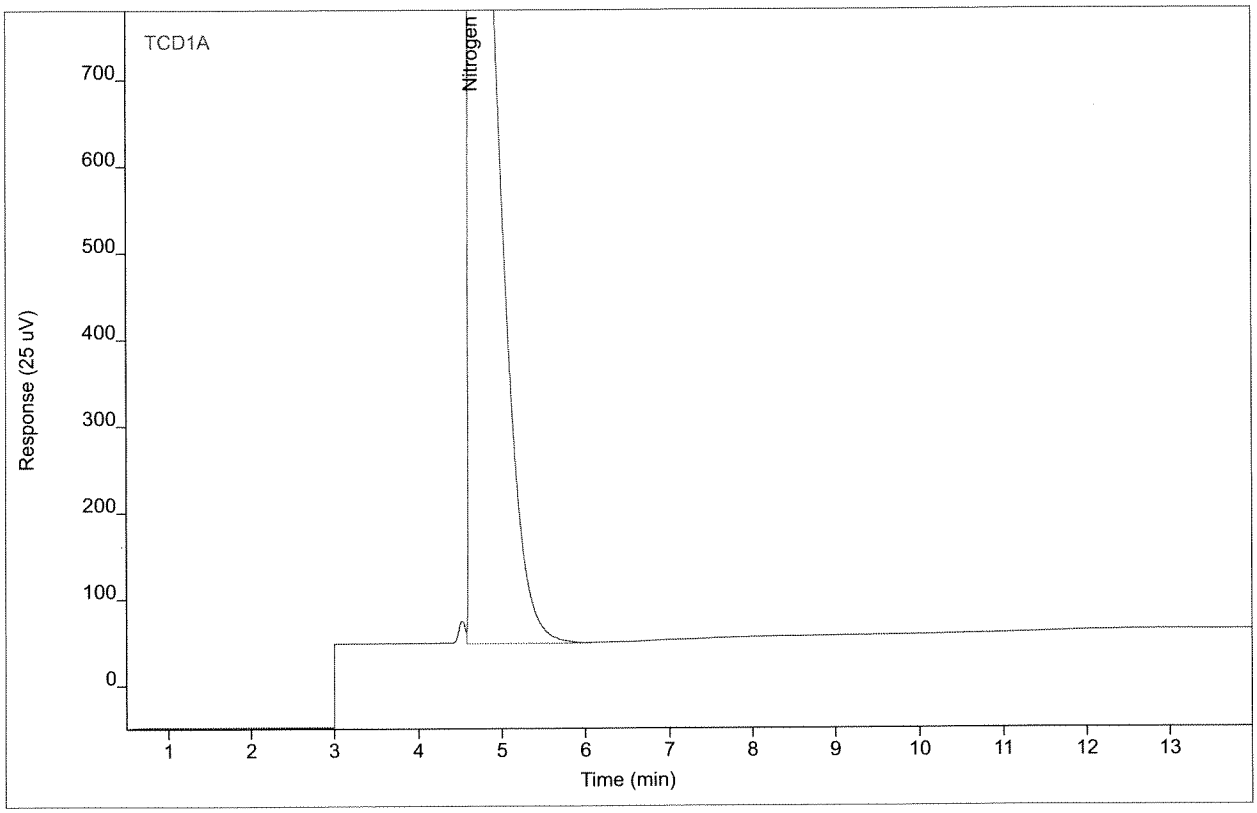
08:05:26 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG22 ENV(1=0,6=450)
Sequence Name	BETTYP472 ver.2
Data File	009F1603.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 7:29 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	FM	4.64	31650.6	1583.12	94.8273	1	94.8273	%

Analyst Peak Integration Comments

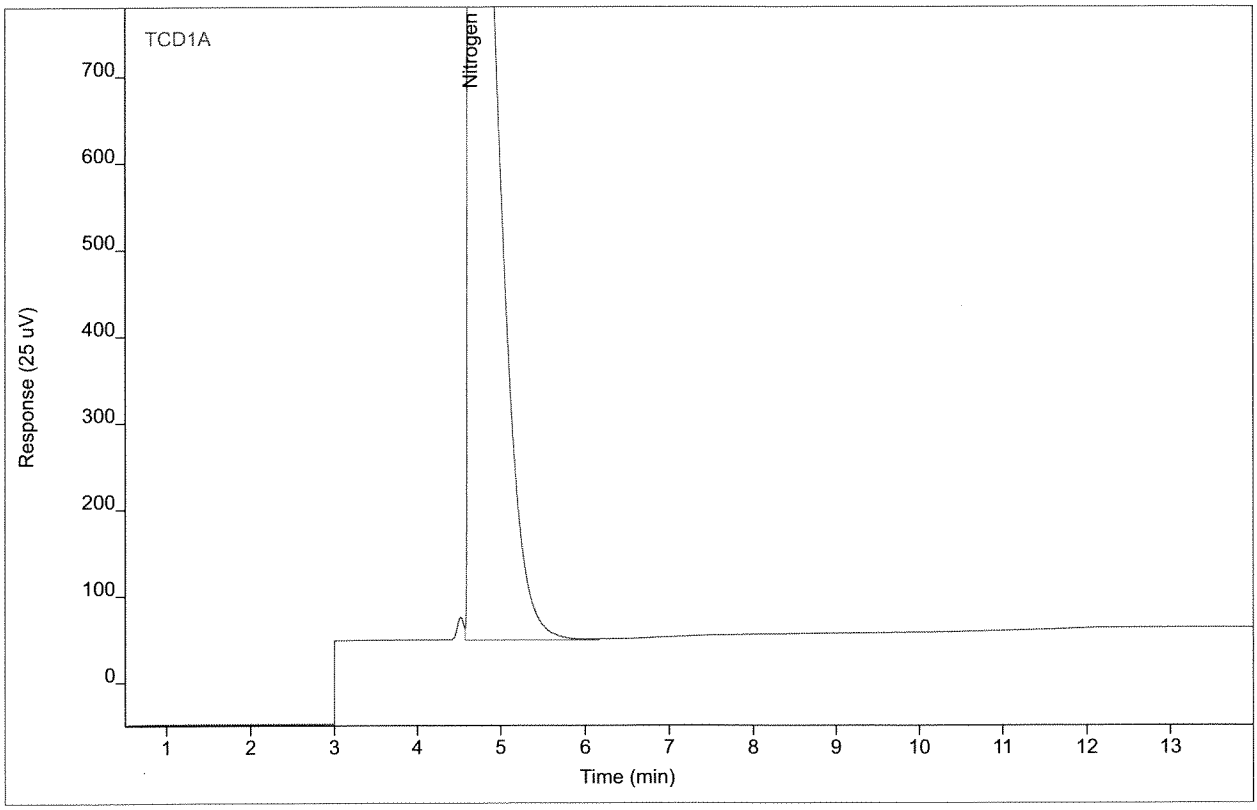
08:05:46 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG22 ENV(1=0,6=450)
Sequence Name	BETTYP472 ver.2
Data File	009F1604.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 7:52 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Nitrogen	FM	4.64	31809.1	1586.74	95.3074	1	95.3074	%

Analyst Peak Integration Comments

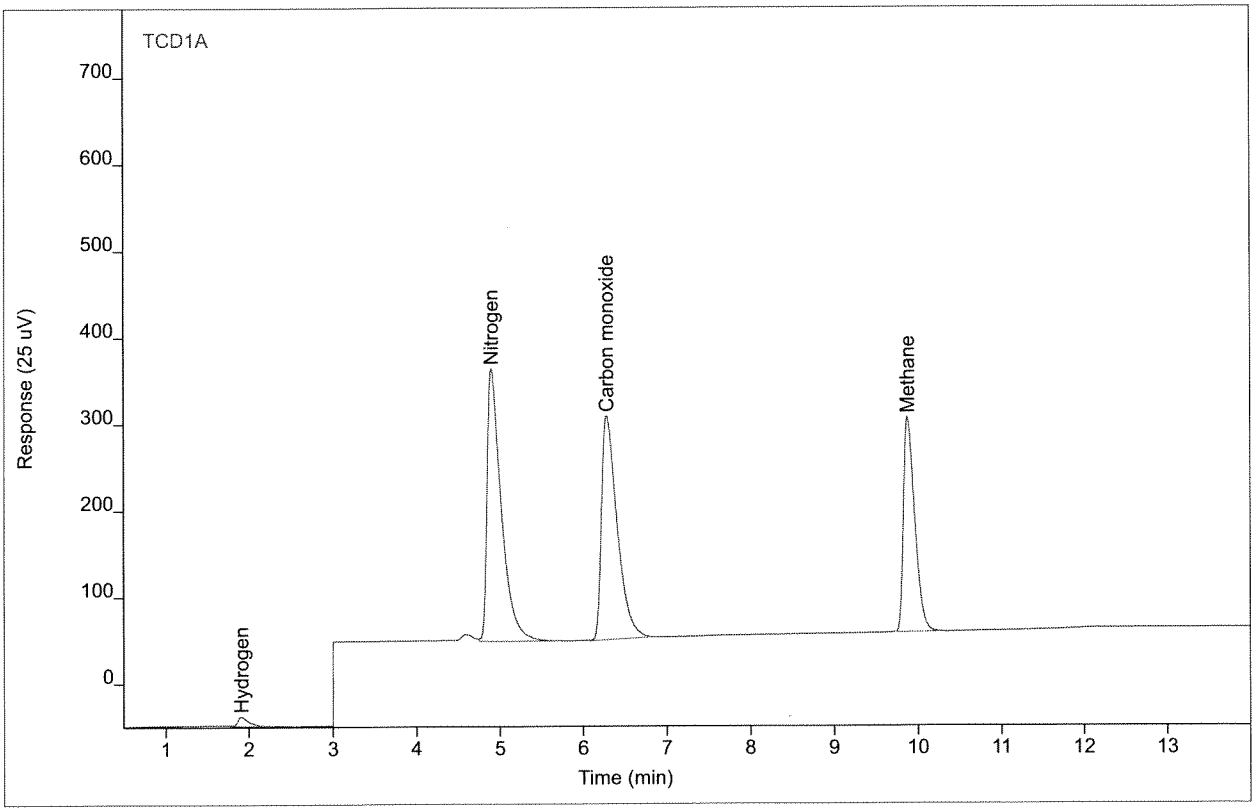
08:09:20 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.02)
Sequence Name	BETTYP472 ver.2
Data File	009F1702.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 8:39 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BV	1.91	105.958	11.1071	7.97555	1	7.97555	%
Nitrogen	VB	4.90	3761.87	315.090	10.3541	1	10.3541	%
Carbon monoxide	BB	6.28	3368.06	258.608	10.2665	1	10.2665	%
Methane	BB	9.88	2310.72	247.896	8.14740	1	8.14740	%

Analyst Peak Integration Comments

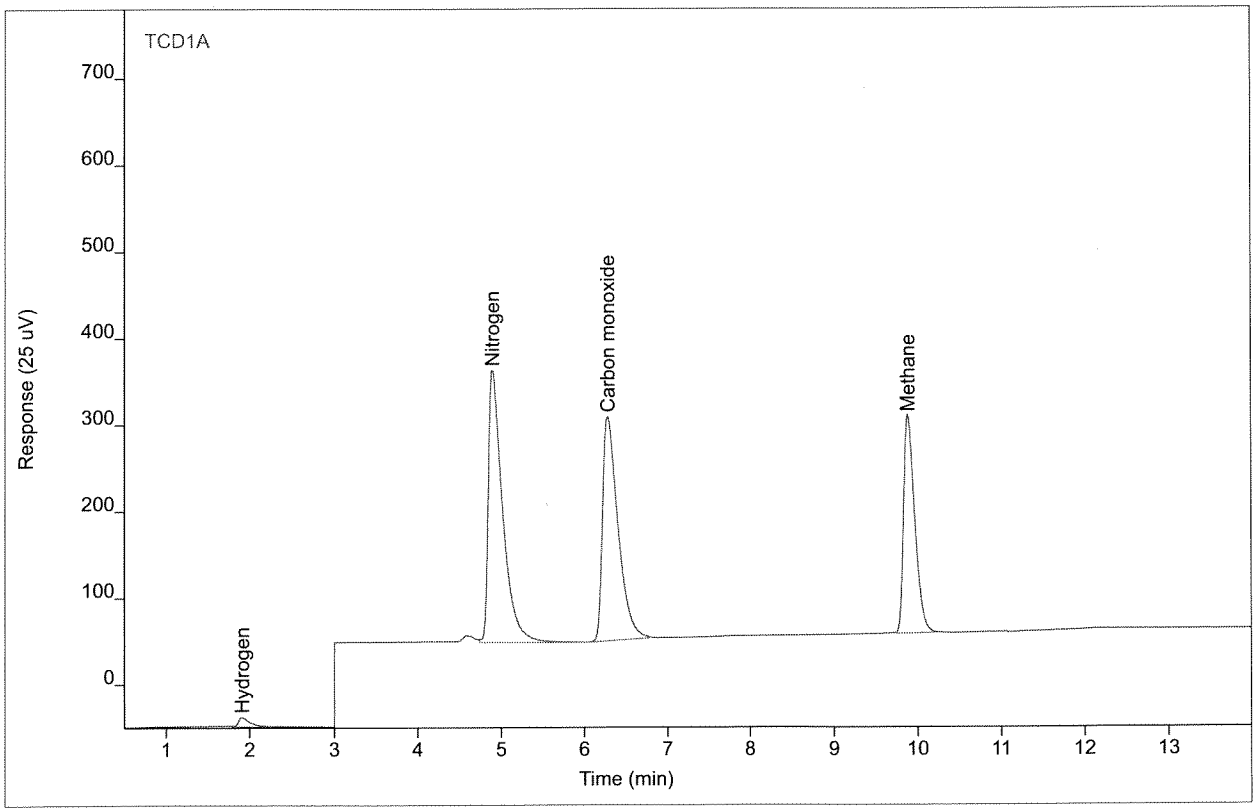
09:01:46 10/25/16 Justin Guenzler false positive

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.02)
Sequence Name	BETTYP472 ver.2
Data File	009F1703.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 9:04 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	108.029	11.0817	8.13361	1	8.13361	%
Nitrogen	VV	4.90	3814.73	314.893	10.5142	1	10.5142	%
Carbon monoxide	VB	6.29	3383.53	259.243	10.3137	1	10.3137	%
Methane	BB	9.88	2316.77	251.214	8.16876	1	8.16876	%

Analyst Peak Integration Comments

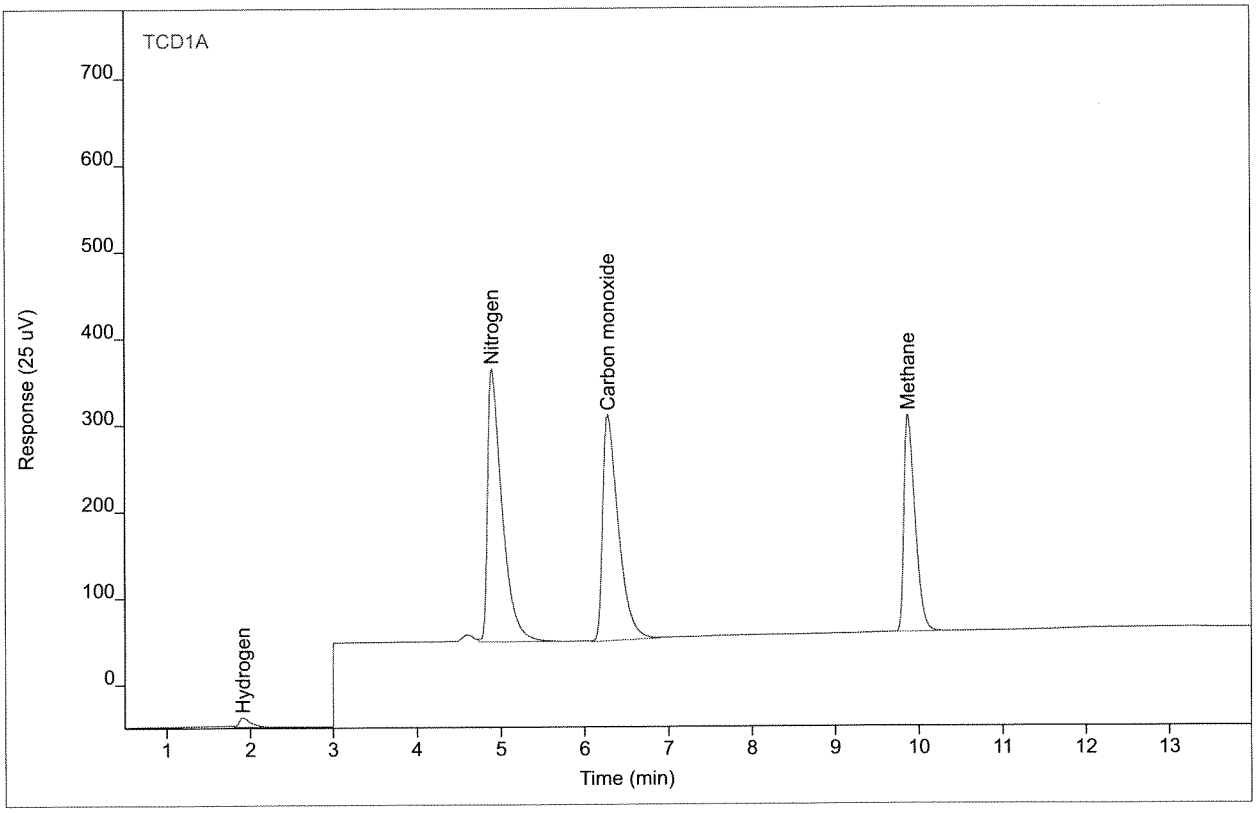
09:19:17 10/25/16 Justin Guenzler II

Chromatogram Report

Sample Name	BettyP300 #FG8 ENV(1=0,3=319.02)
Sequence Name	BETTYP472 ver.2
Data File	009F1704.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 9:27 AM
File Modified	10/25/2016 12:50 PM
Instrument	
Operator	Justin Guenzler

Enthalpy Analytical

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.91	108.321	11.2141	8.15590	1	8.15590	%
Nitrogen	FM	4.90	3765.47	316.028	10.3650	1	10.3650	%
Carbon monoxide	MM	6.29	3408.64	261.434	10.3902	1	10.3902	%
Methane	BB	9.88	2321.52	251.080	8.18553	1	8.18553	%

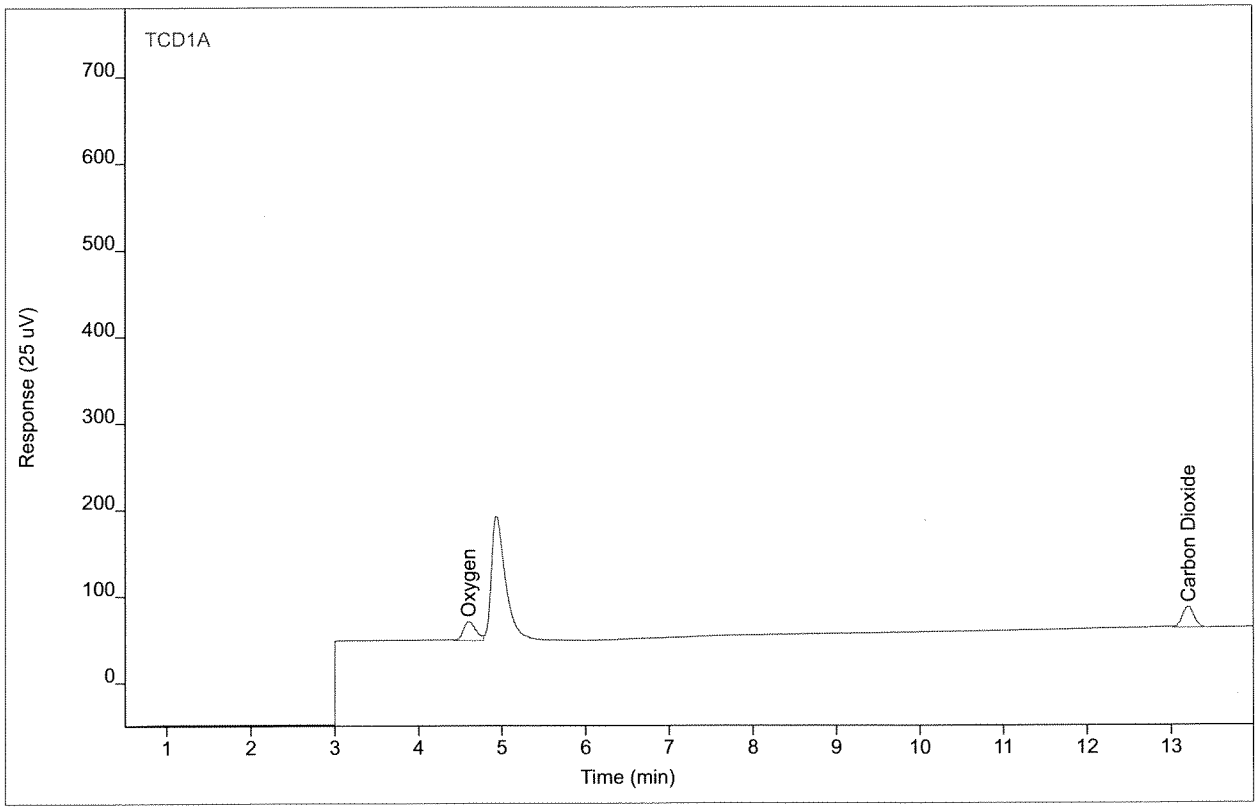
Analyst Peak Integration Comments

09:43:13 10/25/16 Justin Guenzler II
09:44:38 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG1 ENV(1=2685.32,2=206.86)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1802.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	2 of 4
Injection Date	10/25/2016 10:15 AM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:50 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MF	4.60	229.064	22.3648	0.50735	1	0.50735	%
Carbon Dioxide	BB	13.21	234.478	24.1478	0.47979	1	0.47979	%

Analyst Peak Integration Comments

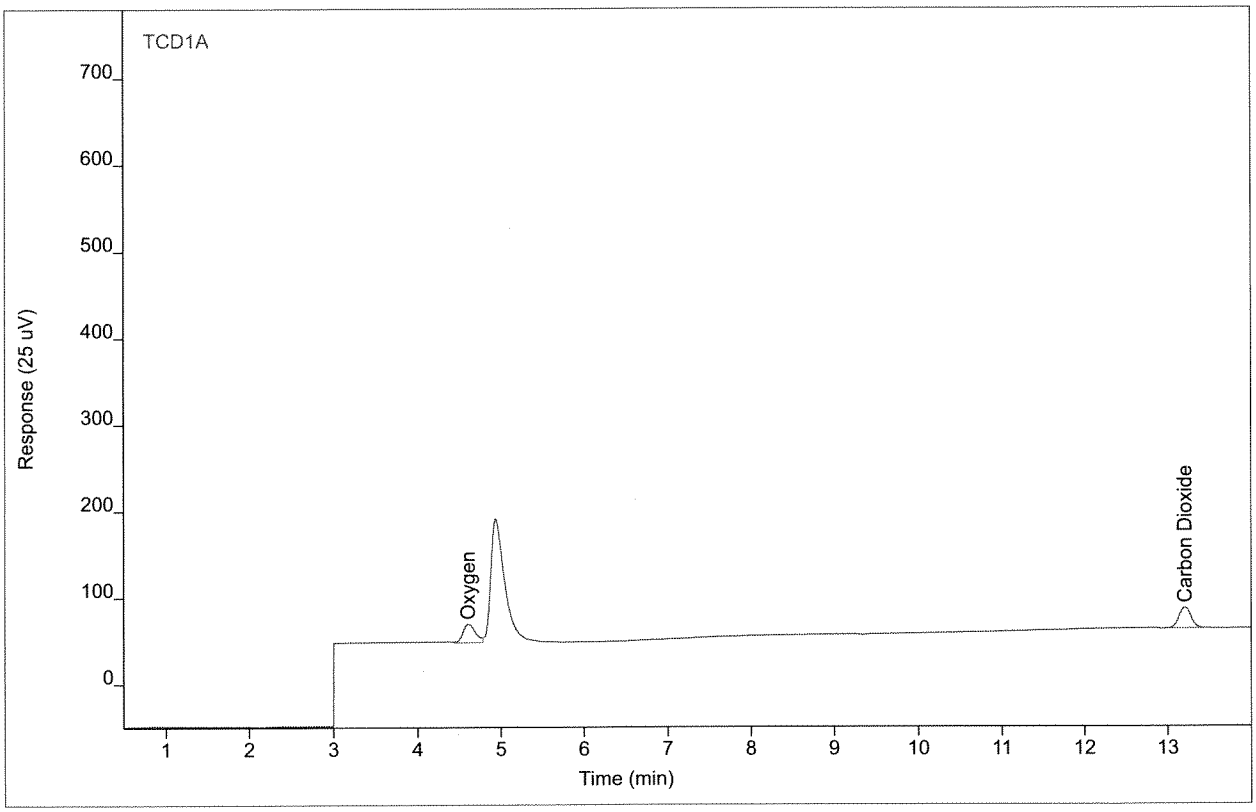
10:31:34 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG1 ENV(1=2685.32,2=206.86)
Sequence Name	BETTYP472 ver.2
Data File	009F1803.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 10:39 AM
File Modified	10/25/2016 12:51 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	3 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MF	4.60	224.399	22.0770	0.49318	1	0.49318	%
Carbon Dioxide	BB	13.20	237.761	24.3131	0.48651	1	0.48651	%

Analyst Peak Integration Comments

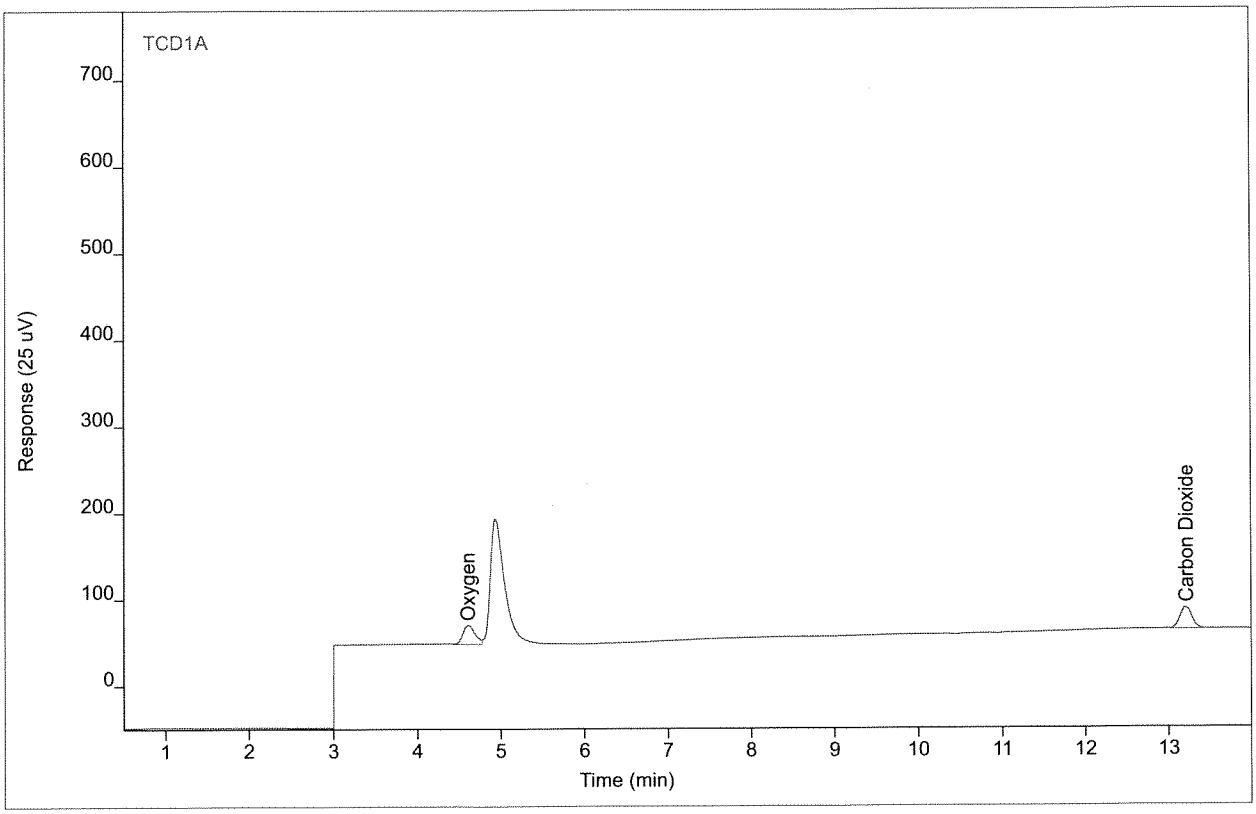
10:53:51 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP472 #FG1 ENV(1=2685.32,2=206.86)
Sequence Name	BETTYP472 ver.2
Data File	009F1804.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 11:03 AM
File Modified	10/25/2016 12:51 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	4 of 4
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Oxygen	MF	4.61	226.267	22.7449	0.49728	1	0.49728	%
Carbon Dioxide	BB	13.21	247.644	25.3394	0.50782	1	0.50782	%

Analyst Peak Integration Comments

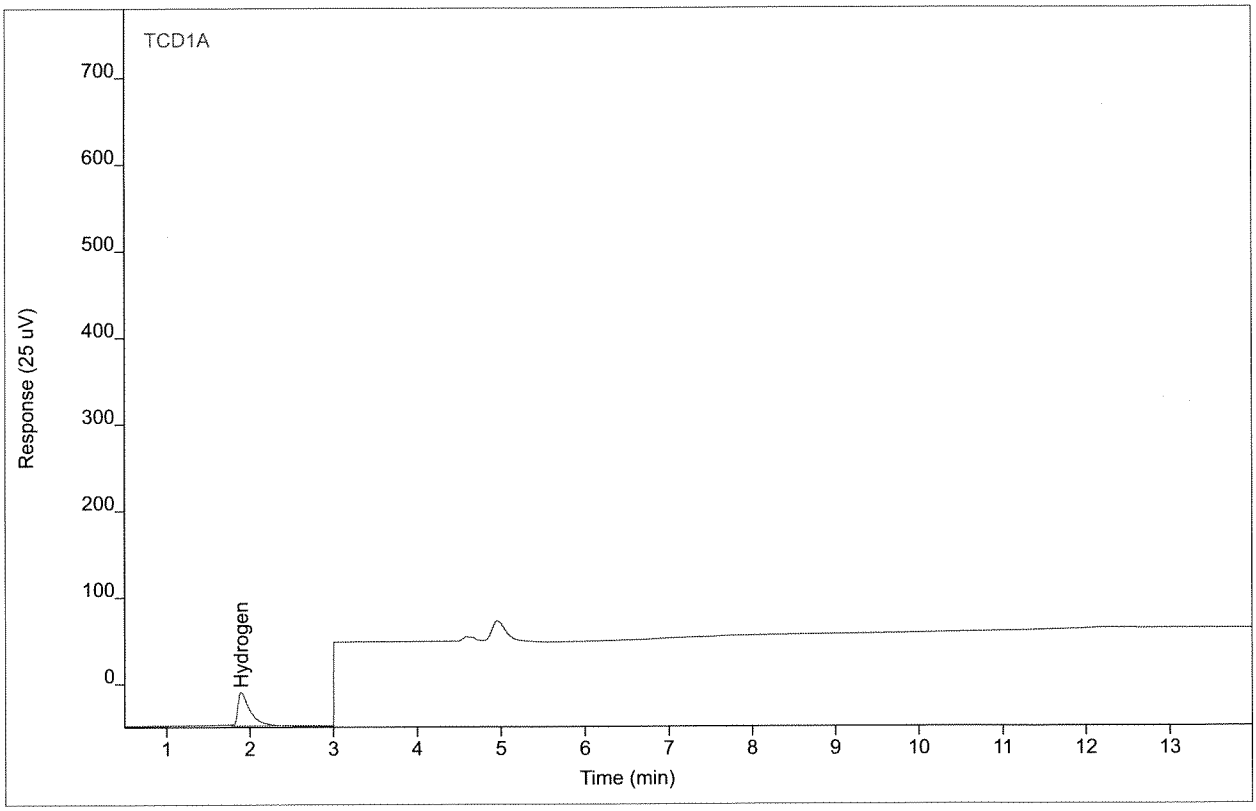
11:19:06 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)
Sequence Name	BETTYP472 ver.2
Data File	009F1901.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 11:27 AM
File Modified	10/25/2016 12:51 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	1 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.89	389.563	39.1470	29.6239	1	29.6239	%

Analyst Peak Integration Comments

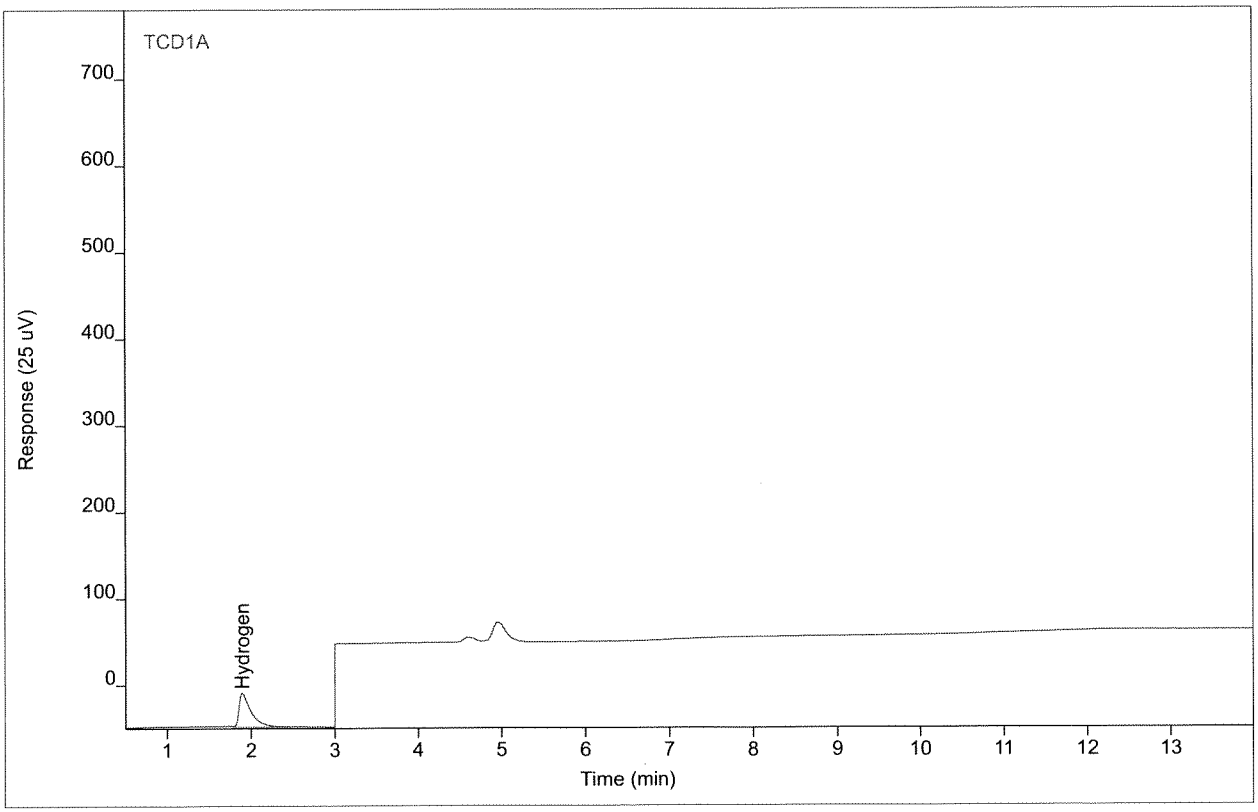
12:13:05 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)
Sequence Name	BETTYP472 ver.2
Data File	009F1902.D
File Location	GC/2016/Betty/Quarter 4
Injection Date	10/25/2016 11:51 AM
File Modified	10/25/2016 12:51 PM
Instrument	
Operator	Justin Guenzler

Sample Type	Calibration
Vial Number	Vial 9
Injection Volume	250
Injection	2 of 3
Acquisition Method	GC142P133_CAL.M
Analysis Method	BETTYP472_FGA_.M
Method Modified	10/25/2016 12:30 PM
Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	MM	1.89	391.526	39.1759	29.7738	1	29.7738	%

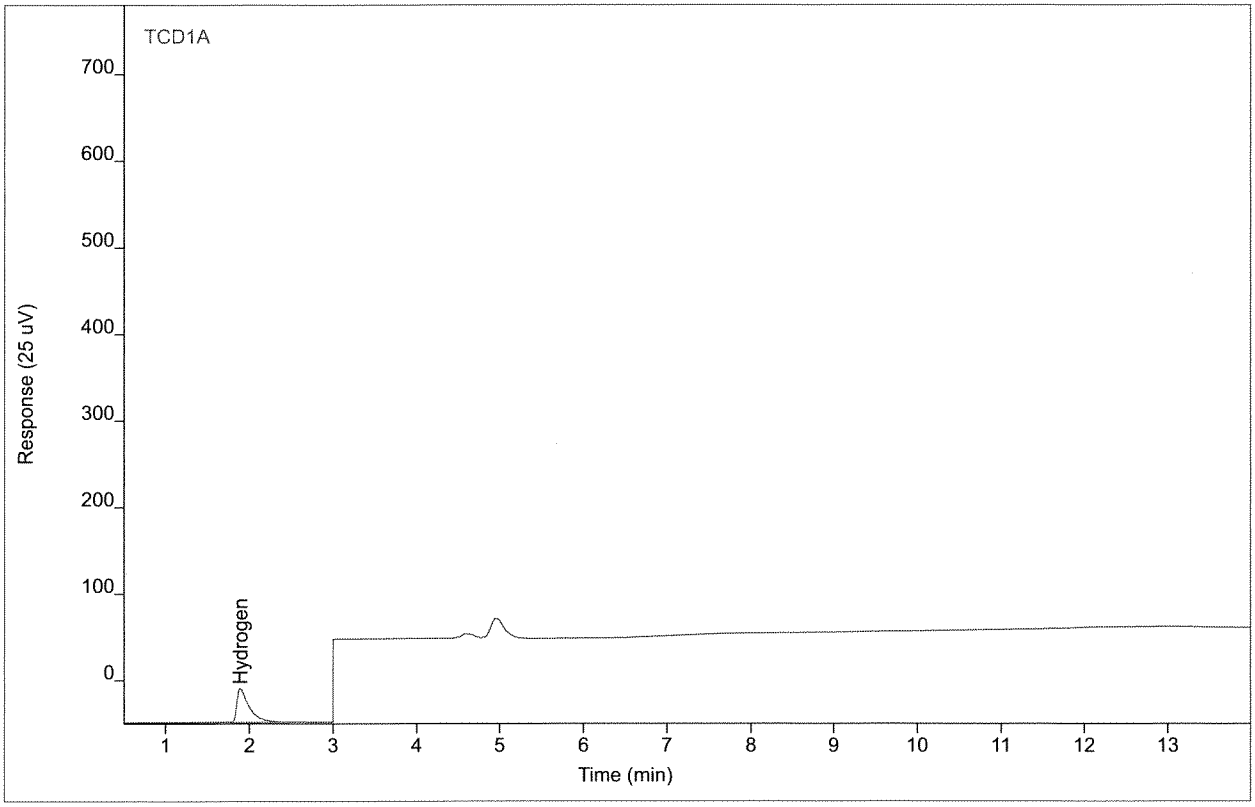
Analyst Peak Integration Comments

12:13:15 10/25/16 Justin Guenzler II

Chromatogram Report

Enthalpy Analytical

Sample Name	BettyP300 #FG29 ENV(1=706.66,6=396.04)	Sample Type	Calibration
Sequence Name	BETTYP472 ver.2	Vial Number	Vial 9
Data File	009F1903.D	Injection Volume	250
File Location	GC/2016/Betty/Quarter 4	Injection	3 of 3
Injection Date	10/25/2016 12:15 PM	Acquisition Method	GC142P133_CAL.M
File Modified	10/25/2016 12:51 PM	Analysis Method	BETTYP472_FGA_.M
Instrument		Method Modified	10/25/2016 12:30 PM
Operator	Justin Guenzler	Printed	10/25/2016 1:37 PM



Compound	Type	RT	Area	Height	Amount	DF	SampAmt	Unit
Hydrogen	BB	1.89	391.664	39.1410	29.7843	1	29.7843	%

Analyst Peak Integration Comments

12:29:48 10/25/16 Justin Guenzler false positive

Airgas

Airgas USA, LLC
4822 Industry Lane
Durham, NC 27713
(919) 544-3772
www.airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: PRIMARY STANDARD

Part Number:	X03HE80P15A01P0	Reference Number:	132-400547915-1
Cylinder Number:	CC159401.	Cylinder Volume:	132.9 CF
Laboratory:	NWS - Durham - NC	Cylinder Pressure:	2014 PSIG
Analysis Date:	Jun 02, 2015	Valve Outlet:	590
Lot Number:	132-400547915-1		

Expiration Date: Jun 02, 2018

Primary Standard Gas Mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Req Conc	Actual Concentration (Mole %)	Analytical Uncertainty
CARBON DIOXIDE	10.00 %	9.988 %	+/- 0.02% abs
OXYGEN	10.00 %	10.00 %	+/- 0.02% abs
HELIUM	Balance		

Approved for Release

AIR LIQUIDE Air Liquide America Specialty Gases LLC Scott

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFIED MASTER CLASS
Single-Certified Calibration Standard

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Document # : 55814398-001
Item No.: MC500418-P-44
P.O. No.: 06181401

Cylinder Number: NKA197
Cylinder Size: 44
Certification Date: 30Jun2014
Expiration Date: 01Jul2017
Lot Number: PLU0288940

Customer

ENTHALPY ANALYTICAL, INC.
GREG TATE
800-1 CAPITOLA DRIVE
DURHAM, NC 27703
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
CARBON MONOXIDE	10.0	%	2
HYDROGEN	8.2	%	2
METHANE	8.0	%	2
NITROGEN	10.0	%	2
HELIUM		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: _____ DATE: 7-3-14
LAMONT SHIELDS

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
CARBON MONOXIDE	10.	%	10.0	%	.0	2.00
HYDROGEN	8.	%	8.2	%	2.5	2.00
METHANE	8.	%	8.0	%	.0	2.00
NITROGEN	10.	%	10.0	%	.0	2.00
HELIUM		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: 44

Pressure: 2015 PSIG
Expiration Date: 01Jul2017

Valve Connection: CGA 350

SPECIAL HANDLING INSTRUCTIONS

Do not use or store cylinder at or below the stated dew point temperature. Possible condensation of heavier components could result. In the event the cylinder has been exposed to temperatures at or below the dew point, place cylinder in heated area for 24 hours and then roll cylinder for 15 minutes to re-mix.

Use of calibration standards at or below dew point temperature may result in calibration error.

PRAXAIR

Making our planet more productive

Issue Date: 12-08-2014

To:

Attn:

Praxair Order Number:
Customer Order Number:
Customer Reference Number:

Product Lot Number: 1124002724A1
Product Part Number: ME 5.0RS-G

CERTIFICATE OF ANALYSIS

(Methane 99.999%, Research)

Cylinder Serial Number	*Analytes*	*Specification*	
RA071907	Methane	99.999	%
RA072283	Ethane	ND < 0.1	ppm
*RA072293	Nitrogen	ND < 0.1	ppm
RA072328	Oxygen	0.1	ppm
	Moisture	0.3	ppm
	Other Hydrocarbons	ND < 0.1	ppm

Cylinder Style: G
Cylinder Pressure @70°F (21°C): 2000 PSI
Cylinder Volume: 40 Cubic Feet

Valve Outlet Connection: 350 CGA
Filling Method: Pressure

Approved Signer: _____
Patrick Philpot

6890 GC METHOD

OVEN
- Initial temp: 40 C (On)
- Initial time: 6.00 min
- Ramps:

#	Rate	Final temp	Final time
1	30.00	220	2.00
2	0 (Off)		

- Post temp: 40 C
- Post time: 0.00 min
- Run time: 14.00 min
- Maximum temp: 250 C
- Equilibration time: 0.50 min

CRYO (N2)
- Cryo: Off
- Cryo fault: On
- Cryo timeout: 40.00 min (On)
- Quick cryo cool: Off
- Ambient temp: 30 C

FRONT INLET (SPLIT/SPLITLESS)
- Mode: Splitless
- Initial temp: 200 C (On)
- Pressure: 60.0 psi (On)
- Purge flow: 0.0 mL/min
- Purge time: 0.00 min
- Total flow: 12.3 mL/min
- Gas saver: Off
- Gas type: Helium

BACK INLET (SPLIT/SPLITLESS)
- Mode: Split
- Initial temp: 200 C (On)
- Pressure: 11.6 psi (On)
- Split ratio: 5:1
- Split flow: 12.3 mL/min
- Total flow: 17.6 mL/min
- Gas saver: Off
- Gas type: Helium

COLUMN 1
- Packed Column
- Model Number: 19808
- Description: Rt-ShinCarbon 2m x 1mm I
- Max temperature: 250 C
- Mode: constant pressure
- Pressure: 60.0 psi
- Inlet: Front Inlet
- Outlet: Front Detector
- Outlet pressure: ambient

COLUMN 2
- Capillary Column
- Model Number: 10198
- Description: Rtx-1 30m x 0.32mm x 4um
- Max temperature: 250 C
- Nominal length: 30.0 m
- Nominal diameter: 320.00 um
- Nominal film thickness: 4.00 um
- Mode: constant flow
- Initial flow: 2.5 mL/min
- Nominal init pressure: 11.6 psi
- Average velocity: 39 cm/sec
- Inlet: Back Inlet
- Outlet: (other)
- Outlet pressure: ambient

FRONT DETECTOR (TCD)
- Temperature: 275 C (On)
- Reference flow: 20.0 mL/min (On)
- Mode: Constant makeup flow
- Makeup flow: 10.0 mL/min (On)
- Makeup Gas Type: Helium
- Filament: On
- Negative polarity: On

BACK DETECTOR (FID)
- Temperature: 250 C (On)
- Hydrogen flow: 60.0 mL/min (On)
- Air flow: 450.0 mL/min (On)
- Mode: Constant makeup flow
- Makeup flow: 40.0 mL/min (On)
- Makeup Gas Type: Nitrogen
- Flame: On
- Electrometer: On
- Lit offset: 2.0

SIGNAL 1
- Data rate: 20 Hz
- Type: front detector
- Save Data: On

SIGNAL 2
- Data rate: 20 Hz
- Type: back detector
- Save Data: On

THERMAL AUX 1
- Use: Valve Box Heater
- Initial temp: 130 C (On)

VALVES
- Valve 1 Gas Sampling
  - Loop Volume: 0.250 mL

POST RUN
- Post Time: 0.00 min

›dified on: 5/5/2014 at 7:51:02 AM
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet
Valve 2 Gas Sampling
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet

TIME TABLE

Time(min)	Parameter & Setpoint	
3.00	Front Detector Polarity:	Off

This Is The Last Page Of This Report.

APPENDIX F

Reference Method Monitors Data

Model 2 Thermal Combustor Outlet Stack
Carbon Monoxide
Concentration

Condition-Run Number	Measured (ppm)	Adjusted (ppm*)
I-1	1.50	1.53
I-2	0.31	0.34
I-3	0.39	0.32

*Calculated according to equation 7E-5.

Model 2 Thermal Combustor Outlet Stack
Total Hydrocarbons
Concentration

Condition-Run Number	Measured (wet ppm)
I-1	0.17
I-2	0.13
I-3	0.12

Model 2 Thermal Combustor Outlet Stack
Calibration Summary
Carbon Monoxide

Condition-Run Number	CO Calibration Initial Drift Check (ppm)	CO Calibration Final Drift Check (ppm)	CO Calibration Average (ppm)	CO Zero Initial Drift Check (ppm)	CO Zero Final Drift Check (ppm)	CO Zero Average (ppm)	Actual CO Calibration Value (ppm)	Actual CO Zero Value (ppm)
I-1	5.07	5.00	5.04	-0.03	-0.03	-0.03	5.06	0.00
I-2	5.00	5.02	5.01	-0.03	-0.02	-0.03	5.06	0.00
I-3	5.02	5.10	5.06	-0.02	0.16	0.07	5.06	0.00

Model 2 Thermal Combustor Outlet Stack
System Calibration Bias and Drift Data
Carbon Monoxide
Calibration Span = 9.86 ppm

Condition-Run Number	CO Calibration Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	CO Zero Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	Analyzer Calibration Response Mid Level (ppm)	Analyzer Calibration Response Zero Level (ppm)
I-1	5.07	0.00	5.00	0.71	0.71	-0.03	0.20	-0.03	0.20	0.00	5.07	-0.01
I-2	5.00	0.71	5.02	0.51	0.20	-0.03	0.20	-0.02	0.10	0.10	5.07	-0.01
I-3	5.02	0.51	5.10	0.30	0.81	-0.02	0.10	0.16	1.72	1.83	5.07	-0.01

* PERCENT OF CALIBRATION SPAN

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Carbon Monoxide

Date 09/26/16
Condition I

Calibration Span = 9.86 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Low	0.00	-0.01	0.01	0.10
Mid	5.06	5.07	0.01	0.10
High	9.86	9.90	0.04	0.41

* Percent of calibration span

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Total Hydrocarbons

Date 09/26/16
Condition I
Span = 10 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Zero	0.00	-0.01	0.01	----
Low	3.13	3.12	0.01	0.32
Mid	5.01	5.01	0.00	0.00
High	8.48	8.50	0.02	----

* Percent of span gas

filename	9/26/2016	7:18:03							
testby1	METCO Environmental								
testby2	Baton Rouge Operations								
testby3	9								
testby4	Jeremiah Johnson								
testfor1	COMM Engineering								
testfor2	*								
testfor3	Unit 2								
testfor4	Lafayette, LA								
name			CO	THC					
sn			208845	1125748714					
offset			0.00	0.00					
fullscale			10.10	10.00					
train			1.00	1.00					
gastype			co 10	thc 25a					
dcg1	9/26/2016	7:26:00	1.07	1.26	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:26:15	1.05	1.76	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:26:30	3.86	2.26	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:26:45	10.30	0.36	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:27:00	10.30	0.18	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:27:15	7.58	0.15	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:27:30	2.07	0.13	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:27:45	1.21	0.11	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:28:00	1.06	0.11	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:28:15	0.99	0.12	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:28:30	0.96	0.12	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:28:45	0.95	0.11	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:29:00	0.96	0.10	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:29:15	0.96	0.10	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:29:30	0.15	0.10	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:29:45	-0.01	0.04	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:30:00	0.01	0.00	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:30:15	-0.01	-0.01	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:30:30	0.00	0.00	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:30:45	-0.02	0.00	EB0070656/cg1	N2	0.00		0.00
dcg1	9/26/2016	7:31:00	-0.01	-0.01	EB0070656/cg1	N2	0.00		0.00
o2ezero1	9/26/2016	7:31:00	-0.01	-0.01	EB0070656/cg1	N2	0.00		0.00
co2ezero1	9/26/2016	7:31:00	-0.01	-0.01	EB0070656/cg1	N2	0.00		0.00
coezero1	9/26/2016	7:31:00	-0.01	-0.01	EB0070656/cg1	N2	0.00		0.00
thcezero1	9/26/2016	7:31:00	-0.01	-0.01	EB0070656/cg1	N2	0.00		0.00
dcg3	9/26/2016	7:31:15	0.00	-0.01	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:31:30	-0.01	0.00	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:31:45	-0.02	0.30	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:32:00	0.60	0.04	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:32:15	3.51	0.00	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:32:30	7.14	0.00	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:32:45	8.31	-0.01	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:33:00	8.50	-0.01	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:33:15	8.54	0.00	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:33:30	8.73	-0.01	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:33:45	9.90	-0.01	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:34:00	9.88	-0.01	BLM000616/cg3	CO	9.86		0.00
dcg3	9/26/2016	7:34:15	9.90	0.01	BLM000616/cg3	CO	9.86		0.00
cohigh1	9/26/2016	7:34:15	9.90	0.01	BLM000616/cg3	CO	9.86		0.00
dcg10	9/26/2016	7:34:30	9.91	0.01	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:34:45	9.90	0.00	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:35:00	9.81	0.43	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:35:15	8.81	0.31	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:35:30	4.59	0.35	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:35:45	1.22	0.34	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:36:00	-0.31	0.34	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:36:15	-0.53	0.34	AAL021715/cg10	CO2	20.00	O2	19.90
dcg10	9/26/2016	7:36:30	-0.53	0.34	AAL021715/cg10	CO2	20.00	O2	19.90
o2high1	9/26/2016	7:36:30	-0.53	0.34	AAL021715/cg10	CO2	20.00	O2	19.90
co2high1	9/26/2016	7:36:30	-0.53	0.34	AAL021715/cg10	CO2	20.00	O2	19.90
dcg4	9/26/2016	7:37:00	-0.53	0.35	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:37:15	-0.53	0.54	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:37:30	-0.48	0.17	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:37:45	0.60	0.00	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:38:00	3.19	-0.01	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:38:15	4.45	-0.02	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:38:30	4.96	-0.02	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:38:45	5.02	-0.03	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:39:00	5.06	-0.03	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:39:15	5.08	-0.04	ALM018547/cg4	CO	5.06		0.00
dcg4	9/26/2016	7:39:30	5.07	-0.04	ALM018547/cg4	CO	5.06		0.00
comid1	9/26/2016	7:39:30	5.07	-0.04	ALM018547/cg4	CO	5.06		0.00

dcg9	9/26/2016	7:39:45	5.09	-0.04	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:40:00	5.10	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:40:15	5.08	0.14	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:40:30	3.99	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:40:45	1.67	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:41:00	-0.12	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:41:15	-0.50	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:41:30	-0.52	0.14	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:41:45	-0.53	0.15	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:42:00	-0.53	0.14	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:42:15	-0.52	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:42:30	-0.52	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:42:45	-0.53	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/26/2016	7:43:00	-0.53	0.14	EB0080791/cg9	CO2	10.96	O2	11.08
o2mid1	9/26/2016	7:43:00	-0.53	0.14	EB0080791/cg9	CO2	10.96	O2	11.08
co2mid1	9/26/2016	7:43:00	-0.53	0.14	EB0080791/cg9	CO2	10.96	O2	11.08
dcg11	9/26/2016	7:45:15	0.10	1.22	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:45:30	0.10	1.22	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:45:45	0.10	1.67	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:46:00	0.06	3.76	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:46:15	-0.03	3.85	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:46:30	0.04	3.84	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:46:45	0.07	3.82	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:47:00	0.06	3.69	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:47:15	0.04	3.13	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:47:30	0.05	3.13	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:47:45	0.07	3.13	BLM005063/cg11	THC	3.13		0.00
dcg11	9/26/2016	7:48:00	0.05	3.12	BLM005063/cg11	THC	3.13		0.00
thclow1	9/26/2016	7:48:00	0.05	3.12	BLM005063/cg11	THC	3.13		0.00
dcg13	9/26/2016	7:49:45	0.09	0.90	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:50:00	0.10	0.94	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:50:15	0.09	5.61	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:50:30	0.11	8.69	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:50:45	0.03	8.73	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:51:00	-0.02	8.55	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:51:15	-0.07	8.50	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:51:30	-0.05	8.50	ET0010859/cg13	THC	8.48		0.00
dcg13	9/26/2016	7:51:45	-0.08	8.50	ET0010859/cg13	THC	8.48		0.00
thchigh1	9/26/2016	7:51:45	-0.08	8.50	ET0010859/cg13	THC	8.48		0.00
dcg12	9/26/2016	7:53:30	0.12	0.91	ET0010875/cg12	THC	5.01		0.00
dcg12	9/26/2016	7:53:45	0.11	0.88	ET0010875/cg12	THC	5.01		0.00
dcg12	9/26/2016	7:54:00	0.09	3.96	ET0010875/cg12	THC	5.01		0.00
dcg12	9/26/2016	7:54:15	0.11	5.04	ET0010875/cg12	THC	5.01		0.00
dcg12	9/26/2016	7:54:30	0.06	5.02	ET0010875/cg12	THC	5.01		0.00
dcg12	9/26/2016	7:54:45	-0.02	5.02	ET0010875/cg12	THC	5.01		0.00
dcg12	9/26/2016	7:55:00	-0.07	5.01	ET0010875/cg12	THC	5.01		0.00
thcmid1	9/26/2016	7:55:00	-0.07	5.01	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:47:30	-0.16	1.43	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:47:45	-0.17	1.16	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:48:00	-0.03	3.50	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:48:15	2.17	5.03	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:48:30	3.86	5.02	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:48:45	1.80	5.02	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	9:49:00	0.13	5.02	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/26/2016	9:49:00	0.13	5.02	ET0010875/cg12	THC	5.01		0.00
scg9	9/26/2016	9:49:15	-0.09	5.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:49:30	-0.12	4.93	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:49:45	-0.13	1.49	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:50:00	-0.32	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:50:15	-0.52	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:50:30	-0.53	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:50:45	-0.53	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:51:00	-0.53	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:51:15	-0.36	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:51:30	-0.01	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	9:51:45	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/26/2016	9:51:45	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/26/2016	9:51:45	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/26/2016	9:51:45	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/26/2016	9:51:45	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg4	9/26/2016	9:52:00	0.00	0.02	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	9:52:15	0.02	0.02	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	9:52:30	-0.01	0.53	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	9:52:45	0.10	-0.01	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	9:53:00	1.87	-0.08	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	9:53:15	4.14	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	9:53:30	5.42	-0.10	ALM018547/cg4	CO	5.06		0.00

scg4	9/26/2016	9:53:45	5.63	-0.11	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:54:00	5.69	-0.10	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:54:15	5.73	-0.10	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:54:30	5.73	-0.11	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:54:45	5.12	-0.10	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:55:00	5.06	-0.10	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:55:15	5.08	-0.09	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:55:30	5.07	-0.10	ALM018547/cg4	CO	5.06	0.00
scg4	9/26/2016	9:55:45	5.07	-0.10	ALM018547/cg4	CO	5.06	0.00
o2zero1	9/26/2016	9:55:30	5.07	-0.10	ALM018547/cg4	CO	5.06	0.00
co2zero1	9/26/2016	9:55:45	5.07	-0.10	ALM018547/cg4	CO	5.06	0.00
cospan1	9/26/2016	9:55:45	5.07	-0.10	ALM018547/cg4	CO	5.06	0.00
run1	9/26/2016	11:10:00	2.49	0.18				
run1	9/26/2016	11:10:15	2.14	0.19				
run1	9/26/2016	11:10:30	1.95	0.40				
run1	9/26/2016	11:10:45	2.76	2.95				
run1	9/26/2016	11:11:00	6.36	0.54				
run1	9/26/2016	11:11:15	8.21	0.30				
run1	9/26/2016	11:11:30	3.65	0.95				
run1	9/26/2016	11:11:45	3.40	0.64				
run1	9/26/2016	11:12:00	3.91	0.45				
run1	9/26/2016	11:12:15	5.44	0.23				
run1	9/26/2016	11:12:30	8.54	0.21				
run1	9/26/2016	11:12:45	8.29	0.20				
run1	9/26/2016	11:13:00	8.76	0.20				
run1	9/26/2016	11:13:15	5.79	0.21				
run1	9/26/2016	11:13:30	4.08	0.23				
run1	9/26/2016	11:13:45	2.83	0.20				
run1	9/26/2016	11:14:00	2.43	0.19				
run1	9/26/2016	11:14:15	2.32	0.19				
run1	9/26/2016	11:14:30	2.18	0.18				
run1	9/26/2016	11:14:45	2.06	0.19				
run1	9/26/2016	11:15:00	1.96	0.19				
run1	9/26/2016	11:15:15	2.09	0.19				
run1	9/26/2016	11:15:30	2.05	0.20				
run1	9/26/2016	11:15:45	1.69	0.19				
run1	9/26/2016	11:16:00	1.38	0.41				
run1	9/26/2016	11:16:15	2.69	0.37				
run1	9/26/2016	11:16:30	9.48	0.20				
run1	9/26/2016	11:16:45	5.17	0.17				
run1	9/26/2016	11:17:00	4.15	0.16				
run1	9/26/2016	11:17:15	3.97	0.18				
run1	9/26/2016	11:17:30	3.79	0.15				
run1	9/26/2016	11:17:45	3.69	0.15				
run1	9/26/2016	11:18:00	3.59	0.16				
run1	9/26/2016	11:18:15	3.51	0.16				
run1	9/26/2016	11:18:30	3.44	0.17				
run1	9/26/2016	11:18:45	3.38	0.17				
run1	9/26/2016	11:19:00	3.32	0.19				
run1	9/26/2016	11:19:15	3.28	0.16				
run1	9/26/2016	11:19:30	3.21	0.17				
run1	9/26/2016	11:19:45	3.17	0.17				
run1	9/26/2016	11:20:00	3.15	0.18				
run1	9/26/2016	11:20:15	3.07	0.18				
run1	9/26/2016	11:20:30	2.43	0.16				
run1	9/26/2016	11:20:45	1.72	0.17				
run1	9/26/2016	11:21:00	1.32	0.22				
run1	9/26/2016	11:21:15	1.24	0.20				
run1	9/26/2016	11:21:30	1.24	0.23				
run1	9/26/2016	11:21:45	1.27	0.19				
run1	9/26/2016	11:22:00	1.30	0.19				
run1	9/26/2016	11:22:15	1.32	0.17				
run1	9/26/2016	11:22:30	1.33	0.19				
run1	9/26/2016	11:22:45	1.33	0.16				
run1	9/26/2016	11:23:00	1.31	0.15				
run1	9/26/2016	11:23:15	1.28	0.19				
run1	9/26/2016	11:23:30	1.24	0.17				
run1	9/26/2016	11:23:45	1.22	0.16				
run1	9/26/2016	11:24:00	1.22	0.19				
run1	9/26/2016	11:24:15	1.23	0.15				
run1	9/26/2016	11:24:30	1.24	0.14				
run1	9/26/2016	11:24:45	1.22	0.14				
run1	9/26/2016	11:25:00	1.18	0.18				
run1	9/26/2016	11:25:15	1.15	0.18				
run1	9/26/2016	11:25:30	1.10	0.16				
run1	9/26/2016	11:25:45	1.06	0.18				
run1	9/26/2016	11:26:00	1.03	0.18				

run1	9/26/2016	11:26:15	1.02	0.21
run1	9/26/2016	11:26:30	1.01	0.18
run1	9/26/2016	11:26:45	1.03	0.18
run1	9/26/2016	11:27:00	1.08	0.23
run1	9/26/2016	11:27:15	1.12	0.24
run1	9/26/2016	11:27:30	1.15	0.21
run1	9/26/2016	11:27:45	1.14	0.18
run1	9/26/2016	11:28:00	1.12	0.14
run1	9/26/2016	11:28:15	1.11	0.14
run1	9/26/2016	11:28:30	1.10	0.15
run1	9/26/2016	11:28:45	1.09	0.14
run1	9/26/2016	11:29:00	1.09	0.14
run1	9/26/2016	11:29:15	1.11	0.15
run1	9/26/2016	11:29:30	1.14	0.13
run1	9/26/2016	11:29:45	1.16	0.14
run1	9/26/2016	11:30:00	1.15	0.15
run1	9/26/2016	11:30:15	1.14	0.14
run1	9/26/2016	11:30:30	1.15	0.14
run1	9/26/2016	11:30:45	1.15	0.63
run1	9/26/2016	11:31:00	1.40	0.24
run1	9/26/2016	11:31:15	2.29	0.15
run1	9/26/2016	11:31:30	3.26	0.15
run1	9/26/2016	11:31:45	3.64	0.18
run1	9/26/2016	11:32:00	3.78	0.15
run1	9/26/2016	11:32:15	3.84	0.14
run1	9/26/2016	11:32:30	3.90	0.13
run1	9/26/2016	11:32:45	3.96	0.18
run1	9/26/2016	11:33:00	4.02	0.17
run1	9/26/2016	11:33:15	4.05	0.21
run1	9/26/2016	11:33:30	4.03	0.19
run1	9/26/2016	11:33:45	4.01	0.18
run1	9/26/2016	11:34:00	4.03	0.16
run1	9/26/2016	11:34:15	4.06	0.13
run1	9/26/2016	11:34:30	4.05	0.14
run1	9/26/2016	11:34:45	4.03	0.14
run1	9/26/2016	11:35:00	3.72	0.13
run1	9/26/2016	11:35:15	2.76	0.15
run1	9/26/2016	11:35:30	1.81	0.21
run1	9/26/2016	11:35:45	1.45	0.18
run1	9/26/2016	11:36:00	1.35	0.21
run1	9/26/2016	11:36:15	1.31	0.17
run1	9/26/2016	11:36:30	1.28	0.17
run1	9/26/2016	11:36:45	1.26	0.18
run1	9/26/2016	11:37:00	1.23	0.17
run1	9/26/2016	11:37:15	1.22	0.14
run1	9/26/2016	11:37:30	1.22	0.17
run1	9/26/2016	11:37:45	1.24	0.18
run1	9/26/2016	11:38:00	1.26	0.17
run1	9/26/2016	11:38:15	1.27	0.16
run1	9/26/2016	11:38:30	1.32	0.18
run1	9/26/2016	11:38:45	1.38	0.18
run1	9/26/2016	11:39:00	1.40	0.15
run1	9/26/2016	11:39:15	1.41	0.14
run1	9/26/2016	11:39:30	1.43	0.13
run1	9/26/2016	11:39:45	1.45	0.11
run1	9/26/2016	11:40:00	1.46	0.12
run1	9/26/2016	11:40:15	1.45	0.12
run1	9/26/2016	11:40:30	1.44	0.12
run1	9/26/2016	11:40:45	1.43	0.17
run1	9/26/2016	11:41:00	1.40	0.18
run1	9/26/2016	11:41:15	1.37	0.17
run1	9/26/2016	11:41:30	1.35	0.19
run1	9/26/2016	11:41:45	1.32	0.18
run1	9/26/2016	11:42:00	1.28	0.20
run1	9/26/2016	11:42:15	1.25	0.17
run1	9/26/2016	11:42:30	1.20	0.16
run1	9/26/2016	11:42:45	1.14	0.20
run1	9/26/2016	11:43:00	1.09	0.16
run1	9/26/2016	11:43:15	1.08	0.14
run1	9/26/2016	11:43:30	1.08	0.12
run1	9/26/2016	11:43:45	1.07	0.14
run1	9/26/2016	11:44:00	1.05	0.15
run1	9/26/2016	11:44:15	1.03	0.14
run1	9/26/2016	11:44:30	1.01	0.20
run1	9/26/2016	11:44:45	1.01	0.16
run1	9/26/2016	11:45:00	1.01	0.16
run1	9/26/2016	11:45:15	1.01	0.15

run1	9/26/2016	11:45:30	1.02	0.15
run1	9/26/2016	11:45:45	1.04	0.50
run1	9/26/2016	11:46:00	1.20	0.36
run1	9/26/2016	11:46:15	2.03	0.15
run1	9/26/2016	11:46:30	3.29	0.12
run1	9/26/2016	11:46:45	3.87	0.12
run1	9/26/2016	11:47:00	4.01	0.13
run1	9/26/2016	11:47:15	4.00	0.14
run1	9/26/2016	11:47:30	3.97	0.12
run1	9/26/2016	11:47:45	3.95	0.13
run1	9/26/2016	11:48:00	3.93	0.19
run1	9/26/2016	11:48:15	3.93	0.18
run1	9/26/2016	11:48:30	3.96	0.17
run1	9/26/2016	11:48:45	3.97	0.16
run1	9/26/2016	11:49:00	3.99	0.13
run1	9/26/2016	11:49:15	4.00	0.13
run1	9/26/2016	11:49:30	3.97	0.13
run1	9/26/2016	11:49:45	3.91	0.14
run1	9/26/2016	11:50:00	3.68	0.14
run1	9/26/2016	11:50:15	2.77	0.13
run1	9/26/2016	11:50:30	1.49	0.13
run1	9/26/2016	11:50:45	0.92	0.13
run1	9/26/2016	11:51:00	0.76	0.13
run1	9/26/2016	11:51:15	0.74	0.12
run1	9/26/2016	11:51:30	0.72	0.12
run1	9/26/2016	11:51:45	0.70	0.12
run1	9/26/2016	11:52:00	0.68	0.12
run1	9/26/2016	11:52:15	0.66	0.11
run1	9/26/2016	11:52:30	0.62	0.12
run1	9/26/2016	11:52:45	0.58	0.14
run1	9/26/2016	11:53:00	0.54	0.14
run1	9/26/2016	11:53:15	0.53	0.14
run1	9/26/2016	11:53:30	0.53	0.14
run1	9/26/2016	11:53:45	0.54	0.13
run1	9/26/2016	11:54:00	0.56	0.14
run1	9/26/2016	11:54:15	0.57	0.14
run1	9/26/2016	11:54:30	0.57	0.15
run1	9/26/2016	11:54:45	0.58	0.15
run1	9/26/2016	11:55:00	0.58	0.15
run1	9/26/2016	11:55:15	0.58	0.12
run1	9/26/2016	11:55:30	0.59	0.13
run1	9/26/2016	11:55:45	0.58	0.14
run1	9/26/2016	11:56:00	0.58	0.13
run1	9/26/2016	11:56:15	0.58	0.12
run1	9/26/2016	11:56:30	0.58	0.16
run1	9/26/2016	11:56:45	0.57	0.17
run1	9/26/2016	11:57:00	0.57	0.17
run1	9/26/2016	11:57:15	0.56	0.15
run1	9/26/2016	11:57:30	0.55	0.17
run1	9/26/2016	11:57:45	0.55	0.17
run1	9/26/2016	11:58:00	0.57	0.18
run1	9/26/2016	11:58:15	0.59	0.20
run1	9/26/2016	11:58:30	0.60	0.17
run1	9/26/2016	11:58:45	0.61	0.15
run1	9/26/2016	11:59:00	0.62	0.17
run1	9/26/2016	11:59:15	0.63	0.16
run1	9/26/2016	11:59:30	0.64	0.16
run1	9/26/2016	11:59:45	0.65	0.17
run1	9/26/2016	12:00:00	0.67	0.19
run1	9/26/2016	12:00:15	0.69	0.17
run1	9/26/2016	12:00:30	0.70	0.17
run1	9/26/2016	12:00:45	0.70	0.30
run1	9/26/2016	12:01:00	0.72	0.38
run1	9/26/2016	12:01:15	0.82	0.20
run1	9/26/2016	12:01:30	0.96	0.15
run1	9/26/2016	12:01:45	1.02	0.14
run1	9/26/2016	12:02:00	1.00	0.14
run1	9/26/2016	12:02:15	0.97	0.15
run1	9/26/2016	12:02:30	0.95	0.14
run1	9/26/2016	12:02:45	0.93	0.13
run1	9/26/2016	12:03:00	0.92	0.11
run1	9/26/2016	12:03:15	0.91	0.11
run1	9/26/2016	12:03:30	0.89	0.12
run1	9/26/2016	12:03:45	0.87	0.15
run1	9/26/2016	12:04:00	0.84	0.17
run1	9/26/2016	12:04:15	0.83	0.18
run1	9/26/2016	12:04:30	0.82	0.14

run1	9/26/2016	12:04:45	0.81	0.15						
run1	9/26/2016	12:05:00	0.79	0.13						
run1	9/26/2016	12:05:15	0.69	0.15						
run1	9/26/2016	12:05:30	0.54	0.16						
run1	9/26/2016	12:05:45	0.47	0.15						
run1	9/26/2016	12:06:00	0.48	0.14						
run1	9/26/2016	12:06:15	0.52	0.14						
run1	9/26/2016	12:06:30	0.57	0.13						
run1	9/26/2016	12:06:45	0.58	0.12						
run1	9/26/2016	12:07:00	0.58	0.11						
run1	9/26/2016	12:07:15	0.59	0.15						
run1	9/26/2016	12:07:30	0.62	0.17						
run1	9/26/2016	12:07:45	0.65	0.18						
run1	9/26/2016	12:08:00	0.67	0.14						
run1	9/26/2016	12:08:15	0.69	0.13						
run1	9/26/2016	12:08:30	0.69	0.12						
run1	9/26/2016	12:08:45	0.70	0.14						
run1	9/26/2016	12:09:00	0.72	0.13						
run1	9/26/2016	12:09:15	0.72	0.17						
run1	9/26/2016	12:09:30	0.72	0.19						
run1	9/26/2016	12:09:45	0.75	0.19						
run1	9/26/2016	12:10:00	0.74	0.16						
run1	9/26/2016	12:10:15	0.73	0.18						
run1	9/26/2016	12:10:30	0.69	0.18						
run1	9/26/2016	12:10:45	0.69	0.17						
run1	9/26/2016	12:11:00	0.69	0.17						
run1	9/26/2016	12:11:15	0.70	0.20						
run1	9/26/2016	12:11:30	0.69	0.17						
run1	9/26/2016	12:11:45	0.69	0.15						
run1	9/26/2016	12:12:00	0.68	0.13						
run1	9/26/2016	12:12:15	0.67	0.15						
run1	9/26/2016	12:12:30	0.65	0.15						
run1	9/26/2016	12:12:45	0.63	0.16						
run1	9/26/2016	12:13:00	0.61	0.15						
run1	9/26/2016	12:13:15	0.60	0.16						
run1	9/26/2016	12:13:30	0.58	0.16						
run1	9/26/2016	12:13:45	0.56	0.15						
run1	9/26/2016	12:14:00	0.55	0.15						
run1	9/26/2016	12:14:15	0.53	0.14						
run1	9/26/2016	12:14:30	0.52	0.15						
run1	9/26/2016	12:14:45	0.51	0.17						
run1	9/26/2016	12:15:00	0.50	0.18						
run1	9/26/2016	12:15:15	0.49	0.19						
run1	9/26/2016	12:15:30	0.46	0.16						
run1	9/26/2016	12:15:45	0.44	0.17						
run1	9/26/2016	12:16:00	0.43	0.25						
run1	9/26/2016	12:16:15	0.42	0.44						
run1	9/26/2016	12:16:30	0.51	0.17						
run1	9/26/2016	12:16:45	0.62	0.14						
run1	9/26/2016	12:17:00	0.68	0.15						
run1	9/26/2016	12:17:15	0.68	0.14						
run1	9/26/2016	12:17:30	0.67	0.14						
run1	9/26/2016	12:17:45	0.66	0.17						
run1	9/26/2016	12:18:00	0.66	0.14						
run1	9/26/2016	12:18:15	0.66	0.16						
run1	9/26/2016	12:18:30	0.67	0.14						
run1	9/26/2016	12:18:45	0.69	0.13						
averun1	9/26/2016	11:15:00	1.50	0.17	64					
scg4	9/26/2016	12:20:30	0.70	0.13	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:20:45	0.60	0.13	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:21:00	0.53	0.57	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:21:15	0.62	0.03	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:21:30	1.02	-0.08	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:21:45	1.42	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:22:00	1.78	-0.11	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:22:15	2.03	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:22:30	2.32	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:22:45	2.58	-0.11	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:23:00	2.89	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:23:15	4.37	-0.09	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:23:30	5.02	-0.09	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:23:45	5.00	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	12:24:00	5.03	-0.09	ALM018547/cg4	CO	5.06		0.00	
o2zero1	9/26/2016	12:24:00	5.03	-0.09	ALM018547/cg4	CO	5.06		0.00	
co2zero1	9/26/2016	12:24:00	5.03	-0.09	ALM018547/cg4	CO	5.06		0.00	
cospan1	9/26/2016	12:23:45	5.00	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg9	9/26/2016	12:24:15	5.02	-0.09	EB0080791/cg9	CO2	10.96	O2	11.08	

scg9	9/26/2016	12:24:30	5.02	-0.07	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:24:45	5.02	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:25:00	4.17	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:25:15	2.25	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:25:30	0.53	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:25:45	0.05	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:26:00	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:26:15	-0.02	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:26:30	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	12:26:45	-0.01	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/26/2016	12:26:30	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/26/2016	12:26:15	-0.02	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/26/2016	12:26:30	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/26/2016	12:26:30	-0.03	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/26/2016	12:27:00	-0.02	0.03	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	12:27:15	-0.02	0.04	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	12:27:30	-0.02	2.59	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	12:27:45	0.02	4.97	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	12:28:00	0.25	5.00	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	12:28:15	0.39	5.00	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/26/2016	12:28:15	0.39	5.00	ET0010875/cg12	THC	5.01		0.00
run2	9/26/2016	12:34:00	0.42	0.14					
run2	9/26/2016	12:34:15	0.50	0.11					
run2	9/26/2016	12:34:30	0.48	0.13					
run2	9/26/2016	12:34:45	0.48	0.14					
run2	9/26/2016	12:35:00	0.49	0.14					
run2	9/26/2016	12:35:15	0.50	0.14					
run2	9/26/2016	12:35:30	0.51	0.28					
run2	9/26/2016	12:35:45	0.54	0.37					
run2	9/26/2016	12:36:00	0.64	0.15					
run2	9/26/2016	12:36:15	0.76	0.14					
run2	9/26/2016	12:36:30	0.83	0.13					
run2	9/26/2016	12:36:45	0.85	0.11					
run2	9/26/2016	12:37:00	0.84	0.12					
run2	9/26/2016	12:37:15	0.82	0.14					
run2	9/26/2016	12:37:30	0.81	0.14					
run2	9/26/2016	12:37:45	0.80	0.13					
run2	9/26/2016	12:38:00	0.79	0.14					
run2	9/26/2016	12:38:15	0.78	0.13					
run2	9/26/2016	12:38:30	0.78	0.12					
run2	9/26/2016	12:38:45	0.78	0.12					
run2	9/26/2016	12:39:00	0.78	0.13					
run2	9/26/2016	12:39:15	0.78	0.14					
run2	9/26/2016	12:39:30	0.77	0.13					
run2	9/26/2016	12:39:45	0.77	0.12					
run2	9/26/2016	12:40:00	0.76	0.13					
run2	9/26/2016	12:40:15	0.75	0.14					
run2	9/26/2016	12:40:30	0.74	0.15					
run2	9/26/2016	12:40:45	0.72	0.13					
run2	9/26/2016	12:41:00	0.62	0.14					
run2	9/26/2016	12:41:15	0.52	0.17					
run2	9/26/2016	12:41:30	0.46	0.16					
run2	9/26/2016	12:41:45	0.44	0.13					
run2	9/26/2016	12:42:00	0.44	0.12					
run2	9/26/2016	12:42:15	0.44	0.13					
run2	9/26/2016	12:42:30	0.44	0.14					
run2	9/26/2016	12:42:45	0.44	0.13					
run2	9/26/2016	12:43:00	0.43	0.11					
run2	9/26/2016	12:43:15	0.43	0.12					
run2	9/26/2016	12:43:30	0.43	0.12					
run2	9/26/2016	12:43:45	0.42	0.13					
run2	9/26/2016	12:44:00	0.42	0.13					
run2	9/26/2016	12:44:15	0.41	0.12					
run2	9/26/2016	12:44:30	0.40	0.15					
run2	9/26/2016	12:44:45	0.39	0.14					
run2	9/26/2016	12:45:00	0.37	0.13					
run2	9/26/2016	12:45:15	0.36	0.11					
run2	9/26/2016	12:45:30	0.35	0.12					
run2	9/26/2016	12:45:45	0.33	0.14					
run2	9/26/2016	12:46:00	0.31	0.14					
run2	9/26/2016	12:46:15	0.29	0.15					
run2	9/26/2016	12:46:30	0.28	0.14					
run2	9/26/2016	12:46:45	0.28	0.12					
run2	9/26/2016	12:47:00	0.27	0.12					
run2	9/26/2016	12:47:15	0.26	0.14					
run2	9/26/2016	12:47:30	0.25	0.16					
run2	9/26/2016	12:47:45	0.24	0.15					

run2	9/26/2016	12:48:00	0.24	0.12
run2	9/26/2016	12:48:15	0.24	0.13
run2	9/26/2016	12:48:30	0.24	0.12
run2	9/26/2016	12:48:45	0.24	0.12
run2	9/26/2016	12:49:00	0.23	0.13
run2	9/26/2016	12:49:15	0.22	0.12
run2	9/26/2016	12:49:30	0.22	0.13
run2	9/26/2016	12:49:45	0.22	0.35
run2	9/26/2016	12:50:00	0.24	0.32
run2	9/26/2016	12:50:15	0.29	0.16
run2	9/26/2016	12:50:30	0.37	0.12
run2	9/26/2016	12:50:45	0.39	0.11
run2	9/26/2016	12:51:00	0.40	0.11
run2	9/26/2016	12:51:15	0.40	0.11
run2	9/26/2016	12:51:30	0.40	0.12
run2	9/26/2016	12:51:45	0.39	0.13
run2	9/26/2016	12:52:00	0.39	0.14
run2	9/26/2016	12:52:15	0.39	0.11
run2	9/26/2016	12:52:30	0.39	0.17
run2	9/26/2016	12:52:45	0.39	0.15
run2	9/26/2016	12:53:00	0.38	0.13
run2	9/26/2016	12:53:15	0.38	0.14
run2	9/26/2016	12:53:30	0.36	0.13
run2	9/26/2016	12:53:45	0.36	0.14
run2	9/26/2016	12:54:00	0.36	0.15
run2	9/26/2016	12:54:15	0.35	0.15
run2	9/26/2016	12:54:30	0.35	0.14
run2	9/26/2016	12:54:45	0.35	0.11
run2	9/26/2016	12:55:00	0.33	0.14
run2	9/26/2016	12:55:15	0.27	0.13
run2	9/26/2016	12:55:30	0.19	0.13
run2	9/26/2016	12:55:45	0.16	0.13
run2	9/26/2016	12:56:00	0.15	0.13
run2	9/26/2016	12:56:15	0.14	0.13
run2	9/26/2016	12:56:30	0.14	0.13
run2	9/26/2016	12:56:45	0.14	0.13
run2	9/26/2016	12:57:00	0.13	0.15
run2	9/26/2016	12:57:15	0.13	0.15
run2	9/26/2016	12:57:30	0.12	0.15
run2	9/26/2016	12:57:45	0.12	0.15
run2	9/26/2016	12:58:00	0.11	0.13
run2	9/26/2016	12:58:15	0.11	0.13
run2	9/26/2016	12:58:30	0.11	0.12
run2	9/26/2016	12:58:45	0.11	0.14
run2	9/26/2016	12:59:00	0.11	0.15
run2	9/26/2016	12:59:15	0.11	0.13
run2	9/26/2016	12:59:30	0.11	0.12
run2	9/26/2016	12:59:45	0.10	0.14
run2	9/26/2016	13:00:00	0.10	0.16
run2	9/26/2016	13:00:15	0.10	0.12
run2	9/26/2016	13:00:30	0.10	0.15
run2	9/26/2016	13:00:45	0.10	0.16
run2	9/26/2016	13:01:00	0.10	0.16
run2	9/26/2016	13:01:15	0.11	0.14
run2	9/26/2016	13:01:30	0.12	0.10
run2	9/26/2016	13:01:45	0.12	0.12
run2	9/26/2016	13:02:00	0.12	0.09
run2	9/26/2016	13:02:15	0.12	0.08
run2	9/26/2016	13:02:30	0.12	0.08
run2	9/26/2016	13:02:45	0.12	0.09
run2	9/26/2016	13:03:00	0.11	0.09
run2	9/26/2016	13:03:15	0.11	0.10
run2	9/26/2016	13:03:30	0.10	0.10
run2	9/26/2016	13:03:45	0.10	0.09
run2	9/26/2016	13:04:00	0.10	0.09
run2	9/26/2016	13:04:15	0.09	0.11
run2	9/26/2016	13:04:30	0.09	0.11
run2	9/26/2016	13:04:45	0.09	0.11
run2	9/26/2016	13:05:00	0.09	0.12
run2	9/26/2016	13:05:15	0.09	0.32
run2	9/26/2016	13:05:30	0.11	0.26
run2	9/26/2016	13:05:45	0.21	0.16
run2	9/26/2016	13:06:00	0.32	0.12
run2	9/26/2016	13:06:15	0.37	0.13
run2	9/26/2016	13:06:30	0.38	0.17
run2	9/26/2016	13:06:45	0.38	0.13
run2	9/26/2016	13:07:00	0.39	0.16

run2	9/26/2016	13:07:15	0.39	0.17
run2	9/26/2016	13:07:30	0.39	0.17
run2	9/26/2016	13:07:45	0.40	0.16
run2	9/26/2016	13:08:00	0.41	0.15
run2	9/26/2016	13:08:15	0.42	0.15
run2	9/26/2016	13:08:30	0.43	0.11
run2	9/26/2016	13:08:45	0.44	0.11
run2	9/26/2016	13:09:00	0.44	0.12
run2	9/26/2016	13:09:15	0.45	0.15
run2	9/26/2016	13:09:30	0.46	0.14
run2	9/26/2016	13:09:45	0.47	0.15
run2	9/26/2016	13:10:00	0.48	0.20
run2	9/26/2016	13:10:15	0.48	0.20
run2	9/26/2016	13:10:30	0.46	0.13
run2	9/26/2016	13:10:45	0.38	0.12
run2	9/26/2016	13:11:00	0.26	0.13
run2	9/26/2016	13:11:15	0.21	0.12
run2	9/26/2016	13:11:30	0.20	0.13
run2	9/26/2016	13:11:45	0.20	0.15
run2	9/26/2016	13:12:00	0.20	0.11
run2	9/26/2016	13:12:15	0.20	0.14
run2	9/26/2016	13:12:30	0.20	0.16
run2	9/26/2016	13:12:45	0.19	0.17
run2	9/26/2016	13:13:00	0.19	0.15
run2	9/26/2016	13:13:15	0.18	0.18
run2	9/26/2016	13:13:30	0.18	0.15
run2	9/26/2016	13:13:45	0.17	0.12
run2	9/26/2016	13:14:00	0.16	0.12
run2	9/26/2016	13:14:15	0.16	0.08
run2	9/26/2016	13:14:30	0.15	0.08
run2	9/26/2016	13:14:45	0.14	0.09
run2	9/26/2016	13:15:00	0.13	0.10
run2	9/26/2016	13:15:15	0.12	0.10
run2	9/26/2016	13:15:30	0.11	0.09
run2	9/26/2016	13:15:45	0.09	0.07
run2	9/26/2016	13:16:00	0.08	0.08
run2	9/26/2016	13:16:15	0.08	0.08
run2	9/26/2016	13:16:30	0.08	0.08
run2	9/26/2016	13:16:45	0.09	0.09
run2	9/26/2016	13:17:00	0.09	0.14
run2	9/26/2016	13:17:15	0.08	0.17
run2	9/26/2016	13:17:30	0.08	0.17
run2	9/26/2016	13:17:45	0.08	0.13
run2	9/26/2016	13:18:00	0.08	0.10
run2	9/26/2016	13:18:15	0.08	0.10
run2	9/26/2016	13:18:30	0.10	0.10
run2	9/26/2016	13:18:45	0.11	0.11
run2	9/26/2016	13:19:00	0.13	0.11
run2	9/26/2016	13:19:15	0.14	0.12
run2	9/26/2016	13:19:30	0.15	0.10
run2	9/26/2016	13:19:45	0.16	0.10
run2	9/26/2016	13:20:00	0.16	0.11
run2	9/26/2016	13:20:15	0.17	0.10
run2	9/26/2016	13:20:30	0.18	0.28
run2	9/26/2016	13:20:45	0.19	0.64
run2	9/26/2016	13:21:00	0.30	0.17
run2	9/26/2016	13:21:15	0.42	0.18
run2	9/26/2016	13:21:30	0.48	0.21
run2	9/26/2016	13:21:45	0.49	0.21
run2	9/26/2016	13:22:00	0.50	0.18
run2	9/26/2016	13:22:15	0.51	0.17
run2	9/26/2016	13:22:30	0.51	0.15
run2	9/26/2016	13:22:45	0.52	0.17
run2	9/26/2016	13:23:00	0.52	0.14
run2	9/26/2016	13:23:15	0.52	0.17
run2	9/26/2016	13:23:30	0.51	0.17
run2	9/26/2016	13:23:45	0.50	0.15
run2	9/26/2016	13:24:00	0.48	0.14
run2	9/26/2016	13:24:15	0.47	0.10
run2	9/26/2016	13:24:30	0.48	0.13
run2	9/26/2016	13:24:45	0.49	0.08
run2	9/26/2016	13:25:00	0.49	0.09
run2	9/26/2016	13:25:15	0.50	0.10
run2	9/26/2016	13:25:30	0.50	0.08
run2	9/26/2016	13:25:45	0.49	0.07
run2	9/26/2016	13:26:00	0.40	0.08
run2	9/26/2016	13:26:15	0.29	0.11

run2	9/26/2016	13:26:30	0.24	0.07					
run2	9/26/2016	13:26:45	0.23	0.08					
run2	9/26/2016	13:27:00	0.23	0.08					
run2	9/26/2016	13:27:15	0.23	0.09					
run2	9/26/2016	13:27:30	0.23	0.10					
run2	9/26/2016	13:27:45	0.22	0.08					
run2	9/26/2016	13:28:00	0.22	0.14					
run2	9/26/2016	13:28:15	0.22	0.14					
run2	9/26/2016	13:28:30	0.22	0.12					
run2	9/26/2016	13:28:45	0.22	0.12					
run2	9/26/2016	13:29:00	0.22	0.15					
run2	9/26/2016	13:29:15	0.21	0.14					
run2	9/26/2016	13:29:30	0.21	0.12					
run2	9/26/2016	13:29:45	0.20	0.09					
run2	9/26/2016	13:30:00	0.19	0.13					
run2	9/26/2016	13:30:15	0.18	0.14					
run2	9/26/2016	13:30:30	0.18	0.15					
run2	9/26/2016	13:30:45	0.17	0.13					
run2	9/26/2016	13:31:00	0.16	0.15					
run2	9/26/2016	13:31:15	0.15	0.11					
run2	9/26/2016	13:31:30	0.14	0.10					
run2	9/26/2016	13:31:45	0.13	0.11					
run2	9/26/2016	13:32:00	0.12	0.12					
run2	9/26/2016	13:32:15	0.11	0.09					
run2	9/26/2016	13:32:30	0.10	0.14					
run2	9/26/2016	13:32:45	0.10	0.15					
run2	9/26/2016	13:33:00	0.10	0.10					
run2	9/26/2016	13:33:15	0.09	0.09					
run2	9/26/2016	13:33:30	0.09	0.09					
run2	9/26/2016	13:33:45	0.10	0.06					
run2	9/26/2016	13:34:00	0.11	0.08					
run2	9/26/2016	13:34:15	0.12	0.07					
run2	9/26/2016	13:34:30	0.13	0.06					
run2	9/26/2016	13:34:45	0.14	0.08					
run2	9/26/2016	13:35:00	0.15	0.10					
run2	9/26/2016	13:35:15	0.16	0.10					
run2	9/26/2016	13:35:30	0.17	0.07					
run2	9/26/2016	13:35:45	0.17	0.07					
run2	9/26/2016	13:36:00	0.17	0.07					
run2	9/26/2016	13:36:15	0.17	0.08					
run2	9/26/2016	13:36:30	0.17	0.08					
run2	9/26/2016	13:36:45	0.18	0.48					
run2	9/26/2016	13:37:00	0.25	0.21					
run2	9/26/2016	13:37:15	0.48	0.08					
run2	9/26/2016	13:37:30	0.76	0.08					
run2	9/26/2016	13:37:45	0.86	0.08					
run2	9/26/2016	13:38:00	0.87	0.07					
run2	9/26/2016	13:38:15	0.87	0.08					
run2	9/26/2016	13:38:30	0.87	0.08					
run2	9/26/2016	13:38:45	0.86	0.06					
run2	9/26/2016	13:39:00	0.85	0.07					
run2	9/26/2016	13:39:15	0.83	0.07					
averun2	9/26/2016	12:34:00	0.31	0.13	64				
scg12	9/26/2016	13:40:15	0.77	0.08	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	13:40:30	0.31	0.09	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	13:40:45	0.03	1.73	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	13:41:00	1.05	4.89	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	13:41:15	3.05	4.98	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	13:41:30	2.35	4.99	ET0010875/cg12	THC	5.01		0.00
scg12	9/26/2016	13:41:45	0.86	5.00	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/26/2016	13:41:45	0.86	5.00	ET0010875/cg12	THC	5.01		0.00
scg9	9/26/2016	13:42:00	0.35	4.99	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:42:15	0.30	4.88	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:42:30	0.29	1.51	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:42:45	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:43:00	-0.19	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:43:15	-0.28	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:43:30	-0.21	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:43:45	-0.17	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:44:00	-0.16	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:44:15	-0.16	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:44:30	-0.15	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:44:45	-0.13	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:45:00	-0.15	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:45:15	-0.01	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:45:30	-0.02	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/26/2016	13:45:45	-0.02	0.03	EB0080791/cg9	CO2	10.96	O2	11.08

scg9	9/26/2016	13:46:00	-0.02	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/26/2016	13:45:45	-0.02	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/26/2016	13:45:45	-0.02	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/26/2016	13:45:45	-0.02	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/26/2016	13:45:45	-0.02	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg4	9/26/2016	13:46:15	-0.01	0.02	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:46:30	-0.02	0.04	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:46:45	-0.01	0.06	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:47:00	0.43	-0.08	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:47:15	2.19	-0.10	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:47:30	4.19	-0.10	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:47:45	4.87	-0.11	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:48:00	4.99	-0.11	ALM018547/cg4	CO	5.06		0.00
scg4	9/26/2016	13:48:15	5.02	-0.11	ALM018547/cg4	CO	5.06		0.00
o2zero1	9/26/2016	13:48:15	5.02	-0.11	ALM018547/cg4	CO	5.06		0.00
co2zero1	9/26/2016	13:48:15	5.02	-0.11	ALM018547/cg4	CO	5.06		0.00
cospan1	9/26/2016	13:48:15	5.02	-0.11	ALM018547/cg4	CO	5.06		0.00
run3	9/26/2016	13:55:00	0.29	0.16					
run3	9/26/2016	13:55:15	0.29	0.16					
run3	9/26/2016	13:55:30	0.26	0.14					
run3	9/26/2016	13:55:45	0.23	0.22					
run3	9/26/2016	13:56:00	0.53	0.38					
run3	9/26/2016	13:56:15	1.66	0.09					
run3	9/26/2016	13:56:30	1.78	0.09					
run3	9/26/2016	13:56:45	0.83	0.10					
run3	9/26/2016	13:57:00	0.31	0.09					
run3	9/26/2016	13:57:15	0.24	0.10					
run3	9/26/2016	13:57:30	0.25	0.14					
run3	9/26/2016	13:57:45	0.30	0.11					
run3	9/26/2016	13:58:00	0.27	0.10					
run3	9/26/2016	13:58:15	0.23	0.12					
run3	9/26/2016	13:58:30	0.22	0.13					
run3	9/26/2016	13:58:45	0.25	0.14					
run3	9/26/2016	13:59:00	0.25	0.11					
run3	9/26/2016	13:59:15	0.24	0.10					
run3	9/26/2016	13:59:30	0.29	0.11					
run3	9/26/2016	13:59:45	0.32	0.11					
run3	9/26/2016	14:00:00	0.31	0.13					
run3	9/26/2016	14:00:15	0.28	0.14					
run3	9/26/2016	14:00:30	0.26	0.14					
run3	9/26/2016	14:00:45	0.28	0.12					
run3	9/26/2016	14:01:00	0.31	0.10					
run3	9/26/2016	14:01:15	0.32	0.11					
run3	9/26/2016	14:01:30	0.27	0.14					
run3	9/26/2016	14:01:45	0.23	0.13					
run3	9/26/2016	14:02:00	0.26	0.12					
run3	9/26/2016	14:02:15	0.31	0.11					
run3	9/26/2016	14:02:30	0.36	0.12					
run3	9/26/2016	14:02:45	0.39	0.10					
run3	9/26/2016	14:03:00	0.43	0.11					
run3	9/26/2016	14:03:15	0.38	0.14					
run3	9/26/2016	14:03:30	0.34	0.13					
run3	9/26/2016	14:03:45	0.28	0.12					
run3	9/26/2016	14:04:00	0.26	0.13					
run3	9/26/2016	14:04:15	0.29	0.10					
run3	9/26/2016	14:04:30	0.38	0.17					
run3	9/26/2016	14:04:45	0.37	0.14					
run3	9/26/2016	14:05:00	0.36	0.12					
run3	9/26/2016	14:05:15	0.35	0.11					
run3	9/26/2016	14:05:30	0.33	0.09					
run3	9/26/2016	14:05:45	0.34	0.11					
run3	9/26/2016	14:06:00	0.36	0.11					
run3	9/26/2016	14:06:15	0.32	0.08					
run3	9/26/2016	14:06:30	0.27	0.09					
run3	9/26/2016	14:06:45	0.22	0.09					
run3	9/26/2016	14:07:00	0.22	0.08					
run3	9/26/2016	14:07:15	0.25	0.09					
run3	9/26/2016	14:07:30	0.22	0.11					
run3	9/26/2016	14:07:45	0.24	0.11					
run3	9/26/2016	14:08:00	0.36	0.10					
run3	9/26/2016	14:08:15	0.42	0.12					
run3	9/26/2016	14:08:30	0.48	0.14					
run3	9/26/2016	14:08:45	0.47	0.14					
run3	9/26/2016	14:09:00	0.38	0.10					
run3	9/26/2016	14:09:15	0.37	0.12					
run3	9/26/2016	14:09:30	0.39	0.11					
run3	9/26/2016	14:09:45	0.40	0.13					

run3	9/26/2016	14:10:00	0.39	0.14
run3	9/26/2016	14:10:15	0.38	0.18
run3	9/26/2016	14:10:30	0.41	0.18
run3	9/26/2016	14:10:45	0.42	0.18
run3	9/26/2016	14:11:00	0.51	0.52
run3	9/26/2016	14:11:15	1.71	0.17
run3	9/26/2016	14:11:30	1.76	0.15
run3	9/26/2016	14:11:45	0.61	0.11
run3	9/26/2016	14:12:00	0.63	0.10
run3	9/26/2016	14:12:15	0.64	0.11
run3	9/26/2016	14:12:30	0.65	0.11
run3	9/26/2016	14:12:45	0.65	0.11
run3	9/26/2016	14:13:00	0.65	0.10
run3	9/26/2016	14:13:15	0.64	0.11
run3	9/26/2016	14:13:30	0.63	0.12
run3	9/26/2016	14:13:45	0.63	0.11
run3	9/26/2016	14:14:00	0.62	0.12
run3	9/26/2016	14:14:15	0.62	0.13
run3	9/26/2016	14:14:30	0.62	0.12
run3	9/26/2016	14:14:45	0.61	0.12
run3	9/26/2016	14:15:00	0.61	0.11
run3	9/26/2016	14:15:15	0.61	0.13
run3	9/26/2016	14:15:30	0.61	0.09
run3	9/26/2016	14:15:45	0.61	0.09
run3	9/26/2016	14:16:00	0.60	0.09
run3	9/26/2016	14:16:15	0.55	0.08
run3	9/26/2016	14:16:30	0.42	0.08
run3	9/26/2016	14:16:45	0.35	0.08
run3	9/26/2016	14:17:00	0.32	0.10
run3	9/26/2016	14:17:15	0.32	0.10
run3	9/26/2016	14:17:30	0.32	0.10
run3	9/26/2016	14:17:45	0.31	0.09
run3	9/26/2016	14:18:00	0.31	0.09
run3	9/26/2016	14:18:15	0.31	0.09
run3	9/26/2016	14:18:30	0.31	0.08
run3	9/26/2016	14:18:45	0.30	0.10
run3	9/26/2016	14:19:00	0.30	0.10
run3	9/26/2016	14:19:15	0.29	0.10
run3	9/26/2016	14:19:30	0.28	0.09
run3	9/26/2016	14:19:45	0.28	0.12
run3	9/26/2016	14:20:00	0.27	0.11
run3	9/26/2016	14:20:15	0.27	0.12
run3	9/26/2016	14:20:30	0.27	0.11
run3	9/26/2016	14:20:45	0.26	0.12
run3	9/26/2016	14:21:00	0.26	0.10
run3	9/26/2016	14:21:15	0.25	0.10
run3	9/26/2016	14:21:30	0.25	0.11
run3	9/26/2016	14:21:45	0.24	0.11
run3	9/26/2016	14:22:00	0.24	0.10
run3	9/26/2016	14:22:15	0.24	0.10
run3	9/26/2016	14:22:30	0.24	0.10
run3	9/26/2016	14:22:45	0.24	0.10
run3	9/26/2016	14:23:00	0.24	0.08
run3	9/26/2016	14:23:15	0.24	0.08
run3	9/26/2016	14:23:30	0.23	0.08
run3	9/26/2016	14:23:45	0.23	0.09
run3	9/26/2016	14:24:00	0.22	0.10
run3	9/26/2016	14:24:15	0.22	0.10
run3	9/26/2016	14:24:30	0.22	0.10
run3	9/26/2016	14:24:45	0.22	0.09
run3	9/26/2016	14:25:00	0.22	0.09
run3	9/26/2016	14:25:15	0.22	0.09
run3	9/26/2016	14:25:30	0.21	0.10
run3	9/26/2016	14:25:45	0.21	0.11
run3	9/26/2016	14:26:00	0.21	0.11
run3	9/26/2016	14:26:15	0.20	0.09
run3	9/26/2016	14:26:30	0.21	0.21
run3	9/26/2016	14:26:45	0.22	0.67
run3	9/26/2016	14:27:00	0.28	0.13
run3	9/26/2016	14:27:15	0.37	0.08
run3	9/26/2016	14:27:30	0.42	0.08
run3	9/26/2016	14:27:45	0.43	0.07
run3	9/26/2016	14:28:00	0.44	0.07
run3	9/26/2016	14:28:15	0.45	0.08
run3	9/26/2016	14:28:30	0.46	0.11
run3	9/26/2016	14:28:45	0.47	0.11
run3	9/26/2016	14:29:00	0.48	0.12

run3	9/26/2016	14:29:15	0.49	0.11
run3	9/26/2016	14:29:30	0.50	0.11
run3	9/26/2016	14:29:45	0.51	0.12
run3	9/26/2016	14:30:00	0.52	0.12
run3	9/26/2016	14:30:15	0.52	0.11
run3	9/26/2016	14:30:30	0.52	0.11
run3	9/26/2016	14:30:45	0.53	0.13
run3	9/26/2016	14:31:00	0.54	0.12
run3	9/26/2016	14:31:15	0.54	0.12
run3	9/26/2016	14:31:30	0.55	0.13
run3	9/26/2016	14:31:45	0.54	0.13
run3	9/26/2016	14:32:00	0.47	0.14
run3	9/26/2016	14:32:15	0.39	0.13
run3	9/26/2016	14:32:30	0.34	0.14
run3	9/26/2016	14:32:45	0.32	0.15
run3	9/26/2016	14:33:00	0.32	0.15
run3	9/26/2016	14:33:15	0.33	0.12
run3	9/26/2016	14:33:30	0.33	0.13
run3	9/26/2016	14:33:45	0.34	0.09
run3	9/26/2016	14:34:00	0.34	0.10
run3	9/26/2016	14:34:15	0.34	0.09
run3	9/26/2016	14:34:30	0.33	0.08
run3	9/26/2016	14:34:45	0.33	0.07
run3	9/26/2016	14:35:00	0.32	0.07
run3	9/26/2016	14:35:15	0.32	0.08
run3	9/26/2016	14:35:30	0.31	0.10
run3	9/26/2016	14:35:45	0.31	0.11
run3	9/26/2016	14:36:00	0.30	0.11
run3	9/26/2016	14:36:15	0.29	0.10
run3	9/26/2016	14:36:30	0.29	0.10
run3	9/26/2016	14:36:45	0.28	0.10
run3	9/26/2016	14:37:00	0.28	0.10
run3	9/26/2016	14:37:15	0.28	0.12
run3	9/26/2016	14:37:30	0.28	0.14
run3	9/26/2016	14:37:45	0.28	0.14
run3	9/26/2016	14:38:00	0.28	0.15
run3	9/26/2016	14:38:15	0.27	0.13
run3	9/26/2016	14:38:30	0.27	0.15
run3	9/26/2016	14:38:45	0.26	0.12
run3	9/26/2016	14:39:00	0.26	0.09
run3	9/26/2016	14:39:15	0.26	0.07
run3	9/26/2016	14:39:30	0.26	0.11
run3	9/26/2016	14:39:45	0.26	0.12
run3	9/26/2016	14:40:00	0.26	0.13
run3	9/26/2016	14:40:15	0.27	0.13
run3	9/26/2016	14:40:30	0.27	0.16
run3	9/26/2016	14:40:45	0.28	0.40
run3	9/26/2016	14:41:00	0.32	0.32
run3	9/26/2016	14:41:15	0.43	0.14
run3	9/26/2016	14:41:30	0.58	0.09
run3	9/26/2016	14:41:45	0.64	0.08
run3	9/26/2016	14:42:00	0.65	0.09
run3	9/26/2016	14:42:15	0.65	0.11
run3	9/26/2016	14:42:30	0.65	0.10
run3	9/26/2016	14:42:45	0.64	0.09
run3	9/26/2016	14:43:00	0.63	0.12
run3	9/26/2016	14:43:15	0.63	0.10
run3	9/26/2016	14:43:30	0.62	0.13
run3	9/26/2016	14:43:45	0.62	0.14
run3	9/26/2016	14:44:00	0.61	0.13
run3	9/26/2016	14:44:15	0.61	0.14
run3	9/26/2016	14:44:30	0.61	0.13
run3	9/26/2016	14:44:45	0.60	0.12
run3	9/26/2016	14:45:00	0.60	0.15
run3	9/26/2016	14:45:15	0.59	0.16
run3	9/26/2016	14:45:30	0.59	0.14
run3	9/26/2016	14:45:45	0.58	0.13
run3	9/26/2016	14:46:00	0.55	0.14
run3	9/26/2016	14:46:15	0.44	0.12
run3	9/26/2016	14:46:30	0.29	0.10
run3	9/26/2016	14:46:45	0.24	0.09
run3	9/26/2016	14:47:00	0.22	0.10
run3	9/26/2016	14:47:15	0.23	0.12
run3	9/26/2016	14:47:30	0.23	0.13
run3	9/26/2016	14:47:45	0.23	0.14
run3	9/26/2016	14:48:00	0.23	0.14
run3	9/26/2016	14:48:15	0.23	0.11

run3	9/26/2016	14:48:30	0.24	0.10						
run3	9/26/2016	14:48:45	0.24	0.09						
run3	9/26/2016	14:49:00	0.23	0.10						
run3	9/26/2016	14:49:15	0.23	0.11						
run3	9/26/2016	14:49:30	0.23	0.14						
run3	9/26/2016	14:49:45	0.24	0.14						
run3	9/26/2016	14:50:00	0.24	0.13						
run3	9/26/2016	14:50:15	0.25	0.14						
run3	9/26/2016	14:50:30	0.25	0.15						
run3	9/26/2016	14:50:45	0.25	0.12						
run3	9/26/2016	14:51:00	0.25	0.12						
run3	9/26/2016	14:51:15	0.24	0.13						
run3	9/26/2016	14:51:30	0.24	0.12						
run3	9/26/2016	14:51:45	0.24	0.11						
run3	9/26/2016	14:52:00	0.23	0.12						
run3	9/26/2016	14:52:15	0.23	0.12						
run3	9/26/2016	14:52:30	0.23	0.13						
run3	9/26/2016	14:52:45	0.23	0.11						
run3	9/26/2016	14:53:00	0.22	0.14						
run3	9/26/2016	14:53:15	0.22	0.15						
run3	9/26/2016	14:53:30	0.22	0.15						
run3	9/26/2016	14:53:45	0.22	0.15						
run3	9/26/2016	14:54:00	0.23	0.16						
run3	9/26/2016	14:54:15	0.23	0.13						
run3	9/26/2016	14:54:30	0.23	0.12						
run3	9/26/2016	14:54:45	0.23	0.12						
run3	9/26/2016	14:55:00	0.22	0.11						
run3	9/26/2016	14:55:15	0.21	0.12						
run3	9/26/2016	14:55:30	0.21	0.13						
run3	9/26/2016	14:55:45	0.21	0.15						
run3	9/26/2016	14:56:00	0.21	0.49						
run3	9/26/2016	14:56:15	0.25	0.20						
run3	9/26/2016	14:56:30	0.41	0.14						
run3	9/26/2016	14:56:45	0.53	0.16						
run3	9/26/2016	14:57:00	0.58	0.12						
run3	9/26/2016	14:57:15	0.59	0.12						
run3	9/26/2016	14:57:30	0.60	0.10						
run3	9/26/2016	14:57:45	0.60	0.11						
run3	9/26/2016	14:58:00	0.60	0.11						
run3	9/26/2016	14:58:15	0.61	0.10						
run3	9/26/2016	14:58:30	0.61	0.09						
run3	9/26/2016	14:58:45	0.61	0.11						
averun3	9/26/2016	13:55:00	0.39	0.12	64					
scg4	9/26/2016	15:05:15	0.30	0.19	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:05:30	0.34	0.31	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:05:45	0.80	0.26	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:06:00	2.46	-0.07	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:06:15	4.05	-0.09	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:06:30	8.13	-0.09	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:06:45	7.98	-0.09	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:07:00	5.60	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:07:15	5.26	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:07:30	5.13	-0.10	ALM018547/cg4	CO	5.06		0.00	
scg4	9/26/2016	15:07:45	5.10	-0.08	ALM018547/cg4	CO	5.06		0.00	
o2zero1	9/26/2016	15:07:45	5.10	-0.08	ALM018547/cg4	CO	5.06		0.00	
co2zero1	9/26/2016	15:07:45	5.10	-0.08	ALM018547/cg4	CO	5.06		0.00	
cospan1	9/26/2016	15:07:45	5.10	-0.08	ALM018547/cg4	CO	5.06		0.00	
scg9	9/26/2016	15:08:00	5.08	-0.09	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:08:15	5.07	-0.09	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:08:30	6.60	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:08:45	6.29	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:09:00	6.29	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:09:15	6.29	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:09:30	6.29	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:09:45	6.34	0.03	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:10:00	1.43	0.04	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:10:15	0.69	0.03	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:10:30	0.40	0.03	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:10:45	0.29	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:11:00	0.19	0.03	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:11:15	0.16	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/26/2016	15:11:30	0.16	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
cozero1	9/26/2016	15:11:30	0.16	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
thczero1	9/26/2016	15:11:30	0.16	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
o2span1	9/26/2016	15:11:30	0.16	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
co2span1	9/26/2016	15:11:30	0.16	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg12	9/26/2016	15:12:00	0.08	0.02	ET0010875/cg12	THC	5.01		0.00	

scg12	9/26/2016	15:12:15	0.06	0.43	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:12:30	0.07	4.18	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:12:45	0.18	4.97	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:13:00	0.42	4.97	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:13:15	0.48	4.98	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:13:30	0.45	4.98	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:13:45	0.43	4.98	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:14:00	0.42	4.99	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:14:15	0.41	4.98	ET0010875/cg12	THC	5.01	0.00
scg12	9/26/2016	15:14:30	0.44	4.99	ET0010875/cg12	THC	5.01	0.00
thcspan1	9/26/2016	15:14:30	0.44	4.99	ET0010875/cg12	THC	5.01	0.00
End								

Model 2 Thermal Combustor Outlet Stack
Carbon Monoxide
Concentration

Condition-Run Number	Measured (ppm)	Adjusted (ppm*)
II-1	1.37	1.38
II-2	1.09	1.13
II-3	1.10	1.18

*Calculated according to equation 7E-5.

Model 2 Thermal Combustor Outlet Stack
Total Hydrocarbons
Concentration

Condition-Run Number	Measured (wet ppm)
II-1	0.13
II-2	0.11
II-3	0.08

Model 2 Thermal Combustor Outlet Stack
Calibration Summary
Carbon Monoxide

Condition-Run Number	CO Calibration Initial Drift Check (ppm)	CO Calibration Final Drift Check (ppm)	CO Calibration Average (ppm)	CO Zero Initial Drift Check (ppm)	CO Zero Final Drift Check (ppm)	CO Zero Average (ppm)	Actual CO Calibration Value (ppm)	Actual CO Zero Value (ppm)
II-1	5.10	5.01	5.06	-0.04	0.01	-0.02	5.06	0.00
II-2	5.01	5.00	5.01	0.01	-0.08	-0.04	5.06	0.00
II-3	5.00	5.06	5.03	-0.08	-0.09	-0.09	5.06	0.00

Model 2 Thermal Combustor Outlet Stack
System Calibration Bias and Drift Data
Carbon Monoxide
Calibration Span = 9.86 ppm

Condition-Run Number	CO Calibration Initial Response (ppm)	CO Calibration Initial Bias (%*)	CO Calibration Final Response (ppm)	CO Calibration Final Bias (%*)	CO Calibration Drift (%*)	CO Zero Initial Response (ppm)	CO Zero Initial Bias (%*)	CO Zero Final Response (ppm)	CO Zero Final Bias (%*)	CO Zero Drift (%*)	Analyzer Calibration Response Mid Level (ppm)	Analyzer Calibration Response Zero Level (ppm)
II-1	5.10	0.41	5.01	0.51	0.91	-0.04	0.00	0.01	0.51	0.51	5.06	-0.04
II-2	5.01	0.51	5.00	0.61	0.10	0.01	0.51	-0.08	0.41	0.91	5.06	-0.04
II-3	5.00	0.61	5.06	0.00	0.61	-0.08	0.41	-0.09	0.51	0.10	5.06	-0.04

* PERCENT OF CALIBRATION SPAN

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Carbon Monoxide

Date 09/27/16
Condition II

Calibration Span = 9.86 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Low	0.00	-0.04	0.04	0.41
Mid	5.06	5.06	0.00	0.00
High	9.86	9.92	0.06	0.61

* Percent of calibration span

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Total Hydrocarbons

Date 09/27/16
Condition II
Span = 10 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Zero	0.00	0.00	0.00	----
Low	3.13	3.15	0.02	0.64
Mid	5.01	5.00	0.01	0.20
High	8.48	8.50	0.02	----

* Percent of span gas

filename		9/27/2016	8:06:43						
testby1	METCO Environmental								
testby2	Baton Rouge Operations								
testby3		9							
testby4	Jeremiah Johnson								
testfor1	COMM Engineering								
testfor2	*								
testfor3	Unit 2								
testfor4	Lafayette, LA								
name				CO	THC				
sn				208845	1125748714				
offset				0.00	0.00				
fullscale				10.10	10.00				
train				1.00	1.00				
gastype				co 10	thc 25a				
dcg1		9/27/2016	8:40:30	9.94	-0.09	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:40:45	10.01	-0.09	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:41:00	4.52	-0.09	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:41:15	2.57	-0.09	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:41:30	9.88	-0.08	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:41:45	10.30	-0.08	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:42:00	8.78	-0.07	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:42:15	2.40	-0.07	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:42:30	1.10	-0.08	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:42:45	0.96	-0.08	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:43:00	0.90	-0.08	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:43:15	0.86	-0.02	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:43:30	0.84	0.01	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:43:45	0.25	0.01	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:44:00	-0.01	0.01	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:44:15	-0.02	0.01	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:44:30	-0.06	0.00	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:44:45	-0.06	0.00	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:45:00	-0.05	0.01	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:45:15	-0.04	0.01	EB0070656/cg1	N2	0.00	0.00
dcg1		9/27/2016	8:45:30	-0.05	0.00	EB0070656/cg1	N2	0.00	0.00
o2ezero1		9/27/2016	8:45:30	-0.05	0.00	EB0070656/cg1	N2	0.00	0.00
co2ezero1		9/27/2016	8:45:30	-0.05	0.00	EB0070656/cg1	N2	0.00	0.00
coezero1		9/27/2016	8:45:15	-0.04	0.01	EB0070656/cg1	N2	0.00	0.00
thcezero1		9/27/2016	8:45:30	-0.05	0.00	EB0070656/cg1	N2	0.00	0.00
dcg10		9/27/2016	8:45:45	-0.07	0.00	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:46:00	-0.06	-0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:46:15	-0.06	0.00	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:46:30	-0.09	0.00	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:46:45	-0.37	0.00	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:47:00	-0.53	-0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:47:15	-0.53	-0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:47:30	-0.53	-0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:47:45	-0.53	-0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:48:00	-0.53	0.00	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:48:15	-0.53	0.02	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:48:30	-0.53	0.02	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:48:45	-0.53	0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:49:00	-0.53	0.02	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:49:15	-0.53	0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:49:30	-0.53	0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg10		9/27/2016	8:49:45	-0.53	0.01	AAL021715/cg10	CO2	20.00 O2	19.90
o2high1		9/27/2016	8:49:45	-0.53	0.01	AAL021715/cg10	CO2	20.00 O2	19.90
co2high1		9/27/2016	8:49:45	-0.53	0.01	AAL021715/cg10	CO2	20.00 O2	19.90
dcg3		9/27/2016	8:50:00	-0.53	0.03	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:50:15	-0.53	0.03	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:50:30	-0.53	0.03	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:50:45	-0.53	0.03	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:51:00	1.29	0.04	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:51:15	4.86	0.02	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:51:30	7.48	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:51:45	8.42	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:52:00	8.57	-0.01	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:52:15	8.59	-0.01	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:52:30	8.59	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:52:45	8.62	0.02	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:53:00	8.63	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:53:15	8.98	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:53:30	9.91	-0.01	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:53:45	9.94	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:54:00	9.95	0.00	BLM000616/cg3	CO	9.86	0.00
dcg3		9/27/2016	8:54:15	9.92	-0.01	BLM000616/cg3	CO	9.86	0.00
cohigh1		9/27/2016	8:54:15	9.92	-0.01	BLM000616/cg3	CO	9.86	0.00
dcg9		9/27/2016	8:57:00	-0.11	-0.02	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:57:15	-0.12	-0.01	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:57:30	-0.08	-0.03	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:57:45	0.52	-0.03	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:58:00	0.64	-0.02	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:58:15	-0.15	-0.03	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:58:30	-0.52	-0.02	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9		9/27/2016	8:58:45	-0.53	-0.01	EB0080791/cg9	CO2	10.96 O2	11.08

dcg9	9/27/2016	8:59:00	-0.53	0.00	EB0080791/cg9	CO2	10.96 O2	11.08
dcg9	9/27/2016	8:59:15	-0.53	0.01	EB0080791/cg9	CO2	10.96 O2	11.08
o2mid1	9/27/2016	8:59:00	-0.53	0.00	EB0080791/cg9	CO2	10.96 O2	11.08
co2mid1	9/27/2016	8:59:00	-0.53	0.00	EB0080791/cg9	CO2	10.96 O2	11.08
dcg4	9/27/2016	8:59:30	-0.53	0.01	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	8:59:45	-0.53	0.00	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:00:00	-0.53	0.00	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:00:15	-0.25	0.00	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:00:30	1.80	0.01	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:00:45	3.98	0.01	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:01:00	4.86	0.00	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:01:15	4.97	-0.01	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:01:30	5.03	-0.01	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:01:45	5.05	-0.01	ALM018547/cg4	CO	5.06	0.00
dcg4	9/27/2016	9:02:00	5.06	-0.01	ALM018547/cg4	CO	5.06	0.00
comid1	9/27/2016	9:02:00	5.06	-0.01	ALM018547/cg4	CO	5.06	0.00
dcg11	9/27/2016	9:04:30	-0.18	0.01	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:04:45	-0.19	0.01	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:05:00	-0.07	0.01	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:05:15	0.42	0.00	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:05:30	0.51	0.00	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:05:45	0.15	0.00	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:18:45	-0.25	0.89	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:19:00	-0.23	0.63	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:19:15	-0.22	1.51	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:19:30	0.01	3.00	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:19:45	0.38	3.02	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:20:00	0.22	3.02	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:20:15	0.01	3.02	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:20:30	-0.06	3.13	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:20:45	-0.07	3.14	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:21:00	-0.09	3.15	BLM005063/cg11	THC	3.13	0.00
dcg11	9/27/2016	9:21:15	-0.07	3.16	BLM005063/cg11	THC	3.13	0.00
thclow1	9/27/2016	9:21:00	-0.09	3.15	BLM005063/cg11	THC	3.13	0.00
dcg13	9/27/2016	9:23:00	-0.26	0.68	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:23:15	-0.27	0.67	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:23:30	-0.26	3.59	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:23:45	-0.20	8.64	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:24:00	-0.16	8.76	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:24:15	-0.17	8.77	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:24:30	-0.21	8.79	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:24:45	-0.19	8.55	ET0010859/cg13	THC	8.48	0.00
dcg13	9/27/2016	9:25:00	-0.19	8.50	ET0010859/cg13	THC	8.48	0.00
thchigh1	9/27/2016	9:25:00	-0.19	8.50	ET0010859/cg13	THC	8.48	0.00
dcg12	9/27/2016	9:26:30	-0.23	0.69	ET0010875/cg12	THC	5.01	0.00
dcg12	9/27/2016	9:26:45	-0.26	0.70	ET0010875/cg12	THC	5.01	0.00
dcg12	9/27/2016	9:27:00	-0.24	3.58	ET0010875/cg12	THC	5.01	0.00
dcg12	9/27/2016	9:27:15	-0.20	5.08	ET0010875/cg12	THC	5.01	0.00
dcg12	9/27/2016	9:27:30	-0.18	5.06	ET0010875/cg12	THC	5.01	0.00
dcg12	9/27/2016	9:27:45	-0.21	5.05	ET0010875/cg12	THC	5.01	0.00
dcg12	9/27/2016	9:28:00	-0.20	5.00	ET0010875/cg12	THC	5.01	0.00
thcmid1	9/27/2016	9:28:00	-0.20	5.00	ET0010875/cg12	THC	5.01	0.00
scg12	9/27/2016	9:28:30	-0.20	5.00	ET0010875/cg12	THC	5.01	0.00
scg12	9/27/2016	9:28:45	-0.20	4.23	ET0010875/cg12	THC	5.01	0.00
scg12	9/27/2016	9:29:00	-0.18	3.50	ET0010875/cg12	THC	5.01	0.00
scg12	9/27/2016	9:29:15	-0.15	5.01	ET0010875/cg12	THC	5.01	0.00
scg12	9/27/2016	9:29:30	-0.18	5.01	ET0010875/cg12	THC	5.01	0.00
thcspan1	9/27/2016	9:29:30	-0.18	5.01	ET0010875/cg12	THC	5.01	0.00
scg9	9/27/2016	9:29:45	-0.20	5.01	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:30:00	-0.19	5.02	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:30:15	-0.17	3.76	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:30:30	-0.24	0.26	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:30:45	-0.25	0.11	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:31:00	-0.22	0.13	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:31:15	-0.24	0.13	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:31:30	-0.07	0.11	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:31:45	0.03	0.02	EB0080791/cg9	CO2	10.96 O2	11.08
scg9	9/27/2016	9:32:00	0.01	0.02	EB0080791/cg9	CO2	10.96 O2	11.08
cozero1	9/27/2016	9:32:00	0.01	0.02	EB0080791/cg9	CO2	10.96 O2	11.08
thczero1	9/27/2016	9:32:00	0.01	0.02	EB0080791/cg9	CO2	10.96 O2	11.08
o2span1	9/27/2016	9:32:00	0.01	0.02	EB0080791/cg9	CO2	10.96 O2	11.08
co2span1	9/27/2016	9:32:00	0.01	0.02	EB0080791/cg9	CO2	10.96 O2	11.08
scg4	9/27/2016	9:32:15	0.03	0.02	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:32:30	0.04	0.02	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:32:45	0.03	0.03	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:33:00	0.38	-0.05	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:33:15	2.25	-0.07	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:33:30	4.69	-0.06	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:33:45	5.62	-0.07	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:34:00	5.39	-0.07	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:34:15	5.09	-0.07	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	9:34:30	5.13	-0.07	ALM018547/cg4	CO	5.06	0.00
o2zero1	9/27/2016	9:34:30	5.13	-0.07	ALM018547/cg4	CO	5.06	0.00
co2zero1	9/27/2016	9:34:30	5.13	-0.07	ALM018547/cg4	CO	5.06	0.00
cospan1	9/27/2016	9:34:30	5.13	-0.07	ALM018547/cg4	CO	5.06	0.00
scg4	9/27/2016	12:06:30	0.44	1.13	ALM018547/cg4	CO	5.06	0.00

scg4	9/27/2016	12:06:45	0.44	0.96	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:07:00	1.04	0.61	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:07:15	5.72	-0.01	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:07:30	8.97	-0.04	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:07:45	7.00	-0.05	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:08:00	5.39	-0.07	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:08:15	5.17	-0.08	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:08:30	5.08	-0.08	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:08:45	5.04	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	12:09:00	5.03	-0.13	ALM018547/cg4	CO	5.06		0.00
o2zero1	9/27/2016	12:09:00	5.03	-0.13	ALM018547/cg4	CO	5.06		0.00
co2zero1	9/27/2016	12:09:00	5.03	-0.13	ALM018547/cg4	CO	5.06		0.00
cospan1	9/27/2016	12:09:00	5.03	-0.13	ALM018547/cg4	CO	5.06		0.00
scg9	9/27/2016	12:09:15	5.04	-0.14	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:09:30	5.03	-0.13	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:09:45	5.04	-0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:10:00	4.44	-0.08	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:10:15	2.61	-0.09	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:10:30	0.76	-0.08	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:10:45	0.09	-0.07	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:11:00	-0.01	-0.06	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:11:15	-0.03	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:11:30	0.00	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:11:45	0.00	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	12:12:00	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/27/2016	12:11:45	0.00	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/27/2016	12:12:00	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/27/2016	12:11:45	0.00	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/27/2016	12:11:45	0.00	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/27/2016	12:12:15	-0.03	0.02	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:12:30	-0.02	0.11	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:12:45	-0.02	1.00	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:13:00	0.19	4.49	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:13:15	0.64	4.89	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:13:30	0.67	4.90	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:13:45	0.48	4.89	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:14:00	0.39	4.90	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:14:15	0.40	5.00	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	12:14:30	0.40	5.02	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/27/2016	12:14:30	0.40	5.02	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:25:45	0.67	2.68	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:26:00	0.56	3.18	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:26:15	0.52	3.67	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:26:30	1.39	4.91	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:26:45	4.08	5.00	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:27:00	3.19	5.00	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	13:27:15	1.20	4.99	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/27/2016	13:27:15	1.20	4.99	ET0010875/cg12	THC	5.01		0.00
scg9	9/27/2016	13:27:30	0.51	5.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:27:45	0.44	4.96	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:28:00	0.42	2.08	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:28:15	0.31	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:28:30	0.01	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:28:45	-0.18	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:29:00	-0.13	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:29:15	-0.05	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:29:30	-0.04	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:29:45	-0.04	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	13:30:00	-0.06	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/27/2016	13:29:45	-0.04	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/27/2016	13:30:00	-0.06	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/27/2016	13:30:00	-0.06	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/27/2016	13:30:00	-0.06	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg4	9/27/2016	13:30:15	-0.06	-0.01	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:30:30	-0.03	0.05	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:30:45	-0.04	2.77	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:31:00	0.22	0.03	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:31:15	1.74	-0.07	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:31:30	3.84	-0.08	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:31:45	4.75	-0.08	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:32:00	4.91	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:32:15	4.96	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:32:30	5.01	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:32:45	5.06	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:33:00	5.09	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:33:15	5.09	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:33:30	5.10	-0.09	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	13:33:45	5.09	-0.09	ALM018547/cg4	CO	5.06		0.00
o2zero1	9/27/2016	13:33:45	5.09	-0.09	ALM018547/cg4	CO	5.06		0.00
co2zero1	9/27/2016	13:33:30	5.10	-0.09	ALM018547/cg4	CO	5.06		0.00
cospan1	9/27/2016	13:33:30	5.10	-0.09	ALM018547/cg4	CO	5.06		0.00
run1	9/27/2016	14:22:00	1.47	0.09					
run1	9/27/2016	14:22:15	1.41	0.09					
run1	9/27/2016	14:22:30	1.35	0.09					
run1	9/27/2016	14:22:45	1.31	0.11					
run1	9/27/2016	14:23:00	1.30	0.10					

run1	9/27/2016	14:23:15	1.29	0.10
run1	9/27/2016	14:23:30	1.35	0.09
run1	9/27/2016	14:23:45	1.38	0.09
run1	9/27/2016	14:24:00	1.35	0.10
run1	9/27/2016	14:24:15	1.31	0.10
run1	9/27/2016	14:24:30	1.33	0.11
run1	9/27/2016	14:24:45	1.37	0.12
run1	9/27/2016	14:25:00	1.32	0.11
run1	9/27/2016	14:25:15	1.23	0.11
run1	9/27/2016	14:25:30	1.15	0.11
run1	9/27/2016	14:25:45	1.13	0.11
run1	9/27/2016	14:26:00	1.19	0.10
run1	9/27/2016	14:26:15	1.20	0.11
run1	9/27/2016	14:26:30	1.14	0.10
run1	9/27/2016	14:26:45	1.10	0.10
run1	9/27/2016	14:27:00	1.16	0.09
run1	9/27/2016	14:27:15	1.24	0.11
run1	9/27/2016	14:27:30	1.24	0.12
run1	9/27/2016	14:27:45	1.25	0.10
run1	9/27/2016	14:28:00	1.34	0.10
run1	9/27/2016	14:28:15	1.42	0.11
run1	9/27/2016	14:28:30	1.34	0.11
run1	9/27/2016	14:28:45	1.27	0.12
run1	9/27/2016	14:29:00	1.26	0.12
run1	9/27/2016	14:29:15	1.26	0.10
run1	9/27/2016	14:29:30	1.29	0.11
run1	9/27/2016	14:29:45	1.35	0.11
run1	9/27/2016	14:30:00	1.36	0.10
run1	9/27/2016	14:30:15	1.27	0.09
run1	9/27/2016	14:30:30	1.24	0.08
run1	9/27/2016	14:30:45	1.23	0.09
run1	9/27/2016	14:31:00	1.23	0.10
run1	9/27/2016	14:31:15	1.29	0.10
run1	9/27/2016	14:31:30	1.31	0.09
run1	9/27/2016	14:31:45	1.27	0.11
run1	9/27/2016	14:32:00	1.36	0.11
run1	9/27/2016	14:32:15	1.36	0.09
run1	9/27/2016	14:32:30	1.32	0.08
run1	9/27/2016	14:32:45	1.34	0.09
run1	9/27/2016	14:33:00	1.35	0.09
run1	9/27/2016	14:33:15	1.33	0.10
run1	9/27/2016	14:33:30	1.25	0.10
run1	9/27/2016	14:33:45	1.14	0.11
run1	9/27/2016	14:34:00	1.05	0.11
run1	9/27/2016	14:34:15	1.03	0.18
run1	9/27/2016	14:34:30	1.15	0.60
run1	9/27/2016	14:34:45	1.29	0.44
run1	9/27/2016	14:35:00	1.26	0.40
run1	9/27/2016	14:35:15	1.25	0.37
run1	9/27/2016	14:35:30	1.25	0.24
run1	9/27/2016	14:35:45	1.19	0.25
run1	9/27/2016	14:36:00	1.16	0.18
run1	9/27/2016	14:36:15	1.16	0.17
run1	9/27/2016	14:36:30	1.21	0.16
run1	9/27/2016	14:36:45	1.30	0.19
run1	9/27/2016	14:37:00	1.33	0.17
run1	9/27/2016	14:37:15	1.32	0.18
run1	9/27/2016	14:37:30	1.34	0.16
run1	9/27/2016	14:37:45	1.36	0.16
run1	9/27/2016	14:38:00	1.36	0.15
run1	9/27/2016	14:38:15	1.38	0.14
run1	9/27/2016	14:38:30	1.37	0.14
run1	9/27/2016	14:38:45	1.35	0.14
run1	9/27/2016	14:39:00	1.33	0.16
run1	9/27/2016	14:39:15	1.37	0.16
run1	9/27/2016	14:39:30	1.42	0.17
run1	9/27/2016	14:39:45	1.37	0.15
run1	9/27/2016	14:40:00	1.33	0.12
run1	9/27/2016	14:40:15	1.36	0.12
run1	9/27/2016	14:40:30	1.46	0.14
run1	9/27/2016	14:40:45	1.54	0.14
run1	9/27/2016	14:41:00	1.48	0.13
run1	9/27/2016	14:41:15	1.30	0.14
run1	9/27/2016	14:41:30	1.11	0.14
run1	9/27/2016	14:41:45	1.05	0.14
run1	9/27/2016	14:42:00	1.18	0.14
run1	9/27/2016	14:42:15	1.29	0.14
run1	9/27/2016	14:42:30	1.37	0.14
run1	9/27/2016	14:42:45	1.39	0.14
run1	9/27/2016	14:43:00	1.41	0.13
run1	9/27/2016	14:43:15	1.40	0.13
run1	9/27/2016	14:43:30	1.37	0.14
run1	9/27/2016	14:43:45	1.36	0.13
run1	9/27/2016	14:44:00	1.41	0.12
run1	9/27/2016	14:44:15	1.45	0.12
run1	9/27/2016	14:44:30	1.40	0.12

run1	9/27/2016	14:44:45	1.40	0.12
run1	9/27/2016	14:45:00	1.37	0.12
run1	9/27/2016	14:45:15	1.24	0.12
run1	9/27/2016	14:45:30	1.20	0.13
run1	9/27/2016	14:45:45	1.18	0.12
run1	9/27/2016	14:46:00	1.17	0.12
run1	9/27/2016	14:46:15	1.19	0.12
run1	9/27/2016	14:46:30	1.23	0.10
run1	9/27/2016	14:46:45	1.31	0.11
run1	9/27/2016	14:47:00	1.38	0.12
run1	9/27/2016	14:47:15	1.41	0.13
run1	9/27/2016	14:47:30	1.41	0.13
run1	9/27/2016	14:47:45	1.39	0.14
run1	9/27/2016	14:48:00	1.40	0.13
run1	9/27/2016	14:48:15	1.45	0.12
run1	9/27/2016	14:48:30	1.53	0.12
run1	9/27/2016	14:48:45	1.51	0.12
run1	9/27/2016	14:49:00	1.30	0.12
run1	9/27/2016	14:49:15	1.13	0.12
run1	9/27/2016	14:49:30	1.19	0.12
run1	9/27/2016	14:49:45	1.39	0.12
run1	9/27/2016	14:50:00	1.51	0.13
run1	9/27/2016	14:50:15	1.51	0.14
run1	9/27/2016	14:50:30	1.48	0.13
run1	9/27/2016	14:50:45	1.46	0.14
run1	9/27/2016	14:51:00	1.51	0.14
run1	9/27/2016	14:51:15	1.57	0.14
run1	9/27/2016	14:51:30	1.66	0.16
run1	9/27/2016	14:51:45	1.67	0.15
run1	9/27/2016	14:52:00	1.74	0.15
run1	9/27/2016	14:52:15	1.75	0.15
run1	9/27/2016	14:52:30	1.66	0.15
run1	9/27/2016	14:52:45	1.68	0.14
run1	9/27/2016	14:53:00	1.74	0.14
run1	9/27/2016	14:53:15	1.67	0.13
run1	9/27/2016	14:53:30	1.63	0.13
run1	9/27/2016	14:53:45	1.60	0.13
run1	9/27/2016	14:54:00	1.65	0.12
run1	9/27/2016	14:54:15	1.70	0.12
run1	9/27/2016	14:54:30	1.68	0.14
run1	9/27/2016	14:54:45	1.68	0.15
run1	9/27/2016	14:55:00	1.67	0.16
run1	9/27/2016	14:55:15	1.63	0.16
run1	9/27/2016	14:55:30	1.60	0.15
run1	9/27/2016	14:55:45	1.65	0.15
run1	9/27/2016	14:56:00	1.73	0.15
run1	9/27/2016	14:56:15	1.75	0.15
run1	9/27/2016	14:56:30	1.61	0.14
run1	9/27/2016	14:56:45	1.48	0.15
run1	9/27/2016	14:57:00	1.41	0.16
run1	9/27/2016	14:57:15	1.31	0.15
run1	9/27/2016	14:57:30	1.33	0.14
run1	9/27/2016	14:57:45	1.44	0.14
run1	9/27/2016	14:58:00	1.55	0.15
run1	9/27/2016	14:58:15	1.57	0.15
run1	9/27/2016	14:58:30	1.50	0.14
run1	9/27/2016	14:58:45	1.50	0.13
run1	9/27/2016	14:59:00	1.54	0.13
run1	9/27/2016	14:59:15	1.51	0.13
run1	9/27/2016	14:59:30	1.50	0.14
run1	9/27/2016	14:59:45	1.57	0.14
run1	9/27/2016	15:00:00	1.59	0.14
run1	9/27/2016	15:00:15	1.62	0.14
run1	9/27/2016	15:00:30	1.59	0.15
run1	9/27/2016	15:00:45	1.58	0.16
run1	9/27/2016	15:01:00	1.69	0.15
run1	9/27/2016	15:01:15	1.83	0.14
run1	9/27/2016	15:01:30	1.95	0.14
run1	9/27/2016	15:01:45	1.89	0.12
run1	9/27/2016	15:02:00	1.76	0.12
run1	9/27/2016	15:02:15	1.73	0.14
run1	9/27/2016	15:02:30	1.81	0.13
run1	9/27/2016	15:02:45	1.86	0.13
run1	9/27/2016	15:03:00	1.87	0.14
run1	9/27/2016	15:03:15	1.84	0.14
run1	9/27/2016	15:03:30	1.81	0.14
run1	9/27/2016	15:03:45	1.80	0.14
run1	9/27/2016	15:04:00	1.79	0.15
run1	9/27/2016	15:04:15	1.83	0.14
run1	9/27/2016	15:04:30	1.88	0.13
run1	9/27/2016	15:04:45	1.87	0.12
run1	9/27/2016	15:05:00	1.65	0.13
run1	9/27/2016	15:05:15	1.46	0.12
run1	9/27/2016	15:05:30	1.38	0.13
run1	9/27/2016	15:05:45	1.34	0.14
run1	9/27/2016	15:06:00	1.39	0.12

run1	9/27/2016	15:06:15	1.38	0.12					
run1	9/27/2016	15:06:30	1.36	0.12					
run1	9/27/2016	15:06:45	1.38	0.14					
run1	9/27/2016	15:07:00	1.39	0.13					
run1	9/27/2016	15:07:15	1.42	0.13					
run1	9/27/2016	15:07:30	1.37	0.14					
run1	9/27/2016	15:07:45	1.31	0.14					
run1	9/27/2016	15:08:00	1.37	0.12					
run1	9/27/2016	15:08:15	1.53	0.12					
run1	9/27/2016	15:08:30	1.61	0.11					
run1	9/27/2016	15:08:45	1.58	0.11					
run1	9/27/2016	15:09:00	1.53	0.10					
run1	9/27/2016	15:09:15	1.52	0.12					
run1	9/27/2016	15:09:30	1.55	0.13					
run1	9/27/2016	15:09:45	1.65	0.13					
run1	9/27/2016	15:10:00	1.73	0.12					
run1	9/27/2016	15:10:15	1.74	0.12					
run1	9/27/2016	15:10:30	1.67	0.13					
run1	9/27/2016	15:10:45	1.60	0.13					
run1	9/27/2016	15:11:00	1.50	0.14					
run1	9/27/2016	15:11:15	1.41	0.13					
run1	9/27/2016	15:11:30	1.47	0.12					
run1	9/27/2016	15:11:45	1.62	0.13					
run1	9/27/2016	15:12:00	1.63	0.12					
run1	9/27/2016	15:12:15	1.45	0.12					
run1	9/27/2016	15:12:30	1.24	0.12					
run1	9/27/2016	15:12:45	1.18	0.14					
run1	9/27/2016	15:13:00	1.16	0.13					
run1	9/27/2016	15:13:15	1.13	0.13					
run1	9/27/2016	15:13:30	1.13	0.12					
run1	9/27/2016	15:13:45	1.15	0.12					
run1	9/27/2016	15:14:00	1.13	0.12					
run1	9/27/2016	15:14:15	1.11	0.12					
run1	9/27/2016	15:14:30	1.10	0.14					
run1	9/27/2016	15:14:45	1.09	0.13					
run1	9/27/2016	15:15:00	1.07	0.12					
run1	9/27/2016	15:15:15	1.11	0.13					
run1	9/27/2016	15:15:30	1.14	0.12					
run1	9/27/2016	15:15:45	1.14	0.13					
run1	9/27/2016	15:16:00	1.16	0.13					
run1	9/27/2016	15:16:15	1.10	0.13					
run1	9/27/2016	15:16:30	1.02	0.13					
run1	9/27/2016	15:16:45	1.07	0.13					
run1	9/27/2016	15:17:00	1.08	0.12					
run1	9/27/2016	15:17:15	1.09	0.12					
run1	9/27/2016	15:17:30	1.05	0.13					
run1	9/27/2016	15:17:45	1.03	0.13					
run1	9/27/2016	15:18:00	1.03	0.12					
run1	9/27/2016	15:18:15	1.10	0.12					
run1	9/27/2016	15:18:30	1.10	0.13					
run1	9/27/2016	15:18:45	1.11	0.13					
run1	9/27/2016	15:19:00	1.16	0.14					
run1	9/27/2016	15:19:15	1.19	0.15					
run1	9/27/2016	15:19:30	1.13	0.16					
run1	9/27/2016	15:19:45	1.08	0.14					
run1	9/27/2016	15:20:00	1.14	0.12					
run1	9/27/2016	15:20:15	1.20	0.12					
run1	9/27/2016	15:20:30	1.18	0.12					
run1	9/27/2016	15:20:45	1.09	0.12					
run1	9/27/2016	15:21:00	1.04	0.11					
run1	9/27/2016	15:21:15	1.07	0.11					
run1	9/27/2016	15:21:30	1.17	0.12					
run1	9/27/2016	15:21:45	1.22	0.12					
run1	9/27/2016	15:22:00	1.25	0.12					
run1	9/27/2016	15:22:15	1.23	0.14					
run1	9/27/2016	15:22:30	1.22	0.13					
run1	9/27/2016	15:22:45	1.13	0.13					
run1	9/27/2016	15:23:00	1.08	0.13					
run1	9/27/2016	15:23:15	1.07	0.12					
run1	9/27/2016	15:23:30	1.09	0.13					
run1	9/27/2016	15:23:45	1.06	0.12					
run1	9/27/2016	15:24:00	1.07	0.13					
run1	9/27/2016	15:24:15	1.06	0.13					
run1	9/27/2016	15:24:30	1.04	0.12					
run1	9/27/2016	15:24:45	1.07	0.12					
run1	9/27/2016	15:25:00	1.09	0.12					
run1	9/27/2016	15:25:15	1.12	0.12					
run1	9/27/2016	15:25:30	1.13	0.12					
run1	9/27/2016	15:25:45	1.16	0.12					
averun1	9/27/2016	14:22:00	1.37	0.13		64			
scg4	9/27/2016	15:26:00	1.20	0.12	ALM018547/cg4	CO	5.06	0.00	
scg4	9/27/2016	15:26:15	1.19	0.11	ALM018547/cg4	CO	5.06	0.00	
scg4	9/27/2016	15:26:30	1.33	0.47	ALM018547/cg4	CO	5.06	0.00	
scg4	9/27/2016	15:26:45	4.76	0.10	ALM018547/cg4	CO	5.06	0.00	
scg4	9/27/2016	15:27:00	8.37	0.04	ALM018547/cg4	CO	5.06	0.00	
scg4	9/27/2016	15:27:15	7.28	0.02	ALM018547/cg4	CO	5.06	0.00	

scg4	9/27/2016	15:27:30	5.45	0.02	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	15:27:45	5.08	0.02	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	15:28:00	5.02	0.02	ALM018547/cg4	CO	5.06		0.00
scg4	9/27/2016	15:28:15	5.01	0.03	ALM018547/cg4	CO	5.06		0.00
o2zero1	9/27/2016	15:28:15	5.01	0.03	ALM018547/cg4	CO	5.06		0.00
co2zero1	9/27/2016	15:28:15	5.01	0.03	ALM018547/cg4	CO	5.06		0.00
cospan1	9/27/2016	15:28:15	5.01	0.03	ALM018547/cg4	CO	5.06		0.00
scg9	9/27/2016	15:29:00	4.97	0.08	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:29:15	4.33	0.13	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:29:30	2.60	0.05	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:29:45	1.64	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:30:00	0.81	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:30:15	0.10	0.05	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:30:30	-0.11	0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:30:45	-0.13	0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:31:00	-0.07	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:31:15	0.01	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	15:31:30	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/27/2016	15:31:15	0.01	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/27/2016	15:31:00	-0.07	0.03	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/27/2016	15:31:15	0.01	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/27/2016	15:31:15	0.01	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/27/2016	15:31:45	-0.02	0.03	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:32:00	-0.01	0.05	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:32:15	-0.01	3.13	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:32:30	0.13	4.72	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:32:45	0.34	4.72	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:33:00	0.43	4.73	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:33:15	0.40	4.79	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:33:30	0.40	5.01	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	15:33:45	0.40	5.03	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/27/2016	15:33:45	0.40	5.03	ET0010875/cg12	THC	5.01		0.00
run2	9/27/2016	15:40:00	1.16	0.10					
run2	9/27/2016	15:40:15	1.14	0.11					
run2	9/27/2016	15:40:30	1.10	0.12					
run2	9/27/2016	15:40:45	1.15	0.12					
run2	9/27/2016	15:41:00	1.24	0.10					
run2	9/27/2016	15:41:15	1.31	0.10					
run2	9/27/2016	15:41:30	1.25	0.12					
run2	9/27/2016	15:41:45	1.20	0.12					
run2	9/27/2016	15:42:00	1.16	0.10					
run2	9/27/2016	15:42:15	1.15	0.10					
run2	9/27/2016	15:42:30	1.23	0.11					
run2	9/27/2016	15:42:45	1.28	0.11					
run2	9/27/2016	15:43:00	1.31	0.11					
run2	9/27/2016	15:43:15	1.30	0.11					
run2	9/27/2016	15:43:30	1.25	0.10					
run2	9/27/2016	15:43:45	1.22	0.11					
run2	9/27/2016	15:44:00	1.23	0.12					
run2	9/27/2016	15:44:15	1.25	0.11					
run2	9/27/2016	15:44:30	1.27	0.12					
run2	9/27/2016	15:44:45	1.24	0.12					
run2	9/27/2016	15:45:00	1.17	0.12					
run2	9/27/2016	15:45:15	1.20	0.12					
run2	9/27/2016	15:45:30	1.27	0.11					
run2	9/27/2016	15:45:45	1.30	0.11					
run2	9/27/2016	15:46:00	1.22	0.12					
run2	9/27/2016	15:46:15	1.16	0.12					
run2	9/27/2016	15:46:30	1.17	0.12					
run2	9/27/2016	15:46:45	1.20	0.13					
run2	9/27/2016	15:47:00	1.20	0.12					
run2	9/27/2016	15:47:15	1.19	0.12					
run2	9/27/2016	15:47:30	1.18	0.12					
run2	9/27/2016	15:47:45	1.16	0.11					
run2	9/27/2016	15:48:00	1.18	0.11					
run2	9/27/2016	15:48:15	1.20	0.11					
run2	9/27/2016	15:48:30	1.22	0.10					
run2	9/27/2016	15:48:45	1.26	0.11					
run2	9/27/2016	15:49:00	1.21	0.11					
run2	9/27/2016	15:49:15	1.15	0.10					
run2	9/27/2016	15:49:30	1.12	0.09					
run2	9/27/2016	15:49:45	1.13	0.09					
run2	9/27/2016	15:50:00	1.13	0.10					
run2	9/27/2016	15:50:15	1.15	0.11					
run2	9/27/2016	15:50:30	1.17	0.11					
run2	9/27/2016	15:50:45	1.15	0.12					
run2	9/27/2016	15:51:00	1.09	0.12					
run2	9/27/2016	15:51:15	1.08	0.11					
run2	9/27/2016	15:51:30	1.11	0.10					
run2	9/27/2016	15:51:45	1.13	0.11					
run2	9/27/2016	15:52:00	1.12	0.11					
run2	9/27/2016	15:52:15	1.15	0.11					
run2	9/27/2016	15:52:30	1.10	0.10					
run2	9/27/2016	15:52:45	1.08	0.09					
run2	9/27/2016	15:53:00	1.10	0.10					
run2	9/27/2016	15:53:15	1.13	0.12					

run2	9/27/2016	15:53:30	1.20	0.11
run2	9/27/2016	15:53:45	1.22	0.10
run2	9/27/2016	15:54:00	1.10	0.10
run2	9/27/2016	15:54:15	1.03	0.11
run2	9/27/2016	15:54:30	1.07	0.10
run2	9/27/2016	15:54:45	1.10	0.11
run2	9/27/2016	15:55:00	1.11	0.11
run2	9/27/2016	15:55:15	1.06	0.11
run2	9/27/2016	15:55:30	1.02	0.10
run2	9/27/2016	15:55:45	1.08	0.11
run2	9/27/2016	15:56:00	1.11	0.11
run2	9/27/2016	15:56:15	1.10	0.12
run2	9/27/2016	15:56:30	1.09	0.12
run2	9/27/2016	15:56:45	1.10	0.10
run2	9/27/2016	15:57:00	1.13	0.09
run2	9/27/2016	15:57:15	1.12	0.09
run2	9/27/2016	15:57:30	1.09	0.09
run2	9/27/2016	15:57:45	1.14	0.09
run2	9/27/2016	15:58:00	1.22	0.09
run2	9/27/2016	15:58:15	1.22	0.10
run2	9/27/2016	15:58:30	1.18	0.11
run2	9/27/2016	15:58:45	1.08	0.11
run2	9/27/2016	15:59:00	1.03	0.10
run2	9/27/2016	15:59:15	1.03	0.10
run2	9/27/2016	15:59:30	1.06	0.09
run2	9/27/2016	15:59:45	1.04	0.10
run2	9/27/2016	16:00:00	1.04	0.11
run2	9/27/2016	16:00:15	1.00	0.11
run2	9/27/2016	16:00:30	1.00	0.11
run2	9/27/2016	16:00:45	1.03	0.10
run2	9/27/2016	16:01:00	1.07	0.10
run2	9/27/2016	16:01:15	1.09	0.11
run2	9/27/2016	16:01:30	1.11	0.09
run2	9/27/2016	16:01:45	1.10	0.10
run2	9/27/2016	16:02:00	1.11	0.10
run2	9/27/2016	16:02:15	1.11	0.09
run2	9/27/2016	16:02:30	1.15	0.11
run2	9/27/2016	16:02:45	1.15	0.11
run2	9/27/2016	16:03:00	1.24	0.11
run2	9/27/2016	16:03:15	1.25	0.11
run2	9/27/2016	16:03:30	1.14	0.11
run2	9/27/2016	16:03:45	1.15	0.12
run2	9/27/2016	16:04:00	1.20	0.13
run2	9/27/2016	16:04:15	1.15	0.12
run2	9/27/2016	16:04:30	1.17	0.10
run2	9/27/2016	16:04:45	1.23	0.11
run2	9/27/2016	16:05:00	1.24	0.11
run2	9/27/2016	16:05:15	1.23	0.11
run2	9/27/2016	16:05:30	1.21	0.10
run2	9/27/2016	16:05:45	1.16	0.11
run2	9/27/2016	16:06:00	1.14	0.13
run2	9/27/2016	16:06:15	1.14	0.12
run2	9/27/2016	16:06:30	1.10	0.13
run2	9/27/2016	16:06:45	1.09	0.13
run2	9/27/2016	16:07:00	1.13	0.11
run2	9/27/2016	16:07:15	1.10	0.09
run2	9/27/2016	16:07:30	1.05	0.09
run2	9/27/2016	16:07:45	1.08	0.09
run2	9/27/2016	16:08:00	1.15	0.10
run2	9/27/2016	16:08:15	1.17	0.09
run2	9/27/2016	16:08:30	1.17	0.09
run2	9/27/2016	16:08:45	1.15	0.10
run2	9/27/2016	16:09:00	1.12	0.10
run2	9/27/2016	16:09:15	1.13	0.09
run2	9/27/2016	16:09:30	1.12	0.14
run2	9/27/2016	16:09:45	1.10	0.13
run2	9/27/2016	16:10:00	1.10	0.14
run2	9/27/2016	16:10:15	1.09	0.13
run2	9/27/2016	16:10:30	1.09	0.13
run2	9/27/2016	16:10:45	1.13	0.12
run2	9/27/2016	16:11:00	1.22	0.13
run2	9/27/2016	16:11:15	1.28	0.14
run2	9/27/2016	16:11:30	1.23	0.11
run2	9/27/2016	16:11:45	1.21	0.11
run2	9/27/2016	16:12:00	1.20	0.13
run2	9/27/2016	16:12:15	1.24	0.12
run2	9/27/2016	16:12:30	1.29	0.10
run2	9/27/2016	16:12:45	1.30	0.09
run2	9/27/2016	16:13:00	1.22	0.11
run2	9/27/2016	16:13:15	1.10	0.11
run2	9/27/2016	16:13:30	1.04	0.11
run2	9/27/2016	16:13:45	1.04	0.11
run2	9/27/2016	16:14:00	1.05	0.08
run2	9/27/2016	16:14:15	0.96	0.08
run2	9/27/2016	16:14:30	1.02	0.08
run2	9/27/2016	16:14:45	1.14	0.08

run2	9/27/2016	16:15:00	1.11	0.08
run2	9/27/2016	16:15:15	1.08	0.11
run2	9/27/2016	16:15:30	1.09	0.13
run2	9/27/2016	16:15:45	1.12	0.12
run2	9/27/2016	16:16:00	1.13	0.11
run2	9/27/2016	16:16:15	1.16	0.12
run2	9/27/2016	16:16:30	1.15	0.10
run2	9/27/2016	16:16:45	1.13	0.10
run2	9/27/2016	16:17:00	1.19	0.09
run2	9/27/2016	16:17:15	1.21	0.10
run2	9/27/2016	16:17:30	1.24	0.10
run2	9/27/2016	16:17:45	1.28	0.09
run2	9/27/2016	16:18:00	1.26	0.11
run2	9/27/2016	16:18:15	1.23	0.12
run2	9/27/2016	16:18:30	1.17	0.12
run2	9/27/2016	16:18:45	1.12	0.13
run2	9/27/2016	16:19:00	1.07	0.12
run2	9/27/2016	16:19:15	1.09	0.11
run2	9/27/2016	16:19:30	1.11	0.10
run2	9/27/2016	16:19:45	1.12	0.09
run2	9/27/2016	16:20:00	1.07	0.11
run2	9/27/2016	16:20:15	1.00	0.10
run2	9/27/2016	16:20:30	0.97	0.10
run2	9/27/2016	16:20:45	0.94	0.11
run2	9/27/2016	16:21:00	0.94	0.10
run2	9/27/2016	16:21:15	0.94	0.10
run2	9/27/2016	16:21:30	0.90	0.10
run2	9/27/2016	16:21:45	0.87	0.10
run2	9/27/2016	16:22:00	0.94	0.11
run2	9/27/2016	16:22:15	0.96	0.10
run2	9/27/2016	16:22:30	0.96	0.11
run2	9/27/2016	16:22:45	0.97	0.10
run2	9/27/2016	16:23:00	0.94	0.09
run2	9/27/2016	16:23:15	0.97	0.09
run2	9/27/2016	16:23:30	1.00	0.11
run2	9/27/2016	16:23:45	1.00	0.11
run2	9/27/2016	16:24:00	1.03	0.11
run2	9/27/2016	16:24:15	1.04	0.11
run2	9/27/2016	16:24:30	1.02	0.11
run2	9/27/2016	16:24:45	1.02	0.11
run2	9/27/2016	16:25:00	1.04	0.12
run2	9/27/2016	16:25:15	1.08	0.12
run2	9/27/2016	16:25:30	1.12	0.11
run2	9/27/2016	16:25:45	1.17	0.09
run2	9/27/2016	16:26:00	1.13	0.09
run2	9/27/2016	16:26:15	1.09	0.09
run2	9/27/2016	16:26:30	1.07	0.09
run2	9/27/2016	16:26:45	1.10	0.10
run2	9/27/2016	16:27:00	1.15	0.10
run2	9/27/2016	16:27:15	1.08	0.10
run2	9/27/2016	16:27:30	1.00	0.10
run2	9/27/2016	16:27:45	0.99	0.10
run2	9/27/2016	16:28:00	0.98	0.10
run2	9/27/2016	16:28:15	0.93	0.11
run2	9/27/2016	16:28:30	0.90	0.11
run2	9/27/2016	16:28:45	0.90	0.11
run2	9/27/2016	16:29:00	0.87	0.10
run2	9/27/2016	16:29:15	0.89	0.11
run2	9/27/2016	16:29:30	0.90	0.12
run2	9/27/2016	16:29:45	0.91	0.12
run2	9/27/2016	16:30:00	0.94	0.11
run2	9/27/2016	16:30:15	0.95	0.12
run2	9/27/2016	16:30:30	0.92	0.12
run2	9/27/2016	16:30:45	0.91	0.12
run2	9/27/2016	16:31:00	0.90	0.11
run2	9/27/2016	16:31:15	0.89	0.11
run2	9/27/2016	16:31:30	0.91	0.09
run2	9/27/2016	16:31:45	0.92	0.10
run2	9/27/2016	16:32:00	0.93	0.09
run2	9/27/2016	16:32:15	0.93	0.09
run2	9/27/2016	16:32:30	0.96	0.09
run2	9/27/2016	16:32:45	0.98	0.10
run2	9/27/2016	16:33:00	0.96	0.10
run2	9/27/2016	16:33:15	0.92	0.09
run2	9/27/2016	16:33:30	0.95	0.09
run2	9/27/2016	16:33:45	1.00	0.11
run2	9/27/2016	16:34:00	1.09	0.11
run2	9/27/2016	16:34:15	1.11	0.12
run2	9/27/2016	16:34:30	1.13	0.10
run2	9/27/2016	16:34:45	1.18	0.12
run2	9/27/2016	16:35:00	1.27	0.12
run2	9/27/2016	16:35:15	1.23	0.10
run2	9/27/2016	16:35:30	1.08	0.10
run2	9/27/2016	16:35:45	0.99	0.10
run2	9/27/2016	16:36:00	0.93	0.10
run2	9/27/2016	16:36:15	0.90	0.09

run2	9/27/2016	16:36:30	0.93	0.09						
run2	9/27/2016	16:36:45	0.98	0.10						
run2	9/27/2016	16:37:00	0.99	0.11						
run2	9/27/2016	16:37:15	0.97	0.08						
run2	9/27/2016	16:37:30	0.96	0.08						
run2	9/27/2016	16:37:45	0.97	0.10						
run2	9/27/2016	16:38:00	0.97	0.09						
run2	9/27/2016	16:38:15	0.96	0.09						
run2	9/27/2016	16:38:30	0.98	0.08						
run2	9/27/2016	16:38:45	1.02	0.08						
run2	9/27/2016	16:39:00	1.04	0.07						
run2	9/27/2016	16:39:15	0.98	0.07						
run2	9/27/2016	16:39:30	0.91	0.07						
run2	9/27/2016	16:39:45	0.90	0.07						
run2	9/27/2016	16:40:00	0.94	0.08						
run2	9/27/2016	16:40:15	0.98	0.08						
run2	9/27/2016	16:40:30	1.07	0.10						
run2	9/27/2016	16:40:45	1.11	0.10						
run2	9/27/2016	16:41:00	1.09	0.10						
run2	9/27/2016	16:41:15	1.09	0.11						
run2	9/27/2016	16:41:30	1.13	0.10						
run2	9/27/2016	16:41:45	1.10	0.09						
run2	9/27/2016	16:42:00	1.04	0.09						
run2	9/27/2016	16:42:15	1.03	0.08						
run2	9/27/2016	16:42:30	1.06	0.09						
run2	9/27/2016	16:42:45	1.06	0.10						
run2	9/27/2016	16:43:00	0.99	0.10						
run2	9/27/2016	16:43:15	0.93	0.11						
run2	9/27/2016	16:43:30	0.93	0.11						
run2	9/27/2016	16:43:45	0.94	0.09						
averun2	9/27/2016	15:40:00	1.09	0.11		64				
scg12	9/27/2016	16:44:00	0.96	0.11	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:44:15	0.98	0.12	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:44:30	1.12	2.83	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:44:45	2.63	4.78	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:45:00	3.50	4.84	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:45:15	2.04	4.89	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:45:30	0.67	4.94	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:45:45	0.41	5.03	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:46:00	0.35	5.04	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:46:15	0.36	5.05	ET0010875/cg12	THC	5.01		0.00	
scg12	9/27/2016	16:46:30	0.37	5.05	ET0010875/cg12	THC	5.01		0.00	
thcspan1	9/27/2016	16:46:30	0.37	5.05	ET0010875/cg12	THC	5.01		0.00	
scg9	9/27/2016	16:46:45	0.36	5.04	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:47:00	0.35	5.05	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:47:15	0.36	3.77	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:47:30	0.33	0.24	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:47:45	0.13	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:48:00	-0.14	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:48:15	-0.19	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:48:30	-0.12	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:48:45	-0.10	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:49:00	-0.09	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:49:15	-0.07	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	16:49:30	-0.08	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
cozero1	9/27/2016	16:49:30	-0.08	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
thczero1	9/27/2016	16:49:15	-0.07	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
o2span1	9/27/2016	16:49:30	-0.08	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
co2span1	9/27/2016	16:49:30	-0.08	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg4	9/27/2016	16:49:45	-0.10	0.01	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:50:00	-0.09	0.01	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:50:15	-0.11	0.03	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:50:30	0.18	-0.03	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:50:45	1.65	-0.05	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:51:00	3.83	-0.06	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:51:15	4.77	-0.06	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:51:30	4.98	-0.06	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	16:51:45	5.00	-0.05	ALM018547/cg4	CO	5.06		0.00	
o2zero1	9/27/2016	16:51:45	5.00	-0.05	ALM018547/cg4	CO	5.06		0.00	
co2zero1	9/27/2016	16:51:45	5.00	-0.05	ALM018547/cg4	CO	5.06		0.00	
cospan1	9/27/2016	16:51:45	5.00	-0.05	ALM018547/cg4	CO	5.06		0.00	
run3	9/27/2016	16:57:00	1.28	0.08						
run3	9/27/2016	16:57:15	1.23	0.08						
run3	9/27/2016	16:57:30	1.09	0.09						
run3	9/27/2016	16:57:45	1.05	0.10						
run3	9/27/2016	16:58:00	1.03	0.10						
run3	9/27/2016	16:58:15	1.01	0.09						
run3	9/27/2016	16:58:30	1.13	0.09						
run3	9/27/2016	16:58:45	1.22	0.09						
run3	9/27/2016	16:59:00	1.18	0.08						
run3	9/27/2016	16:59:15	1.13	0.08						
run3	9/27/2016	16:59:30	1.10	0.09						
run3	9/27/2016	16:59:45	1.12	0.08						
run3	9/27/2016	17:00:00	1.10	0.09						
run3	9/27/2016	17:00:15	1.08	0.10						
run3	9/27/2016	17:00:30	1.09	0.10						

run3	9/27/2016	17:00:45	1.10	0.09
run3	9/27/2016	17:01:00	1.08	0.09
run3	9/27/2016	17:01:15	1.12	0.09
run3	9/27/2016	17:01:30	1.17	0.09
run3	9/27/2016	17:01:45	1.25	0.09
run3	9/27/2016	17:02:00	1.35	0.10
run3	9/27/2016	17:02:15	1.37	0.10
run3	9/27/2016	17:02:30	1.31	0.09
run3	9/27/2016	17:02:45	1.23	0.08
run3	9/27/2016	17:03:00	1.19	0.08
run3	9/27/2016	17:03:15	1.16	0.09
run3	9/27/2016	17:03:30	1.13	0.09
run3	9/27/2016	17:03:45	1.07	0.08
run3	9/27/2016	17:04:00	1.01	0.10
run3	9/27/2016	17:04:15	0.99	0.11
run3	9/27/2016	17:04:30	1.02	0.10
run3	9/27/2016	17:04:45	0.98	0.10
run3	9/27/2016	17:05:00	0.89	0.10
run3	9/27/2016	17:05:15	0.85	0.10
run3	9/27/2016	17:05:30	0.88	0.11
run3	9/27/2016	17:05:45	0.99	0.10
run3	9/27/2016	17:06:00	1.03	0.12
run3	9/27/2016	17:06:15	0.98	0.11
run3	9/27/2016	17:06:30	0.94	0.09
run3	9/27/2016	17:06:45	0.95	0.08
run3	9/27/2016	17:07:00	1.03	0.08
run3	9/27/2016	17:07:15	1.05	0.09
run3	9/27/2016	17:07:30	1.05	0.09
run3	9/27/2016	17:07:45	1.09	0.09
run3	9/27/2016	17:08:00	1.09	0.09
run3	9/27/2016	17:08:15	1.09	0.08
run3	9/27/2016	17:08:30	1.08	0.09
run3	9/27/2016	17:08:45	1.06	0.08
run3	9/27/2016	17:09:00	1.08	0.07
run3	9/27/2016	17:09:15	1.15	0.07
run3	9/27/2016	17:09:30	1.18	0.07
run3	9/27/2016	17:09:45	1.20	0.07
run3	9/27/2016	17:10:00	1.17	0.07
run3	9/27/2016	17:10:15	1.20	0.08
run3	9/27/2016	17:10:30	1.24	0.07
run3	9/27/2016	17:10:45	1.21	0.06
run3	9/27/2016	17:11:00	1.17	0.05
run3	9/27/2016	17:11:15	1.20	0.07
run3	9/27/2016	17:11:30	1.19	0.08
run3	9/27/2016	17:11:45	1.11	0.08
run3	9/27/2016	17:12:00	1.01	0.08
run3	9/27/2016	17:12:15	0.94	0.07
run3	9/27/2016	17:12:30	1.01	0.08
run3	9/27/2016	17:12:45	1.11	0.08
run3	9/27/2016	17:13:00	1.22	0.08
run3	9/27/2016	17:13:15	1.27	0.07
run3	9/27/2016	17:13:30	1.22	0.07
run3	9/27/2016	17:13:45	1.20	0.07
run3	9/27/2016	17:14:00	1.18	0.07
run3	9/27/2016	17:14:15	1.08	0.07
run3	9/27/2016	17:14:30	1.00	0.07
run3	9/27/2016	17:14:45	1.02	0.08
run3	9/27/2016	17:15:00	1.03	0.09
run3	9/27/2016	17:15:15	1.02	0.08
run3	9/27/2016	17:15:30	1.06	0.09
run3	9/27/2016	17:15:45	1.18	0.07
run3	9/27/2016	17:16:00	1.29	0.08
run3	9/27/2016	17:16:15	1.22	0.09
run3	9/27/2016	17:16:30	1.06	0.10
run3	9/27/2016	17:16:45	0.99	0.08
run3	9/27/2016	17:17:00	0.97	0.07
run3	9/27/2016	17:17:15	0.97	0.09
run3	9/27/2016	17:17:30	1.02	0.11
run3	9/27/2016	17:17:45	1.06	0.12
run3	9/27/2016	17:18:00	1.06	0.12
run3	9/27/2016	17:18:15	1.08	0.12
run3	9/27/2016	17:18:30	1.11	0.14
run3	9/27/2016	17:18:45	1.14	0.11
run3	9/27/2016	17:19:00	1.18	0.10
run3	9/27/2016	17:19:15	1.13	0.09
run3	9/27/2016	17:19:30	1.03	0.08
run3	9/27/2016	17:19:45	1.00	0.08
run3	9/27/2016	17:20:00	1.01	0.08
run3	9/27/2016	17:20:15	1.08	0.07
run3	9/27/2016	17:20:30	1.20	0.08
run3	9/27/2016	17:20:45	1.23	0.10
run3	9/27/2016	17:21:00	1.19	0.10
run3	9/27/2016	17:21:15	1.16	0.08
run3	9/27/2016	17:21:30	1.17	0.09
run3	9/27/2016	17:21:45	1.15	0.09
run3	9/27/2016	17:22:00	1.14	0.08

run3	9/27/2016	17:22:15	1.16	0.09
run3	9/27/2016	17:22:30	1.16	0.10
run3	9/27/2016	17:22:45	1.18	0.08
run3	9/27/2016	17:23:00	1.24	0.08
run3	9/27/2016	17:23:15	1.16	0.07
run3	9/27/2016	17:23:30	1.08	0.08
run3	9/27/2016	17:23:45	1.10	0.09
run3	9/27/2016	17:24:00	1.16	0.10
run3	9/27/2016	17:24:15	1.20	0.11
run3	9/27/2016	17:24:30	1.16	0.09
run3	9/27/2016	17:24:45	1.08	0.08
run3	9/27/2016	17:25:00	1.12	0.07
run3	9/27/2016	17:25:15	1.11	0.07
run3	9/27/2016	17:25:30	1.03	0.06
run3	9/27/2016	17:25:45	1.06	0.06
run3	9/27/2016	17:26:00	1.11	0.07
run3	9/27/2016	17:26:15	1.12	0.07
run3	9/27/2016	17:26:30	1.09	0.07
run3	9/27/2016	17:26:45	1.02	0.08
run3	9/27/2016	17:27:00	1.01	0.09
run3	9/27/2016	17:27:15	1.05	0.09
run3	9/27/2016	17:27:30	1.05	0.09
run3	9/27/2016	17:27:45	1.07	0.09
run3	9/27/2016	17:28:00	1.09	0.10
run3	9/27/2016	17:28:15	1.08	0.11
run3	9/27/2016	17:28:30	1.12	0.09
run3	9/27/2016	17:28:45	1.09	0.10
run3	9/27/2016	17:29:00	1.05	0.09
run3	9/27/2016	17:29:15	1.04	0.09
run3	9/27/2016	17:29:30	1.07	0.09
run3	9/27/2016	17:29:45	1.05	0.08
run3	9/27/2016	17:30:00	1.02	0.06
run3	9/27/2016	17:30:15	1.00	0.05
run3	9/27/2016	17:30:30	1.05	0.06
run3	9/27/2016	17:30:45	1.08	0.06
run3	9/27/2016	17:31:00	1.06	0.06
run3	9/27/2016	17:31:15	1.05	0.06
run3	9/27/2016	17:31:30	1.07	0.07
run3	9/27/2016	17:31:45	1.11	0.07
run3	9/27/2016	17:32:00	1.13	0.08
run3	9/27/2016	17:32:15	1.07	0.08
run3	9/27/2016	17:32:30	1.02	0.09
run3	9/27/2016	17:32:45	1.00	0.10
run3	9/27/2016	17:33:00	1.03	0.09
run3	9/27/2016	17:33:15	1.03	0.08
run3	9/27/2016	17:33:30	1.04	0.08
run3	9/27/2016	17:33:45	1.06	0.09
run3	9/27/2016	17:34:00	1.10	0.08
run3	9/27/2016	17:34:15	1.11	0.08
run3	9/27/2016	17:34:30	1.09	0.08
run3	9/27/2016	17:34:45	1.09	0.08
run3	9/27/2016	17:35:00	1.08	0.08
run3	9/27/2016	17:35:15	1.11	0.08
run3	9/27/2016	17:35:30	1.12	0.08
run3	9/27/2016	17:35:45	1.10	0.08
run3	9/27/2016	17:36:00	1.07	0.09
run3	9/27/2016	17:36:15	1.02	0.09
run3	9/27/2016	17:36:30	1.07	0.10
run3	9/27/2016	17:36:45	1.10	0.09
run3	9/27/2016	17:37:00	1.11	0.08
run3	9/27/2016	17:37:15	1.10	0.08
run3	9/27/2016	17:37:30	1.09	0.08
run3	9/27/2016	17:37:45	1.09	0.09
run3	9/27/2016	17:38:00	1.13	0.09
run3	9/27/2016	17:38:15	1.12	0.09
run3	9/27/2016	17:38:30	1.08	0.08
run3	9/27/2016	17:38:45	1.05	0.10
run3	9/27/2016	17:39:00	1.04	0.08
run3	9/27/2016	17:39:15	1.08	0.07
run3	9/27/2016	17:39:30	1.14	0.07
run3	9/27/2016	17:39:45	1.11	0.07
run3	9/27/2016	17:40:00	1.05	0.08
run3	9/27/2016	17:40:15	1.03	0.08
run3	9/27/2016	17:40:30	1.04	0.09
run3	9/27/2016	17:40:45	1.07	0.10
run3	9/27/2016	17:41:00	1.06	0.09
run3	9/27/2016	17:41:15	1.08	0.08
run3	9/27/2016	17:41:30	1.08	0.08
run3	9/27/2016	17:41:45	1.06	0.07
run3	9/27/2016	17:42:00	1.07	0.07
run3	9/27/2016	17:42:15	1.12	0.08
run3	9/27/2016	17:42:30	1.16	0.08
run3	9/27/2016	17:42:45	1.13	0.09
run3	9/27/2016	17:43:00	1.11	0.08
run3	9/27/2016	17:43:15	1.14	0.08
run3	9/27/2016	17:43:30	1.15	0.09

run3	9/27/2016	17:43:45	1.16	0.09						
run3	9/27/2016	17:44:00	1.10	0.10						
run3	9/27/2016	17:44:15	1.07	0.10						
run3	9/27/2016	17:44:30	1.07	0.10						
run3	9/27/2016	17:44:45	1.08	0.09						
run3	9/27/2016	17:45:00	1.11	0.09						
run3	9/27/2016	17:45:15	1.11	0.09						
run3	9/27/2016	17:45:30	1.09	0.09						
run3	9/27/2016	17:45:45	1.10	0.09						
run3	9/27/2016	17:46:00	1.11	0.09						
run3	9/27/2016	17:46:15	1.11	0.09						
run3	9/27/2016	17:46:30	1.09	0.10						
run3	9/27/2016	17:46:45	1.09	0.10						
run3	9/27/2016	17:47:00	1.10	0.09						
run3	9/27/2016	17:47:15	1.11	0.08						
run3	9/27/2016	17:47:30	1.16	0.08						
run3	9/27/2016	17:47:45	1.15	0.09						
run3	9/27/2016	17:48:00	1.12	0.08						
run3	9/27/2016	17:48:15	1.10	0.07						
run3	9/27/2016	17:48:30	1.11	0.08						
run3	9/27/2016	17:48:45	1.13	0.08						
run3	9/27/2016	17:49:00	1.15	0.09						
run3	9/27/2016	17:49:15	1.16	0.08						
run3	9/27/2016	17:49:30	1.20	0.08						
run3	9/27/2016	17:49:45	1.19	0.06						
run3	9/27/2016	17:50:00	1.16	0.05						
run3	9/27/2016	17:50:15	1.11	0.06						
run3	9/27/2016	17:50:30	1.15	0.06						
run3	9/27/2016	17:50:45	1.12	0.06						
run3	9/27/2016	17:51:00	1.13	0.06						
run3	9/27/2016	17:51:15	1.16	0.05						
run3	9/27/2016	17:51:30	1.13	0.06						
run3	9/27/2016	17:51:45	1.10	0.06						
run3	9/27/2016	17:52:00	1.05	0.07						
run3	9/27/2016	17:52:15	1.05	0.07						
run3	9/27/2016	17:52:30	1.06	0.09						
run3	9/27/2016	17:52:45	1.06	0.10						
run3	9/27/2016	17:53:00	1.10	0.11						
run3	9/27/2016	17:53:15	1.13	0.10						
run3	9/27/2016	17:53:30	1.12	0.09						
run3	9/27/2016	17:53:45	1.08	0.07						
run3	9/27/2016	17:54:00	1.04	0.08						
run3	9/27/2016	17:54:15	1.06	0.08						
run3	9/27/2016	17:54:30	1.13	0.07						
run3	9/27/2016	17:54:45	1.14	0.07						
run3	9/27/2016	17:55:00	1.14	0.06						
run3	9/27/2016	17:55:15	1.12	0.07						
run3	9/27/2016	17:55:30	1.14	0.09						
run3	9/27/2016	17:55:45	1.13	0.09						
run3	9/27/2016	17:56:00	1.13	0.10						
run3	9/27/2016	17:56:15	1.17	0.10						
run3	9/27/2016	17:56:30	1.20	0.10						
run3	9/27/2016	17:56:45	1.21	0.09						
run3	9/27/2016	17:57:00	1.16	0.10						
run3	9/27/2016	17:57:15	1.12	0.09						
run3	9/27/2016	17:57:30	1.09	0.08						
run3	9/27/2016	17:57:45	1.10	0.08						
run3	9/27/2016	17:58:00	1.11	0.09						
run3	9/27/2016	17:58:15	1.15	0.09						
run3	9/27/2016	17:58:30	1.18	0.11						
run3	9/27/2016	17:58:45	1.15	0.10						
run3	9/27/2016	17:59:00	1.10	0.10						
run3	9/27/2016	17:59:15	1.09	0.10						
run3	9/27/2016	17:59:30	1.09	0.09						
run3	9/27/2016	17:59:45	1.10	0.10						
run3	9/27/2016	18:00:00	1.10	0.11						
run3	9/27/2016	18:00:15	1.11	0.08						
run3	9/27/2016	18:00:30	1.11	0.07						
run3	9/27/2016	18:00:45	1.07	0.06						
averun3	9/27/2016	16:57:00	1.10	0.08		64				
scg4	9/27/2016	18:01:00	1.06	0.06	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:01:15	1.10	0.08	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:01:30	1.34	0.18	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:01:45	3.32	-0.01	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:02:00	5.63	-0.04	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:02:15	5.68	-0.04	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:02:30	5.14	-0.05	ALM018547/cg4	CO	5.06		0.00	
scg4	9/27/2016	18:02:45	5.06	-0.06	ALM018547/cg4	CO	5.06		0.00	
o2zero1	9/27/2016	18:02:45	5.06	-0.06	ALM018547/cg4	CO	5.06		0.00	
co2zero1	9/27/2016	18:02:45	5.06	-0.06	ALM018547/cg4	CO	5.06		0.00	
cospan1	9/27/2016	18:02:45	5.06	-0.06	ALM018547/cg4	CO	5.06		0.00	
scg9	9/27/2016	18:03:00	5.04	-0.05	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	18:03:15	5.05	-0.06	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	18:03:30	5.02	-0.06	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	18:03:45	4.45	-0.03	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/27/2016	18:04:00	2.20	-0.02	EB0080791/cg9	CO2	10.96	O2	11.08	

scg9	9/27/2016	18:04:15	0.50	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	18:04:30	-0.03	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	18:04:45	-0.11	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/27/2016	18:05:00	-0.09	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/27/2016	18:05:00	-0.09	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/27/2016	18:04:45	-0.11	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/27/2016	18:05:00	-0.09	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/27/2016	18:05:00	-0.09	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/27/2016	18:05:15	-0.09	-0.02	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:05:30	-0.09	-0.01	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:05:45	-0.11	1.68	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:06:00	-0.06	5.01	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:06:15	0.10	5.07	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:06:30	0.31	5.07	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:06:45	0.33	5.08	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:07:00	0.32	5.09	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:07:15	0.31	5.09	ET0010875/cg12	THC	5.01		0.00
scg12	9/27/2016	18:07:30	0.30	5.11	ET0010875/cg12	THC	5.01		0.00
thcspan1	9/27/2016	18:07:30	0.30	5.11	ET0010875/cg12	THC	5.01		0.00
End									

Model 2 Thermal Combustor Outlet Stack
Carbon Monoxide
Concentration

Condition-Run Number	Measured (ppm)	Adjusted (ppm*)
III-1	1.38	1.37
III-2	1.08	1.06
III-3	1.00	1.00

*Calculated according to equation 7E-5.

Model 2 Thermal Combustor Outlet Stack
Total Hydrocarbons
Concentration

Condition-Run Number	Measured (wet ppm)
III-1	0.09
III-2	0.09
III-3	0.10

Model 2 Thermal Combustor Outlet Stack
Calibration Summary
Carbon Monoxide

Condition-Run Number	CO Calibration Initial Drift Check (ppm)	CO Calibration Final Drift Check (ppm)	CO Calibration Average (ppm)	CO Zero Initial Drift Check (ppm)	CO Zero Final Drift Check (ppm)	CO Zero Average (ppm)	Actual CO Calibration Value (ppm)	Actual CO Zero Value (ppm)
III-1	5.05	5.08	5.07	-0.01	0.02	0.01	5.06	0.00
III-2	5.08	5.13	5.11	0.02	0.00	0.01	5.06	0.00
III-3	5.13	5.07	5.10	0.00	-0.01	-0.01	5.06	0.00

Model 2 Thermal Combustor Outlet Stack
System Calibration Bias and Drift Data
Carbon Monoxide
Calibration Span = 9.86 ppm

Condition-Run Number	CO Calibration Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	CO Zero Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	Analyzer Calibration Response Mid Level (ppm)	Analyzer Calibration Response Zero Level (ppm)
III-1	5.05	0.30	5.08	0.00	0.30	-0.01	0.10	0.02	0.41	0.30	5.08	-0.02
III-2	5.08	0.00	5.13	0.51	0.51	0.02	0.41	0.00	0.20	0.20	5.08	-0.02
III-3	5.13	0.51	5.07	0.10	0.61	0.00	0.20	-0.01	0.10	0.10	5.08	-0.02

* PERCENT OF CALIBRATION SPAN

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Carbon Monoxide

Date 09/28/16
Condition III

Calibration Span = 9.86 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Low	0.00	-0.02	0.02	0.20
Mid	5.06	5.08	0.02	0.20
High	9.86	9.90	0.04	0.41

* Percent of calibration span

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Total Hydrocarbons

Date 09/28/16
Condition III
Span = 10 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Zero	0.00	0.01	0.01	----
Low	3.13	3.12	0.01	0.32
Mid	5.01	5.01	0.00	0.00
High	8.48	8.48	0.00	----

* Percent of span gas

filename	9/28/2016	7:16:53							
testby1	METCO Environmental								
testby2	Baton Rouge Operations								
testby3	9								
testby4	Jeremiah Johnson								
testfor1	COMM Engineering								
testfor2	*								
testfor3	Unit 2								
testfor4	Lafayette, LA								
name			CO	THC					
sn			208845.00	1125748714.00					
offset			0.00	0.00					
fullscale			10.10	10.00					
train			1.00	1.00					
gastype			co 10	thc 25a					
dcg1	9/28/2016	7:17:45	0.70	1.33	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:00	0.67	2.02	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:15	4.22	0.67	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:30	10.07	-0.07	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:45	10.30	-0.10	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:00	4.30	-0.11	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:15	1.27	-0.11	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:30	0.83	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:45	0.74	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:00	0.69	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:15	0.68	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:30	0.00	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:45	-0.01	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:00	-0.02	0.01	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:15	-0.05	0.02	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:30	-0.01	0.01	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
o2ezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
co2ezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
coezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
thcezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
dcg3	9/28/2016	7:22:00	-0.04	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:22:15	-0.06	0.00	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:22:30	-0.05	0.28	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:22:45	0.07	0.07	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:00	2.73	0.02	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:15	6.41	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:30	8.41	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:45	8.82	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:00	8.89	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:15	9.85	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:30	9.90	0.02	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:45	9.90	0.04	BLM000616/cg3	CO	9.86		0
cohigh1	9/28/2016	7:24:45	9.90	0.04	BLM000616/cg3	CO	9.86		0
dcg10	9/28/2016	7:25:15	9.92	0.10	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:25:30	9.77	0.88	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:25:45	8.13	0.27	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:00	4.02	0.24	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:15	0.99	0.25	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:30	-0.38	0.25	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:45	-0.53	0.24	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:27:00	-0.53	0.23	AAL021715/cg10	CO2	20	O2	19.9

dcg10	9/28/2016	7:27:15	-0.53	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:27:30	-0.24	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:27:45	-0.04	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:28:00	-0.02	0.23	AAL021715/cg10	CO2	20	O2	19.9
o2high1	9/28/2016	7:28:00	-0.02	0.23	AAL021715/cg10	CO2	20	O2	19.9
co2high1	9/28/2016	7:28:00	-0.02	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg9	9/28/2016	7:30:15	0.69	1.37	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:30:30	0.68	1.29	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:30:45	0.66	0.24	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:00	0.40	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:15	0.06	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:30	0.08	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:45	0.16	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:32:00	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
o2mid1	9/28/2016	7:32:00	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
co2mid1	9/28/2016	7:32:00	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
dcg4	9/28/2016	7:32:30	0.02	0.02	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:32:45	0.00	0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:00	0.02	0.06	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:15	0.76	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:30	3.36	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:45	5.03	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:00	5.62	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:15	5.30	-0.10	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:30	5.13	-0.10	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:45	5.08	-0.10	ALM018547/cg4	CO	5.06		0
comid1	9/28/2016	7:34:45	5.08	-0.10	ALM018547/cg4	CO	5.06		0
dcg13	9/28/2016	7:35:15	5.06	-0.10	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:35:30	5.09	0.40	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:35:45	4.74	6.51	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:00	3.28	9.32	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:15	1.68	9.34	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:30	0.69	9.36	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:45	0.51	9.36	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:37:00	0.48	8.78	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:37:15	0.46	8.48	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:37:30	0.44	8.48	ET0010859/cg13	THC	8.48		0
thchigh1	9/28/2016	7:37:30	0.44	8.48	ET0010859/cg13	THC	8.48		0
dcg11	9/28/2016	7:39:15	0.50	0.88	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:39:30	0.49	0.88	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:39:45	0.47	2.10	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:00	0.51	3.19	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:15	0.56	2.99	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:30	0.57	3.06	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:45	0.56	3.12	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:41:00	0.56	3.12	BLM005063/cg11	THC	3.13		0
thclow1	9/28/2016	7:41:00	0.56	3.12	BLM005063/cg11	THC	3.13		0
dcg12	9/28/2016	7:43:30	0.52	0.90	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:43:45	0.49	1.12	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:00	0.51	6.90	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:15	0.57	8.80	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:30	0.54	8.81	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:45	0.47	8.83	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:00	0.43	8.83	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:15	0.44	8.84	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:30	0.46	8.84	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:45	0.44	7.35	ET0010875/cg12	THC	5.01		0

dcg12	9/28/2016	7:46:00	0.43	2.21	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:46:15	0.45	5.33	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:46:30	0.49	5.25	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:46:45	0.48	5.23	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:00	0.43	5.23	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:15	0.43	5.23	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:30	0.44	5.05	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:45	0.46	4.99	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:00	0.44	4.98	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:15	0.43	4.99	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:30	0.45	5.01	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:45	0.46	5.00	ET0010875/cg12	THC	5.01		0
thcmid1	9/28/2016	7:48:30	0.45	5.01	ET0010875/cg12	THC	5.01		0
scg9	9/28/2016	8:29:30	1.28	5.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:29:45	1.43	10.18	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:30:00	3.82	9.14	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:30:15	5.33	0.73	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:30:30	4.26	0.08	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:30:45	1.70	0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:31:00	0.24	0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:31:15	-0.05	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:31:30	-0.01	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	8:31:45	-0.01	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/28/2016	8:31:45	-0.01	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/28/2016	8:31:45	-0.01	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/28/2016	8:31:45	-0.01	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/28/2016	8:31:45	-0.01	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/28/2016	8:32:15	-0.04	0.00	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	8:32:30	-0.02	0.08	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	8:32:45	0.03	3.60	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	8:33:00	0.28	4.97	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	8:33:15	0.47	4.98	ET0010875/cg12	THC	5.01		0
thcspan1	9/28/2016	8:33:15	0.47	4.98	ET0010875/cg12	THC	5.01		0
scg4	9/28/2016	8:33:30	0.48	4.97	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:33:45	0.44	4.97	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:34:00	0.43	2.91	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:34:15	0.63	0.06	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:34:30	2.22	-0.08	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:34:45	4.02	-0.08	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:35:00	4.93	-0.08	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:35:15	5.04	-0.09	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:35:30	5.04	-0.09	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:35:45	5.05	-0.09	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	8:36:00	5.08	-0.09	ALM018547/cg4	CO	5.06		0
o2zero1	9/28/2016	8:35:45	5.05	-0.09	ALM018547/cg4	CO	5.06		0
co2zero1	9/28/2016	8:35:45	5.05	-0.09	ALM018547/cg4	CO	5.06		0
cospan1	9/28/2016	8:35:45	5.05	-0.09	ALM018547/cg4	CO	5.06		0
run1	9/28/2016	8:52:00	1.87	0.10					
run1	9/28/2016	8:52:15	1.94	0.10					
run1	9/28/2016	8:52:30	1.96	0.10					
run1	9/28/2016	8:52:45	1.99	0.10					
run1	9/28/2016	8:53:00	1.95	0.11					
run1	9/28/2016	8:53:15	2.01	0.09					
run1	9/28/2016	8:53:30	2.13	0.09					
run1	9/28/2016	8:53:45	2.20	0.08					
run1	9/28/2016	8:54:00	2.12	0.10					
run1	9/28/2016	8:54:15	2.10	0.10					

run1	9/28/2016	8:54:30	2.27	0.11
run1	9/28/2016	8:54:45	2.49	0.11
run1	9/28/2016	8:55:00	2.54	0.11
run1	9/28/2016	8:55:15	2.38	0.10
run1	9/28/2016	8:55:30	2.10	0.10
run1	9/28/2016	8:55:45	1.90	0.12
run1	9/28/2016	8:56:00	1.78	0.11
run1	9/28/2016	8:56:15	1.78	0.10
run1	9/28/2016	8:56:30	1.87	0.09
run1	9/28/2016	8:56:45	1.98	0.09
run1	9/28/2016	8:57:00	1.99	0.10
run1	9/28/2016	8:57:15	2.01	0.11
run1	9/28/2016	8:57:30	2.10	0.11
run1	9/28/2016	8:57:45	2.10	0.11
run1	9/28/2016	8:58:00	2.02	0.12
run1	9/28/2016	8:58:15	1.86	0.12
run1	9/28/2016	8:58:30	1.67	0.10
run1	9/28/2016	8:58:45	1.55	0.10
run1	9/28/2016	8:59:00	1.57	0.10
run1	9/28/2016	8:59:15	1.59	0.09
run1	9/28/2016	8:59:30	1.62	0.09
run1	9/28/2016	8:59:45	1.70	0.09
run1	9/28/2016	9:00:00	1.76	0.10
run1	9/28/2016	9:00:15	1.76	0.10
run1	9/28/2016	9:00:30	1.75	0.10
run1	9/28/2016	9:00:45	1.72	0.10
run1	9/28/2016	9:01:00	1.65	0.10
run1	9/28/2016	9:01:15	1.62	0.10
run1	9/28/2016	9:01:30	1.69	0.11
run1	9/28/2016	9:01:45	1.64	0.10
run1	9/28/2016	9:02:00	1.61	0.10
run1	9/28/2016	9:02:15	1.54	0.10
run1	9/28/2016	9:02:30	1.47	0.10
run1	9/28/2016	9:02:45	1.50	0.10
run1	9/28/2016	9:03:00	1.52	0.10
run1	9/28/2016	9:03:15	1.49	0.10
run1	9/28/2016	9:03:30	1.53	0.10
run1	9/28/2016	9:03:45	1.66	0.10
run1	9/28/2016	9:04:00	1.88	0.11
run1	9/28/2016	9:04:15	1.98	0.12
run1	9/28/2016	9:04:30	1.96	0.11
run1	9/28/2016	9:04:45	1.96	0.11
run1	9/28/2016	9:05:00	2.08	0.11
run1	9/28/2016	9:05:15	2.16	0.10
run1	9/28/2016	9:05:30	2.19	0.10
run1	9/28/2016	9:05:45	2.22	0.10
run1	9/28/2016	9:06:00	2.24	0.11
run1	9/28/2016	9:06:15	2.25	0.11
run1	9/28/2016	9:06:30	2.37	0.11
run1	9/28/2016	9:06:45	2.49	0.11
run1	9/28/2016	9:07:00	2.58	0.10
run1	9/28/2016	9:07:15	2.66	0.11
run1	9/28/2016	9:07:30	2.64	0.13
run1	9/28/2016	9:07:45	2.70	0.13
run1	9/28/2016	9:08:00	2.71	0.12
run1	9/28/2016	9:08:15	2.57	0.12
run1	9/28/2016	9:08:30	2.22	0.11

run1	9/28/2016	9:08:45	1.90	0.11
run1	9/28/2016	9:09:00	1.78	0.11
run1	9/28/2016	9:09:15	1.80	0.10
run1	9/28/2016	9:09:30	1.67	0.10
run1	9/28/2016	9:09:45	1.49	0.09
run1	9/28/2016	9:10:00	1.41	0.09
run1	9/28/2016	9:10:15	1.43	0.09
run1	9/28/2016	9:10:30	1.57	0.10
run1	9/28/2016	9:10:45	1.73	0.10
run1	9/28/2016	9:11:00	1.83	0.10
run1	9/28/2016	9:11:15	1.97	0.10
run1	9/28/2016	9:11:30	2.09	0.11
run1	9/28/2016	9:11:45	2.09	0.11
run1	9/28/2016	9:12:00	1.97	0.10
run1	9/28/2016	9:12:15	1.89	0.09
run1	9/28/2016	9:12:30	1.84	0.07
run1	9/28/2016	9:12:45	1.80	0.07
run1	9/28/2016	9:13:00	1.78	0.09
run1	9/28/2016	9:13:15	1.74	0.08
run1	9/28/2016	9:13:30	1.72	0.08
run1	9/28/2016	9:13:45	1.72	0.08
run1	9/28/2016	9:14:00	1.54	0.08
run1	9/28/2016	9:14:15	1.27	0.08
run1	9/28/2016	9:14:30	1.15	0.08
run1	9/28/2016	9:14:45	1.15	0.09
run1	9/28/2016	9:15:00	1.11	0.09
run1	9/28/2016	9:15:15	1.14	0.09
run1	9/28/2016	9:15:30	1.17	0.09
run1	9/28/2016	9:15:45	1.14	0.08
run1	9/28/2016	9:16:00	1.16	0.08
run1	9/28/2016	9:16:15	1.20	0.09
run1	9/28/2016	9:16:30	1.13	0.09
run1	9/28/2016	9:16:45	1.04	0.08
run1	9/28/2016	9:17:00	1.00	0.08
run1	9/28/2016	9:17:15	0.97	0.08
run1	9/28/2016	9:17:30	0.95	0.09
run1	9/28/2016	9:17:45	0.94	0.09
run1	9/28/2016	9:18:00	0.97	0.10
run1	9/28/2016	9:18:15	1.03	0.09
run1	9/28/2016	9:18:30	1.05	0.09
run1	9/28/2016	9:18:45	1.09	0.09
run1	9/28/2016	9:19:00	1.10	0.10
run1	9/28/2016	9:19:15	1.04	0.10
run1	9/28/2016	9:19:30	1.02	0.10
run1	9/28/2016	9:19:45	1.02	0.10
run1	9/28/2016	9:20:00	1.05	0.11
run1	9/28/2016	9:20:15	1.07	0.11
run1	9/28/2016	9:20:30	1.11	0.10
run1	9/28/2016	9:20:45	1.20	0.10
run1	9/28/2016	9:21:00	1.43	0.09
run1	9/28/2016	9:21:15	1.55	0.09
run1	9/28/2016	9:21:30	1.56	0.10
run1	9/28/2016	9:21:45	1.55	0.09
run1	9/28/2016	9:22:00	1.63	0.08
run1	9/28/2016	9:22:15	1.66	0.08
run1	9/28/2016	9:22:30	1.58	0.09
run1	9/28/2016	9:22:45	1.56	0.10

run1	9/28/2016	9:23:00	1.61	0.10
run1	9/28/2016	9:23:15	1.59	0.10
run1	9/28/2016	9:23:30	1.39	0.10
run1	9/28/2016	9:23:45	1.09	0.09
run1	9/28/2016	9:24:00	0.83	0.09
run1	9/28/2016	9:24:15	0.82	0.09
run1	9/28/2016	9:24:30	0.98	0.08
run1	9/28/2016	9:24:45	1.06	0.09
run1	9/28/2016	9:25:00	1.11	0.06
run1	9/28/2016	9:25:15	1.17	0.06
run1	9/28/2016	9:25:30	1.28	0.07
run1	9/28/2016	9:25:45	1.36	0.07
run1	9/28/2016	9:26:00	1.34	0.07
run1	9/28/2016	9:26:15	1.33	0.07
run1	9/28/2016	9:26:30	1.29	0.07
run1	9/28/2016	9:26:45	1.22	0.08
run1	9/28/2016	9:27:00	1.17	0.09
run1	9/28/2016	9:27:15	1.12	0.08
run1	9/28/2016	9:27:30	1.06	0.10
run1	9/28/2016	9:27:45	1.08	0.09
run1	9/28/2016	9:28:00	1.11	0.08
run1	9/28/2016	9:28:15	1.09	0.08
run1	9/28/2016	9:28:30	1.07	0.08
run1	9/28/2016	9:28:45	1.04	0.08
run1	9/28/2016	9:29:00	1.09	0.08
run1	9/28/2016	9:29:15	1.16	0.09
run1	9/28/2016	9:29:30	1.13	0.09
run1	9/28/2016	9:29:45	1.06	0.08
run1	9/28/2016	9:30:00	1.02	0.08
run1	9/28/2016	9:30:15	1.02	0.08
run1	9/28/2016	9:30:30	1.04	0.08
run1	9/28/2016	9:30:45	1.03	0.08
run1	9/28/2016	9:31:00	1.07	0.09
run1	9/28/2016	9:31:15	1.13	0.09
run1	9/28/2016	9:31:30	1.15	0.09
run1	9/28/2016	9:31:45	1.11	0.09
run1	9/28/2016	9:32:00	1.12	0.09
run1	9/28/2016	9:32:15	1.15	0.09
run1	9/28/2016	9:32:30	1.17	0.09
run1	9/28/2016	9:32:45	1.15	0.09
run1	9/28/2016	9:33:00	1.12	0.12
run1	9/28/2016	9:33:15	1.09	0.13
run1	9/28/2016	9:33:30	1.06	0.12
run1	9/28/2016	9:33:45	1.07	0.12
run1	9/28/2016	9:34:00	1.13	0.12
run1	9/28/2016	9:34:15	1.15	0.12
run1	9/28/2016	9:34:30	1.13	0.12
run1	9/28/2016	9:34:45	1.09	0.09
run1	9/28/2016	9:35:00	1.03	0.08
run1	9/28/2016	9:35:15	1.05	0.09
run1	9/28/2016	9:35:30	1.06	0.10
run1	9/28/2016	9:35:45	1.06	0.10
run1	9/28/2016	9:36:00	1.12	0.09
run1	9/28/2016	9:36:15	1.14	0.08
run1	9/28/2016	9:36:30	1.18	0.07
run1	9/28/2016	9:36:45	1.21	0.08
run1	9/28/2016	9:37:00	1.24	0.08

run1	9/28/2016	9:37:15	1.19	0.09
run1	9/28/2016	9:37:30	1.13	0.09
run1	9/28/2016	9:37:45	1.15	0.09
run1	9/28/2016	9:38:00	1.00	0.09
run1	9/28/2016	9:38:15	0.71	0.09
run1	9/28/2016	9:38:30	0.58	0.10
run1	9/28/2016	9:38:45	0.70	0.09
run1	9/28/2016	9:39:00	0.75	0.08
run1	9/28/2016	9:39:15	0.65	0.07
run1	9/28/2016	9:39:30	0.69	0.08
run1	9/28/2016	9:39:45	0.93	0.08
run1	9/28/2016	9:40:00	1.07	0.09
run1	9/28/2016	9:40:15	1.03	0.08
run1	9/28/2016	9:40:30	1.06	0.07
run1	9/28/2016	9:40:45	1.17	0.08
run1	9/28/2016	9:41:00	1.30	0.09
run1	9/28/2016	9:41:15	1.40	0.09
run1	9/28/2016	9:41:30	1.40	0.09
run1	9/28/2016	9:41:45	1.33	0.10
run1	9/28/2016	9:42:00	1.29	0.11
run1	9/28/2016	9:42:15	1.22	0.11
run1	9/28/2016	9:42:30	1.14	0.09
run1	9/28/2016	9:42:45	1.09	0.10
run1	9/28/2016	9:43:00	1.08	0.09
run1	9/28/2016	9:43:15	1.04	0.09
run1	9/28/2016	9:43:30	1.01	0.09
run1	9/28/2016	9:43:45	0.99	0.09
run1	9/28/2016	9:44:00	0.97	0.08
run1	9/28/2016	9:44:15	1.00	0.08
run1	9/28/2016	9:44:30	1.08	0.08
run1	9/28/2016	9:44:45	1.07	0.07
run1	9/28/2016	9:45:00	1.00	0.07
run1	9/28/2016	9:45:15	0.96	0.06
run1	9/28/2016	9:45:30	1.01	0.07
run1	9/28/2016	9:45:45	1.06	0.07
run1	9/28/2016	9:46:00	1.07	0.08
run1	9/28/2016	9:46:15	1.04	0.08
run1	9/28/2016	9:46:30	1.03	0.08
run1	9/28/2016	9:46:45	1.00	0.08
run1	9/28/2016	9:47:00	0.99	0.08
run1	9/28/2016	9:47:15	0.99	0.09
run1	9/28/2016	9:47:30	1.02	0.10
run1	9/28/2016	9:47:45	0.99	0.10
run1	9/28/2016	9:48:00	0.98	0.10
run1	9/28/2016	9:48:15	1.13	0.10
run1	9/28/2016	9:48:30	1.37	0.10
run1	9/28/2016	9:48:45	1.47	0.10
run1	9/28/2016	9:49:00	1.53	0.11
run1	9/28/2016	9:49:15	1.54	0.10
run1	9/28/2016	9:49:30	1.37	0.09
run1	9/28/2016	9:49:45	1.00	0.08
run1	9/28/2016	9:50:00	0.66	0.07
run1	9/28/2016	9:50:15	0.69	0.07
run1	9/28/2016	9:50:30	0.86	0.09
run1	9/28/2016	9:50:45	0.95	0.09
run1	9/28/2016	9:51:00	1.06	0.09
run1	9/28/2016	9:51:15	1.15	0.09

run1	9/28/2016	9:51:30	1.16	0.09					
run1	9/28/2016	9:51:45	1.14	0.08					
run1	9/28/2016	9:52:00	1.16	0.09					
run1	9/28/2016	9:52:15	1.18	0.10					
run1	9/28/2016	9:52:30	1.09	0.09					
run1	9/28/2016	9:52:45	0.91	0.09					
run1	9/28/2016	9:53:00	0.87	0.08					
run1	9/28/2016	9:53:15	0.75	0.08					
run1	9/28/2016	9:53:30	0.62	0.08					
run1	9/28/2016	9:53:45	0.67	0.09					
run1	9/28/2016	9:54:00	0.79	0.10					
run1	9/28/2016	9:54:15	1.09	0.09					
run1	9/28/2016	9:54:30	1.13	0.11					
run1	9/28/2016	9:54:45	0.70	0.11					
run1	9/28/2016	9:55:00	0.46	0.09					
run1	9/28/2016	9:55:15	0.67	0.09					
run1	9/28/2016	9:55:30	0.87	0.08					
run1	9/28/2016	9:55:45	0.89	0.08					
averun1	9/28/2016	8:52:00	1.38	0.09	64				
scg4	9/28/2016	9:58:00	0.92	0.09	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:58:15	0.91	0.10	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:58:30	1.00	0.20	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:58:45	2.65	0.01	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:59:00	5.41	0.00	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:59:15	5.74	0.00	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:59:30	5.11	-0.02	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	9:59:45	5.02	-0.02	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	10:00:00	5.09	-0.02	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	10:00:15	5.10	-0.04	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	10:00:30	5.10	-0.05	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	10:00:45	5.09	-0.04	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	10:01:00	5.08	-0.03	ALM018547/cg4	CO	5.06		0
o2zero1	9/28/2016	10:01:00	5.08	-0.03	ALM018547/cg4	CO	5.06		0
co2zero1	9/28/2016	10:01:00	5.08	-0.03	ALM018547/cg4	CO	5.06		0
cospan1	9/28/2016	10:01:00	5.08	-0.03	ALM018547/cg4	CO	5.06		0
scg9	9/28/2016	10:01:30	5.09	-0.05	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:01:45	5.08	-0.05	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:02:00	5.01	-0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:02:15	3.95	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:02:30	1.49	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:02:45	0.28	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:03:00	-0.07	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:03:15	0.00	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	10:03:30	0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/28/2016	10:03:30	0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/28/2016	10:03:30	0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/28/2016	10:03:30	0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/28/2016	10:03:30	0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/28/2016	10:03:45	-0.01	0.01	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:04:00	-0.01	0.01	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:04:15	0.00	0.68	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:04:30	0.05	4.35	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:04:45	0.18	4.66	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:05:00	0.41	4.67	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:05:15	0.46	4.75	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:05:30	0.44	5.01	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	10:05:45	0.42	5.02	ET0010875/cg12	THC	5.01		0

thcspan1	9/28/2016	10:05:45	0.42	5.02	ET0010875/cg12	THC	5.01	0
run2	9/28/2016	10:09:00	1.11	0.11				
run2	9/28/2016	10:09:15	1.16	0.09				
run2	9/28/2016	10:09:30	1.17	0.10				
run2	9/28/2016	10:09:45	1.18	0.11				
run2	9/28/2016	10:10:00	1.19	0.11				
run2	9/28/2016	10:10:15	1.12	0.12				
run2	9/28/2016	10:10:30	1.04	0.12				
run2	9/28/2016	10:10:45	1.10	0.12				
run2	9/28/2016	10:11:00	1.15	0.12				
run2	9/28/2016	10:11:15	1.20	0.11				
run2	9/28/2016	10:11:30	1.26	0.11				
run2	9/28/2016	10:11:45	1.25	0.11				
run2	9/28/2016	10:12:00	1.28	0.10				
run2	9/28/2016	10:12:15	1.53	0.11				
run2	9/28/2016	10:12:30	2.15	0.11				
run2	9/28/2016	10:12:45	2.20	0.09				
run2	9/28/2016	10:13:00	1.47	0.09				
run2	9/28/2016	10:13:15	1.24	0.10				
run2	9/28/2016	10:13:30	1.31	0.10				
run2	9/28/2016	10:13:45	1.33	0.11				
run2	9/28/2016	10:14:00	1.26	0.11				
run2	9/28/2016	10:14:15	1.17	0.10				
run2	9/28/2016	10:14:30	1.12	0.10				
run2	9/28/2016	10:14:45	1.13	0.10				
run2	9/28/2016	10:15:00	1.18	0.09				
run2	9/28/2016	10:15:15	1.22	0.09				
run2	9/28/2016	10:15:30	1.20	0.08				
run2	9/28/2016	10:15:45	1.16	0.10				
run2	9/28/2016	10:16:00	1.13	0.09				
run2	9/28/2016	10:16:15	1.14	0.10				
run2	9/28/2016	10:16:30	1.24	0.10				
run2	9/28/2016	10:16:45	1.34	0.10				
run2	9/28/2016	10:17:00	1.27	0.10				
run2	9/28/2016	10:17:15	1.08	0.10				
run2	9/28/2016	10:17:30	0.91	0.10				
run2	9/28/2016	10:17:45	0.86	0.11				
run2	9/28/2016	10:18:00	0.93	0.11				
run2	9/28/2016	10:18:15	0.97	0.11				
run2	9/28/2016	10:18:30	0.96	0.10				
run2	9/28/2016	10:18:45	0.91	0.09				
run2	9/28/2016	10:19:00	0.86	0.08				
run2	9/28/2016	10:19:15	0.85	0.07				
run2	9/28/2016	10:19:30	0.84	0.07				
run2	9/28/2016	10:19:45	0.81	0.07				
run2	9/28/2016	10:20:00	0.80	0.07				
run2	9/28/2016	10:20:15	0.82	0.07				
run2	9/28/2016	10:20:30	0.89	0.08				
run2	9/28/2016	10:20:45	0.95	0.08				
run2	9/28/2016	10:21:00	0.95	0.07				
run2	9/28/2016	10:21:15	0.95	0.08				
run2	9/28/2016	10:21:30	0.91	0.09				
run2	9/28/2016	10:21:45	0.93	0.08				
run2	9/28/2016	10:22:00	0.98	0.08				
run2	9/28/2016	10:22:15	1.12	0.08				
run2	9/28/2016	10:22:30	1.31	0.08				
run2	9/28/2016	10:22:45	1.35	0.08				

run2	9/28/2016	10:23:00	1.31	0.09
run2	9/28/2016	10:23:15	1.35	0.09
run2	9/28/2016	10:23:30	1.48	0.09
run2	9/28/2016	10:23:45	1.47	0.09
run2	9/28/2016	10:24:00	1.37	0.09
run2	9/28/2016	10:24:15	1.31	0.08
run2	9/28/2016	10:24:30	1.31	0.09
run2	9/28/2016	10:24:45	1.32	0.08
run2	9/28/2016	10:25:00	1.35	0.09
run2	9/28/2016	10:25:15	1.31	0.10
run2	9/28/2016	10:25:30	1.23	0.10
run2	9/28/2016	10:25:45	1.21	0.09
run2	9/28/2016	10:26:00	1.14	0.08
run2	9/28/2016	10:26:15	1.01	0.08
run2	9/28/2016	10:26:30	0.98	0.10
run2	9/28/2016	10:26:45	1.00	0.09
run2	9/28/2016	10:27:00	0.72	0.09
run2	9/28/2016	10:27:15	0.65	0.09
run2	9/28/2016	10:27:30	0.99	0.09
run2	9/28/2016	10:27:45	1.10	0.09
run2	9/28/2016	10:28:00	0.97	0.09
run2	9/28/2016	10:28:15	0.92	0.08
run2	9/28/2016	10:28:30	0.86	0.08
run2	9/28/2016	10:28:45	0.81	0.09
run2	9/28/2016	10:29:00	0.80	0.09
run2	9/28/2016	10:29:15	0.85	0.09
run2	9/28/2016	10:29:30	0.94	0.07
run2	9/28/2016	10:29:45	1.03	0.09
run2	9/28/2016	10:30:00	1.09	0.10
run2	9/28/2016	10:30:15	1.09	0.10
run2	9/28/2016	10:30:30	1.10	0.10
run2	9/28/2016	10:30:45	1.06	0.11
run2	9/28/2016	10:31:00	0.99	0.10
run2	9/28/2016	10:31:15	0.94	0.10
run2	9/28/2016	10:31:30	0.93	0.10
run2	9/28/2016	10:31:45	0.90	0.09
run2	9/28/2016	10:32:00	0.87	0.10
run2	9/28/2016	10:32:15	0.90	0.09
run2	9/28/2016	10:32:30	0.91	0.10
run2	9/28/2016	10:32:45	0.88	0.09
run2	9/28/2016	10:33:00	0.85	0.09
run2	9/28/2016	10:33:15	0.86	0.10
run2	9/28/2016	10:33:30	0.91	0.09
run2	9/28/2016	10:33:45	0.90	0.08
run2	9/28/2016	10:34:00	0.88	0.08
run2	9/28/2016	10:34:15	0.89	0.08
run2	9/28/2016	10:34:30	0.88	0.08
run2	9/28/2016	10:34:45	0.90	0.08
run2	9/28/2016	10:35:00	0.92	0.08
run2	9/28/2016	10:35:15	0.92	0.08
run2	9/28/2016	10:35:30	0.90	0.08
run2	9/28/2016	10:35:45	0.88	0.08
run2	9/28/2016	10:36:00	0.87	0.07
run2	9/28/2016	10:36:15	0.89	0.08
run2	9/28/2016	10:36:30	0.93	0.09
run2	9/28/2016	10:36:45	1.07	0.09
run2	9/28/2016	10:37:00	1.27	0.10

run2	9/28/2016	10:37:15	1.30	0.11
run2	9/28/2016	10:37:30	1.31	0.11
run2	9/28/2016	10:37:45	1.35	0.10
run2	9/28/2016	10:38:00	1.36	0.09
run2	9/28/2016	10:38:15	1.34	0.10
run2	9/28/2016	10:38:30	1.34	0.11
run2	9/28/2016	10:38:45	1.39	0.11
run2	9/28/2016	10:39:00	1.43	0.10
run2	9/28/2016	10:39:15	1.20	0.10
run2	9/28/2016	10:39:30	0.99	0.10
run2	9/28/2016	10:39:45	0.97	0.11
run2	9/28/2016	10:40:00	1.01	0.10
run2	9/28/2016	10:40:15	1.07	0.12
run2	9/28/2016	10:40:30	1.09	0.13
run2	9/28/2016	10:40:45	0.99	0.12
run2	9/28/2016	10:41:00	0.86	0.12
run2	9/28/2016	10:41:15	0.95	0.11
run2	9/28/2016	10:41:30	1.02	0.10
run2	9/28/2016	10:41:45	0.94	0.10
run2	9/28/2016	10:42:00	0.74	0.09
run2	9/28/2016	10:42:15	0.67	0.09
run2	9/28/2016	10:42:30	0.76	0.09
run2	9/28/2016	10:42:45	0.94	0.08
run2	9/28/2016	10:43:00	1.14	0.09
run2	9/28/2016	10:43:15	1.18	0.08
run2	9/28/2016	10:43:30	1.16	0.07
run2	9/28/2016	10:43:45	1.17	0.08
run2	9/28/2016	10:44:00	1.11	0.08
run2	9/28/2016	10:44:15	1.01	0.09
run2	9/28/2016	10:44:30	0.97	0.10
run2	9/28/2016	10:44:45	1.01	0.11
run2	9/28/2016	10:45:00	1.11	0.10
run2	9/28/2016	10:45:15	1.16	0.09
run2	9/28/2016	10:45:30	1.24	0.09
run2	9/28/2016	10:45:45	1.24	0.08
run2	9/28/2016	10:46:00	1.06	0.09
run2	9/28/2016	10:46:15	0.95	0.10
run2	9/28/2016	10:46:30	0.95	0.09
run2	9/28/2016	10:46:45	0.96	0.08
run2	9/28/2016	10:47:00	1.01	0.07
run2	9/28/2016	10:47:15	1.01	0.08
run2	9/28/2016	10:47:30	0.95	0.08
run2	9/28/2016	10:47:45	0.94	0.07
run2	9/28/2016	10:48:00	1.00	0.07
run2	9/28/2016	10:48:15	1.03	0.06
run2	9/28/2016	10:48:30	1.01	0.06
run2	9/28/2016	10:48:45	0.98	0.08
run2	9/28/2016	10:49:00	0.96	0.09
run2	9/28/2016	10:49:15	0.89	0.11
run2	9/28/2016	10:49:30	0.88	0.10
run2	9/28/2016	10:49:45	0.95	0.09
run2	9/28/2016	10:50:00	0.98	0.09
run2	9/28/2016	10:50:15	0.98	0.10
run2	9/28/2016	10:50:30	0.90	0.10
run2	9/28/2016	10:50:45	0.88	0.10
run2	9/28/2016	10:51:00	0.91	0.10
run2	9/28/2016	10:51:15	0.93	0.10

run2	9/28/2016	10:51:30	0.97	0.10
run2	9/28/2016	10:51:45	1.06	0.10
run2	9/28/2016	10:52:00	1.17	0.09
run2	9/28/2016	10:52:15	1.28	0.09
run2	9/28/2016	10:52:30	1.25	0.09
run2	9/28/2016	10:52:45	1.15	0.09
run2	9/28/2016	10:53:00	1.09	0.09
run2	9/28/2016	10:53:15	1.07	0.09
run2	9/28/2016	10:53:30	1.07	0.09
run2	9/28/2016	10:53:45	1.06	0.10
run2	9/28/2016	10:54:00	1.04	0.11
run2	9/28/2016	10:54:15	1.06	0.10
run2	9/28/2016	10:54:30	1.08	0.11
run2	9/28/2016	10:54:45	1.09	0.11
run2	9/28/2016	10:55:00	1.08	0.11
run2	9/28/2016	10:55:15	1.16	0.10
run2	9/28/2016	10:55:30	1.21	0.11
run2	9/28/2016	10:55:45	1.30	0.11
run2	9/28/2016	10:56:00	1.64	0.09
run2	9/28/2016	10:56:15	1.74	0.08
run2	9/28/2016	10:56:30	1.25	0.09
run2	9/28/2016	10:56:45	1.03	0.10
run2	9/28/2016	10:57:00	1.24	0.10
run2	9/28/2016	10:57:15	1.49	0.09
run2	9/28/2016	10:57:30	1.59	0.10
run2	9/28/2016	10:57:45	1.60	0.10
run2	9/28/2016	10:58:00	1.62	0.10
run2	9/28/2016	10:58:15	1.54	0.10
run2	9/28/2016	10:58:30	1.41	0.09
run2	9/28/2016	10:58:45	1.39	0.08
run2	9/28/2016	10:59:00	1.40	0.09
run2	9/28/2016	10:59:15	1.39	0.09
run2	9/28/2016	10:59:30	1.37	0.09
run2	9/28/2016	10:59:45	1.34	0.09
run2	9/28/2016	11:00:00	1.27	0.09
run2	9/28/2016	11:00:15	1.16	0.09
run2	9/28/2016	11:00:30	1.06	0.08
run2	9/28/2016	11:00:45	1.04	0.07
run2	9/28/2016	11:01:00	0.99	0.07
run2	9/28/2016	11:01:15	0.94	0.07
run2	9/28/2016	11:01:30	0.92	0.06
run2	9/28/2016	11:01:45	0.88	0.07
run2	9/28/2016	11:02:00	0.89	0.08
run2	9/28/2016	11:02:15	0.94	0.08
run2	9/28/2016	11:02:30	0.96	0.08
run2	9/28/2016	11:02:45	0.98	0.08
run2	9/28/2016	11:03:00	0.98	0.08
run2	9/28/2016	11:03:15	0.95	0.08
run2	9/28/2016	11:03:30	0.94	0.08
run2	9/28/2016	11:03:45	0.94	0.09
run2	9/28/2016	11:04:00	0.89	0.09
run2	9/28/2016	11:04:15	0.87	0.08
run2	9/28/2016	11:04:30	0.88	0.08
run2	9/28/2016	11:04:45	0.90	0.08
run2	9/28/2016	11:05:00	0.91	0.09
run2	9/28/2016	11:05:15	0.89	0.08
run2	9/28/2016	11:05:30	0.90	0.08

run2	9/28/2016	11:05:45	0.90	0.09					
run2	9/28/2016	11:06:00	0.91	0.09					
run2	9/28/2016	11:06:15	0.92	0.09					
run2	9/28/2016	11:06:30	0.95	0.09					
run2	9/28/2016	11:06:45	1.05	0.08					
run2	9/28/2016	11:07:00	1.11	0.09					
run2	9/28/2016	11:07:15	1.12	0.09					
run2	9/28/2016	11:07:30	1.12	0.09					
run2	9/28/2016	11:07:45	1.09	0.08					
run2	9/28/2016	11:08:00	1.14	0.08					
run2	9/28/2016	11:08:15	1.20	0.08					
run2	9/28/2016	11:08:30	1.14	0.09					
run2	9/28/2016	11:08:45	1.10	0.10					
run2	9/28/2016	11:09:00	1.01	0.11					
run2	9/28/2016	11:09:15	0.80	0.10					
run2	9/28/2016	11:09:30	0.71	0.10					
run2	9/28/2016	11:09:45	0.94	0.12					
run2	9/28/2016	11:10:00	1.24	0.12					
run2	9/28/2016	11:10:15	1.16	0.10					
run2	9/28/2016	11:10:30	0.85	0.11					
run2	9/28/2016	11:10:45	0.72	0.12					
run2	9/28/2016	11:11:00	0.65	0.10					
run2	9/28/2016	11:11:15	0.60	0.08					
run2	9/28/2016	11:11:30	0.71	0.08					
run2	9/28/2016	11:11:45	0.70	0.08					
run2	9/28/2016	11:12:00	0.87	0.09					
run2	9/28/2016	11:12:15	1.13	0.11					
run2	9/28/2016	11:12:30	1.21	0.09					
run2	9/28/2016	11:12:45	1.17	0.09					
averun2	9/28/2016	10:09:00	1.08	0.09	64				
scg12	9/28/2016	11:13:15	1.41	0.12	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:13:30	1.47	0.16	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:13:45	1.57	3.38	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:14:00	3.09	4.92	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:14:15	3.32	4.91	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:14:30	1.63	4.90	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:14:45	0.67	4.93	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:15:00	0.48	5.01	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	11:15:15	0.47	5.02	ET0010875/cg12	THC	5.01		0
thcspan1	9/28/2016	11:15:15	0.47	5.02	ET0010875/cg12	THC	5.01		0
scg9	9/28/2016	11:15:30	0.46	5.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:15:45	0.44	4.98	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:16:00	0.45	1.75	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:16:15	0.34	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:16:30	0.04	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:16:45	-0.10	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:17:00	-0.07	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:17:15	-0.02	0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	11:17:30	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/28/2016	11:17:30	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/28/2016	11:17:30	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/28/2016	11:17:30	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/28/2016	11:17:30	0.00	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg4	9/28/2016	11:17:45	0.00	0.02	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	11:18:00	0.00	0.01	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	11:18:15	-0.02	0.04	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	11:18:30	0.22	-0.01	ALM018547/cg4	CO	5.06		0

scg4	9/28/2016	11:18:45	1.64	-0.02	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	11:19:00	3.87	-0.02	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	11:19:15	4.84	-0.02	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	11:19:30	5.09	-0.04	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	11:19:45	5.13	-0.06	ALM018547/cg4	CO	5.06	0
o2zero1	9/28/2016	11:19:45	5.13	-0.06	ALM018547/cg4	CO	5.06	0
co2zero1	9/28/2016	11:19:45	5.13	-0.06	ALM018547/cg4	CO	5.06	0
cospan1	9/28/2016	11:19:45	5.13	-0.06	ALM018547/cg4	CO	5.06	0
run3	9/28/2016	11:26:00	1.37	0.11				
run3	9/28/2016	11:26:15	1.36	0.11				
run3	9/28/2016	11:26:30	1.34	0.10				
run3	9/28/2016	11:26:45	1.33	0.11				
run3	9/28/2016	11:27:00	1.44	0.12				
run3	9/28/2016	11:27:15	1.40	0.12				
run3	9/28/2016	11:27:30	1.05	0.13				
run3	9/28/2016	11:27:45	0.93	0.11				
run3	9/28/2016	11:28:00	1.24	0.12				
run3	9/28/2016	11:28:15	1.51	0.12				
run3	9/28/2016	11:28:30	1.54	0.12				
run3	9/28/2016	11:28:45	1.38	0.11				
run3	9/28/2016	11:29:00	1.34	0.10				
run3	9/28/2016	11:29:15	1.47	0.10				
run3	9/28/2016	11:29:30	1.54	0.11				
run3	9/28/2016	11:29:45	1.58	0.11				
run3	9/28/2016	11:30:00	1.62	0.11				
run3	9/28/2016	11:30:15	1.61	0.11				
run3	9/28/2016	11:30:30	1.52	0.11				
run3	9/28/2016	11:30:45	1.36	0.11				
run3	9/28/2016	11:31:00	1.13	0.10				
run3	9/28/2016	11:31:15	1.01	0.09				
run3	9/28/2016	11:31:30	0.94	0.10				
run3	9/28/2016	11:31:45	0.89	0.11				
run3	9/28/2016	11:32:00	0.87	0.11				
run3	9/28/2016	11:32:15	0.90	0.11				
run3	9/28/2016	11:32:30	0.92	0.11				
run3	9/28/2016	11:32:45	0.86	0.10				
run3	9/28/2016	11:33:00	0.78	0.10				
run3	9/28/2016	11:33:15	0.81	0.09				
run3	9/28/2016	11:33:30	0.83	0.10				
run3	9/28/2016	11:33:45	0.82	0.11				
run3	9/28/2016	11:34:00	0.80	0.11				
run3	9/28/2016	11:34:15	0.78	0.11				
run3	9/28/2016	11:34:30	0.80	0.11				
run3	9/28/2016	11:34:45	0.85	0.11				
run3	9/28/2016	11:35:00	0.93	0.09				
run3	9/28/2016	11:35:15	1.02	0.10				
run3	9/28/2016	11:35:30	0.99	0.10				
run3	9/28/2016	11:35:45	0.90	0.10				
run3	9/28/2016	11:36:00	0.89	0.10				
run3	9/28/2016	11:36:15	0.95	0.10				
run3	9/28/2016	11:36:30	0.97	0.10				
run3	9/28/2016	11:36:45	0.94	0.11				
run3	9/28/2016	11:37:00	0.89	0.10				
run3	9/28/2016	11:37:15	0.87	0.10				
run3	9/28/2016	11:37:30	0.84	0.10				
run3	9/28/2016	11:37:45	0.81	0.11				
run3	9/28/2016	11:38:00	0.80	0.10				

run3	9/28/2016 11:38:15	0.83	0.09
run3	9/28/2016 11:38:30	0.84	0.10
run3	9/28/2016 11:38:45	0.83	0.10
run3	9/28/2016 11:39:00	0.85	0.11
run3	9/28/2016 11:39:15	0.87	0.12
run3	9/28/2016 11:39:30	0.94	0.11
run3	9/28/2016 11:39:45	1.05	0.10
run3	9/28/2016 11:40:00	1.20	0.10
run3	9/28/2016 11:40:15	1.32	0.10
run3	9/28/2016 11:40:30	1.42	0.09
run3	9/28/2016 11:40:45	1.44	0.11
run3	9/28/2016 11:41:00	1.33	0.13
run3	9/28/2016 11:41:15	1.14	0.12
run3	9/28/2016 11:41:30	0.96	0.11
run3	9/28/2016 11:41:45	0.96	0.11
run3	9/28/2016 11:42:00	1.14	0.12
run3	9/28/2016 11:42:15	1.15	0.11
run3	9/28/2016 11:42:30	0.89	0.10
run3	9/28/2016 11:42:45	0.70	0.11
run3	9/28/2016 11:43:00	0.76	0.09
run3	9/28/2016 11:43:15	0.92	0.09
run3	9/28/2016 11:43:30	1.24	0.09
run3	9/28/2016 11:43:45	1.40	0.10
run3	9/28/2016 11:44:00	1.37	0.09
run3	9/28/2016 11:44:15	1.33	0.09
run3	9/28/2016 11:44:30	1.37	0.10
run3	9/28/2016 11:44:45	1.47	0.10
run3	9/28/2016 11:45:00	1.43	0.11
run3	9/28/2016 11:45:15	1.23	0.11
run3	9/28/2016 11:45:30	1.06	0.10
run3	9/28/2016 11:45:45	1.03	0.11
run3	9/28/2016 11:46:00	1.04	0.10
run3	9/28/2016 11:46:15	1.01	0.10
run3	9/28/2016 11:46:30	0.99	0.11
run3	9/28/2016 11:46:45	1.02	0.11
run3	9/28/2016 11:47:00	1.03	0.11
run3	9/28/2016 11:47:15	1.00	0.09
run3	9/28/2016 11:47:30	0.96	0.08
run3	9/28/2016 11:47:45	0.91	0.07
run3	9/28/2016 11:48:00	0.85	0.09
run3	9/28/2016 11:48:15	0.83	0.09
run3	9/28/2016 11:48:30	0.86	0.09
run3	9/28/2016 11:48:45	0.89	0.10
run3	9/28/2016 11:49:00	0.89	0.09
run3	9/28/2016 11:49:15	0.90	0.07
run3	9/28/2016 11:49:30	0.94	0.09
run3	9/28/2016 11:49:45	0.95	0.10
run3	9/28/2016 11:50:00	0.92	0.11
run3	9/28/2016 11:50:15	0.87	0.12
run3	9/28/2016 11:50:30	0.84	0.11
run3	9/28/2016 11:50:45	0.85	0.11
run3	9/28/2016 11:51:00	0.91	0.11
run3	9/28/2016 11:51:15	0.93	0.10
run3	9/28/2016 11:51:30	0.93	0.11
run3	9/28/2016 11:51:45	0.91	0.10
run3	9/28/2016 11:52:00	0.89	0.10
run3	9/28/2016 11:52:15	0.89	0.11

run3	9/28/2016 11:52:30	0.94	0.09
run3	9/28/2016 11:52:45	0.93	0.09
run3	9/28/2016 11:53:00	0.92	0.10
run3	9/28/2016 11:53:15	0.97	0.11
run3	9/28/2016 11:53:30	1.00	0.11
run3	9/28/2016 11:53:45	1.03	0.11
run3	9/28/2016 11:54:00	1.08	0.10
run3	9/28/2016 11:54:15	1.17	0.10
run3	9/28/2016 11:54:30	1.28	0.11
run3	9/28/2016 11:54:45	1.30	0.12
run3	9/28/2016 11:55:00	1.22	0.11
run3	9/28/2016 11:55:15	1.10	0.09
run3	9/28/2016 11:55:30	0.94	0.09
run3	9/28/2016 11:55:45	0.91	0.09
run3	9/28/2016 11:56:00	0.97	0.10
run3	9/28/2016 11:56:15	1.01	0.08
run3	9/28/2016 11:56:30	1.13	0.09
run3	9/28/2016 11:56:45	1.44	0.11
run3	9/28/2016 11:57:00	1.98	0.11
run3	9/28/2016 11:57:15	1.82	0.12
run3	9/28/2016 11:57:30	0.98	0.12
run3	9/28/2016 11:57:45	0.76	0.12
run3	9/28/2016 11:58:00	0.93	0.14
run3	9/28/2016 11:58:15	1.08	0.12
run3	9/28/2016 11:58:30	1.21	0.11
run3	9/28/2016 11:58:45	1.20	0.12
run3	9/28/2016 11:59:00	1.18	0.13
run3	9/28/2016 11:59:15	1.19	0.12
run3	9/28/2016 11:59:30	1.12	0.11
run3	9/28/2016 11:59:45	1.05	0.11
run3	9/28/2016 12:00:00	0.97	0.11
run3	9/28/2016 12:00:15	1.00	0.11
run3	9/28/2016 12:00:30	1.09	0.11
run3	9/28/2016 12:00:45	1.10	0.12
run3	9/28/2016 12:01:00	1.03	0.11
run3	9/28/2016 12:01:15	0.98	0.10
run3	9/28/2016 12:01:30	0.94	0.11
run3	9/28/2016 12:01:45	0.91	0.11
run3	9/28/2016 12:02:00	0.91	0.12
run3	9/28/2016 12:02:15	0.86	0.11
run3	9/28/2016 12:02:30	0.84	0.11
run3	9/28/2016 12:02:45	0.79	0.11
run3	9/28/2016 12:03:00	0.78	0.11
run3	9/28/2016 12:03:15	0.77	0.11
run3	9/28/2016 12:03:30	0.74	0.11
run3	9/28/2016 12:03:45	0.71	0.10
run3	9/28/2016 12:04:00	0.70	0.11
run3	9/28/2016 12:04:15	0.73	0.11
run3	9/28/2016 12:04:30	0.81	0.10
run3	9/28/2016 12:04:45	0.84	0.09
run3	9/28/2016 12:05:00	0.83	0.09
run3	9/28/2016 12:05:15	0.83	0.09
run3	9/28/2016 12:05:30	0.80	0.09
run3	9/28/2016 12:05:45	0.81	0.09
run3	9/28/2016 12:06:00	0.82	0.09
run3	9/28/2016 12:06:15	0.81	0.11
run3	9/28/2016 12:06:30	0.83	0.11

run3	9/28/2016	12:06:45	0.82	0.11
run3	9/28/2016	12:07:00	0.80	0.11
run3	9/28/2016	12:07:15	0.77	0.10
run3	9/28/2016	12:07:30	0.78	0.09
run3	9/28/2016	12:07:45	0.87	0.09
run3	9/28/2016	12:08:00	0.92	0.08
run3	9/28/2016	12:08:15	0.82	0.08
run3	9/28/2016	12:08:30	0.79	0.08
run3	9/28/2016	12:08:45	0.79	0.09
run3	9/28/2016	12:09:00	0.81	0.09
run3	9/28/2016	12:09:15	0.85	0.08
run3	9/28/2016	12:09:30	0.89	0.08
run3	9/28/2016	12:09:45	0.95	0.08
run3	9/28/2016	12:10:00	1.02	0.09
run3	9/28/2016	12:10:15	1.04	0.09
run3	9/28/2016	12:10:30	1.10	0.08
run3	9/28/2016	12:10:45	1.09	0.08
run3	9/28/2016	12:11:00	0.90	0.10
run3	9/28/2016	12:11:15	0.76	0.12
run3	9/28/2016	12:11:30	0.69	0.15
run3	9/28/2016	12:11:45	0.57	0.15
run3	9/28/2016	12:12:00	0.42	0.15
run3	9/28/2016	12:12:15	0.37	0.12
run3	9/28/2016	12:12:30	0.37	0.11
run3	9/28/2016	12:12:45	0.49	0.10
run3	9/28/2016	12:13:00	0.66	0.10
run3	9/28/2016	12:13:15	0.70	0.11
run3	9/28/2016	12:13:30	0.72	0.10
run3	9/28/2016	12:13:45	0.72	0.11
run3	9/28/2016	12:14:00	0.80	0.11
run3	9/28/2016	12:14:15	0.96	0.11
run3	9/28/2016	12:14:30	1.10	0.11
run3	9/28/2016	12:14:45	1.15	0.11
run3	9/28/2016	12:15:00	1.13	0.12
run3	9/28/2016	12:15:15	1.13	0.11
run3	9/28/2016	12:15:30	1.13	0.11
run3	9/28/2016	12:15:45	1.06	0.10
run3	9/28/2016	12:16:00	1.03	0.09
run3	9/28/2016	12:16:15	1.05	0.09
run3	9/28/2016	12:16:30	1.10	0.08
run3	9/28/2016	12:16:45	1.06	0.08
run3	9/28/2016	12:17:00	1.03	0.09
run3	9/28/2016	12:17:15	1.00	0.08
run3	9/28/2016	12:17:30	0.96	0.08
run3	9/28/2016	12:17:45	0.94	0.10
run3	9/28/2016	12:18:00	0.92	0.09
run3	9/28/2016	12:18:15	0.90	0.09
run3	9/28/2016	12:18:30	0.87	0.09
run3	9/28/2016	12:18:45	0.89	0.10
run3	9/28/2016	12:19:00	0.87	0.10
run3	9/28/2016	12:19:15	0.84	0.10
run3	9/28/2016	12:19:30	0.83	0.10
run3	9/28/2016	12:19:45	0.83	0.09
run3	9/28/2016	12:20:00	0.89	0.08
run3	9/28/2016	12:20:15	0.88	0.09
run3	9/28/2016	12:20:30	0.84	0.10
run3	9/28/2016	12:20:45	0.85	0.11

run3	9/28/2016	12:21:00	0.82	0.12					
run3	9/28/2016	12:21:15	0.81	0.12					
run3	9/28/2016	12:21:30	0.82	0.12					
run3	9/28/2016	12:21:45	0.79	0.12					
run3	9/28/2016	12:22:00	0.78	0.12					
run3	9/28/2016	12:22:15	0.78	0.12					
run3	9/28/2016	12:22:30	0.81	0.11					
run3	9/28/2016	12:22:45	0.89	0.11					
run3	9/28/2016	12:23:00	0.97	0.12					
run3	9/28/2016	12:23:15	1.00	0.11					
run3	9/28/2016	12:23:30	1.05	0.11					
run3	9/28/2016	12:23:45	1.13	0.11					
run3	9/28/2016	12:24:00	1.22	0.11					
run3	9/28/2016	12:24:15	1.29	0.11					
run3	9/28/2016	12:24:30	1.35	0.10					
run3	9/28/2016	12:24:45	1.35	0.11					
run3	9/28/2016	12:25:00	1.19	0.10					
run3	9/28/2016	12:25:15	0.95	0.08					
run3	9/28/2016	12:25:30	1.00	0.08					
run3	9/28/2016	12:25:45	1.08	0.09					
run3	9/28/2016	12:26:00	0.85	0.10					
run3	9/28/2016	12:26:15	0.60	0.09					
run3	9/28/2016	12:26:30	0.68	0.10					
run3	9/28/2016	12:26:45	0.89	0.12					
run3	9/28/2016	12:27:00	0.75	0.10					
run3	9/28/2016	12:27:15	0.57	0.10					
run3	9/28/2016	12:27:30	0.63	0.09					
run3	9/28/2016	12:27:45	0.72	0.09					
run3	9/28/2016	12:28:00	0.90	0.10					
run3	9/28/2016	12:28:15	1.06	0.10					
run3	9/28/2016	12:28:30	1.19	0.09					
run3	9/28/2016	12:28:45	1.34	0.11					
run3	9/28/2016	12:29:00	1.48	0.11					
run3	9/28/2016	12:29:15	1.48	0.10					
run3	9/28/2016	12:29:30	1.38	0.11					
run3	9/28/2016	12:29:45	1.36	0.11					
averun3	9/28/2016	11:26:00	1.00	0.10	64				
scg4	9/28/2016	12:37:45	2.46	0.13	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:38:00	2.57	0.14	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:38:15	2.85	0.34	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:38:30	4.84	0.01	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:38:45	7.31	-0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:39:00	6.65	-0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:39:15	5.53	-0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:39:30	5.23	-0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:39:45	5.19	-0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:40:00	5.08	-0.04	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:40:15	5.08	-0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:40:30	5.07	-0.04	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:40:45	5.07	-0.05	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:41:00	5.05	-0.06	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:41:15	5.06	-0.06	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06	0	
o2zero1	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06	0	
co2zero1	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06	0	
cospan1	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06	0	
scg12	9/28/2016	12:41:45	5.06	-0.09	ET0010875/cg12	THC	5.01	0	

scg12	9/28/2016	12:42:00	5.07	-0.09	ET0010875/cg12	THC	5.01			0
scg12	9/28/2016	12:42:15	5.08	0.40	ET0010875/cg12	THC	5.01			0
scg12	9/28/2016	12:42:30	4.72	4.73	ET0010875/cg12	THC	5.01			0
scg12	9/28/2016	12:42:45	3.41	5.40	ET0010875/cg12	THC	5.01			0
scg12	9/28/2016	12:43:00	1.51	5.19	ET0010875/cg12	THC	5.01			0
scg12	9/28/2016	12:43:15	0.66	5.04	ET0010875/cg12	THC	5.01			0
scg12	9/28/2016	12:43:30	0.46	5.04	ET0010875/cg12	THC	5.01			0
thcspan1	9/28/2016	12:43:30	0.46	5.04	ET0010875/cg12	THC	5.01			0
scg9	9/28/2016	12:43:45	0.42	5.03	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:44:00	0.43	4.95	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:44:15	0.45	1.58	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:44:30	0.28	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:44:45	0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:45:00	-0.12	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:45:15	-0.09	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:45:30	-0.01	-0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:45:45	0.00	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:46:00	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:46:15	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	12:46:30	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
cozero1	9/28/2016	12:46:15	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
thczero1	9/28/2016	12:46:30	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
o2span1	9/28/2016	12:46:00	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
co2span1	9/28/2016	12:46:15	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08	

Model 2 Thermal Combustor Outlet Stack
Carbon Monoxide
Concentration

Condition-Run Number	Measured (ppm)	Adjusted (ppm*)
IV-4	0.73	0.75
IV-5	0.32	0.34
IV-6	0.47	0.49

*Calculated according to equation 7E-5.

Model 2 Thermal Combustor Outlet Stack
Total Hydrocarbons
Concentration

Condition-Run Number	Measured (wet ppm)
IV-4	0.13
IV-5	0.13
IV-6	0.12

Model 2 Thermal Combustor Outlet Stack
Calibration Summary
Carbon Monoxide

Condition-Run Number	CO Calibration Initial Drift Check (ppm)	CO Calibration Final Drift Check (ppm)	CO Calibration Average (ppm)	CO Zero Initial Drift Check (ppm)	CO Zero Final Drift Check (ppm)	CO Zero Average (ppm)	Actual CO Calibration Value (ppm)	Actual CO Zero Value (ppm)
IV-4	5.07	4.99	5.03	-0.01	-0.02	-0.02	5.06	0.00
IV-5	4.99	5.05	5.02	-0.02	-0.02	-0.02	5.06	0.00
IV-6	5.05	5.08	5.07	-0.02	-0.02	-0.02	5.06	0.00

Model 2 Thermal Combustor Outlet Stack
System Calibration Bias and Drift Data
Carbon Monoxide
Calibration Span = 9.86 ppm

Condition-Run Number	CO Calibration Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	CO Zero Initial Response (ppm)	Initial Bias (%*)	Final Response (ppm)	Final Bias (%*)	Drift (%*)	Analyzer Calibration Response Mid Level (ppm)	Analyzer Calibration Response Zero Level (ppm)
IV-4	5.07	0.10	4.99	0.91	0.81	-0.01	0.10	-0.02	0.00	0.10	5.08	-0.02
IV-5	4.99	0.91	5.05	0.30	0.61	-0.02	0.00	-0.02	0.00	0.00	5.08	-0.02
IV-6	5.05	0.30	5.08	0.00	0.30	-0.02	0.00	-0.02	0.00	0.00	5.08	-0.02

* PERCENT OF CALIBRATION SPAN

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Carbon Monoxide

Date 09/28/16
Condition IV

Calibration Span = 9.86 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Low	0.00	-0.02	0.02	0.20
Mid	5.06	5.08	0.02	0.20
High	9.86	9.90	0.04	0.41

* Percent of calibration span

Model 2 Thermal Combustor Outlet Stack
Analyzer Calibration Data
Total Hydrocarbons

Date 09/28/16
Condition IV
Span = 10 ppm

Gas Range	Actual Calibration Value (ppm)	Analyzer Calibration Response (ppm)	Absolute Difference (ppm)	Difference (%*)
Zero	0.00	0.01	0.01	----
Low	3.13	3.12	0.01	0.32
Mid	5.01	5.01	0.00	0.00
High	8.48	8.48	0.00	----

* Percent of span gas

filename	9/28/2016	7:16:53							
testby1	METCO Environmental								
testby2	Baton Rouge Operations								
testby3	9								
testby4	Jeremiah Johnson								
testfor1	COMM Engineering								
testfor2	*								
testfor3	Unit 2								
testfor4	Lafayette, LA								
name			CO	THC					
sn			208845.00	1125748714.00					
offset			0.00	0.00					
fullscale			10.10	10.00					
train			1.00	1.00					
gastype			co 10	thc 25a					
dcg1	9/28/2016	7:17:45	0.70	1.33	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:00	0.67	2.02	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:15	4.22	0.67	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:30	10.07	-0.07	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:18:45	10.30	-0.10	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:00	4.30	-0.11	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:15	1.27	-0.11	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:30	0.83	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:19:45	0.74	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:00	0.69	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:15	0.68	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:30	0.00	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:20:45	-0.01	-0.12	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:00	-0.02	0.01	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:15	-0.05	0.02	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:30	-0.01	0.01	EB0070656/cg1	N2	0		0
dcg1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
o2ezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
co2ezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
coezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
thcezero1	9/28/2016	7:21:45	-0.02	0.01	EB0070656/cg1	N2	0		0
dcg3	9/28/2016	7:22:00	-0.04	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:22:15	-0.06	0.00	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:22:30	-0.05	0.28	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:22:45	0.07	0.07	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:00	2.73	0.02	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:15	6.41	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:30	8.41	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:23:45	8.82	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:00	8.89	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:15	9.85	0.01	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:30	9.90	0.02	BLM000616/cg3	CO	9.86		0
dcg3	9/28/2016	7:24:45	9.90	0.04	BLM000616/cg3	CO	9.86		0
cohigh1	9/28/2016	7:24:45	9.90	0.04	BLM000616/cg3	CO	9.86		0
dcg10	9/28/2016	7:25:15	9.92	0.10	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:25:30	9.77	0.88	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:25:45	8.13	0.27	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:00	4.02	0.24	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:15	0.99	0.25	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:30	-0.38	0.25	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:26:45	-0.53	0.24	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:27:00	-0.53	0.23	AAL021715/cg10	CO2	20	O2	19.9

dcg10	9/28/2016	7:27:15	-0.53	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:27:30	-0.24	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:27:45	-0.04	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg10	9/28/2016	7:28:00	-0.02	0.23	AAL021715/cg10	CO2	20	O2	19.9
o2high1	9/28/2016	7:28:00	-0.02	0.23	AAL021715/cg10	CO2	20	O2	19.9
co2high1	9/28/2016	7:28:00	-0.02	0.23	AAL021715/cg10	CO2	20	O2	19.9
dcg9	9/28/2016	7:30:15	0.69	1.37	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:30:30	0.68	1.29	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:30:45	0.66	0.24	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:00	0.40	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:15	0.06	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:30	0.08	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:31:45	0.16	0.11	EB0080791/cg9	CO2	10.96	O2	11.08
dcg9	9/28/2016	7:32:00	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
o2mid1	9/28/2016	7:32:00	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
co2mid1	9/28/2016	7:32:00	0.15	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
dcg4	9/28/2016	7:32:30	0.02	0.02	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:32:45	0.00	0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:00	0.02	0.06	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:15	0.76	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:30	3.36	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:33:45	5.03	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:00	5.62	-0.09	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:15	5.30	-0.10	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:30	5.13	-0.10	ALM018547/cg4	CO	5.06		0
dcg4	9/28/2016	7:34:45	5.08	-0.10	ALM018547/cg4	CO	5.06		0
comid1	9/28/2016	7:34:45	5.08	-0.10	ALM018547/cg4	CO	5.06		0
dcg13	9/28/2016	7:35:15	5.06	-0.10	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:35:30	5.09	0.40	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:35:45	4.74	6.51	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:00	3.28	9.32	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:15	1.68	9.34	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:30	0.69	9.36	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:36:45	0.51	9.36	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:37:00	0.48	8.78	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:37:15	0.46	8.48	ET0010859/cg13	THC	8.48		0
dcg13	9/28/2016	7:37:30	0.44	8.48	ET0010859/cg13	THC	8.48		0
thchigh1	9/28/2016	7:37:30	0.44	8.48	ET0010859/cg13	THC	8.48		0
dcg11	9/28/2016	7:39:15	0.50	0.88	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:39:30	0.49	0.88	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:39:45	0.47	2.10	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:00	0.51	3.19	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:15	0.56	2.99	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:30	0.57	3.06	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:40:45	0.56	3.12	BLM005063/cg11	THC	3.13		0
dcg11	9/28/2016	7:41:00	0.56	3.12	BLM005063/cg11	THC	3.13		0
thclow1	9/28/2016	7:41:00	0.56	3.12	BLM005063/cg11	THC	3.13		0
dcg12	9/28/2016	7:43:30	0.52	0.90	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:43:45	0.49	1.12	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:00	0.51	6.90	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:15	0.57	8.80	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:30	0.54	8.81	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:44:45	0.47	8.83	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:00	0.43	8.83	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:15	0.44	8.84	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:30	0.46	8.84	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:45:45	0.44	7.35	ET0010875/cg12	THC	5.01		0

dcg12	9/28/2016	7:46:00	0.43	2.21	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:46:15	0.45	5.33	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:46:30	0.49	5.25	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:46:45	0.48	5.23	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:00	0.43	5.23	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:15	0.43	5.23	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:30	0.44	5.05	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:47:45	0.46	4.99	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:00	0.44	4.98	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:15	0.43	4.99	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:30	0.45	5.01	ET0010875/cg12	THC	5.01		0
dcg12	9/28/2016	7:48:45	0.46	5.00	ET0010875/cg12	THC	5.01		0
thcmid1	9/28/2016	7:48:30	0.45	5.01	ET0010875/cg12	THC	5.01		0
scg4	9/28/2016	12:37:45	2.46	0.13	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:38:00	2.57	0.14	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:38:15	2.85	0.34	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:38:30	4.84	0.01	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:38:45	7.31	-0.03	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:39:00	6.65	-0.03	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:39:15	5.53	-0.03	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:39:30	5.23	-0.03	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:39:45	5.19	-0.03	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:40:00	5.08	-0.04	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:40:15	5.08	-0.03	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:40:30	5.07	-0.04	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:40:45	5.07	-0.05	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:41:00	5.05	-0.06	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:41:15	5.06	-0.06	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06		0
o2zero1	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06		0
co2zero1	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06		0
cospan1	9/28/2016	12:41:30	5.07	-0.07	ALM018547/cg4	CO	5.06		0
scg12	9/28/2016	12:41:45	5.06	-0.09	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:42:00	5.07	-0.09	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:42:15	5.08	0.40	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:42:30	4.72	4.73	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:42:45	3.41	5.40	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:43:00	1.51	5.19	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:43:15	0.66	5.04	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	12:43:30	0.46	5.04	ET0010875/cg12	THC	5.01		0
thcspan1	9/28/2016	12:43:30	0.46	5.04	ET0010875/cg12	THC	5.01		0
scg9	9/28/2016	12:43:45	0.42	5.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:44:00	0.43	4.95	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:44:15	0.45	1.58	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:44:30	0.28	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:44:45	0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:45:00	-0.12	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:45:15	-0.09	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:45:30	-0.01	-0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:45:45	0.00	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:46:00	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:46:15	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	12:46:30	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/28/2016	12:46:15	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/28/2016	12:46:30	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/28/2016	12:46:00	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/28/2016	12:46:15	-0.01	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08

run4	9/28/2016 13:02:00	7.16	0.19
run4	9/28/2016 13:02:15	7.21	0.20
run4	9/28/2016 13:02:30	7.12	0.22
run4	9/28/2016 13:02:45	6.93	0.26
run4	9/28/2016 13:03:00	6.54	0.26
run4	9/28/2016 13:03:15	5.59	0.19
run4	9/28/2016 13:03:30	3.15	0.16
run4	9/28/2016 13:03:45	1.45	0.15
run4	9/28/2016 13:04:00	2.32	0.15
run4	9/28/2016 13:04:15	4.17	0.18
run4	9/28/2016 13:04:30	4.20	0.17
run4	9/28/2016 13:04:45	4.22	0.17
run4	9/28/2016 13:05:00	4.24	0.15
run4	9/28/2016 13:05:15	4.19	0.13
run4	9/28/2016 13:05:30	4.00	0.13
run4	9/28/2016 13:05:45	3.73	0.14
run4	9/28/2016 13:06:00	3.41	0.12
run4	9/28/2016 13:06:15	3.14	0.12
run4	9/28/2016 13:06:30	2.81	0.12
run4	9/28/2016 13:06:45	2.49	0.14
run4	9/28/2016 13:07:00	2.13	0.15
run4	9/28/2016 13:07:15	1.82	0.14
run4	9/28/2016 13:07:30	1.48	0.14
run4	9/28/2016 13:07:45	1.18	0.12
run4	9/28/2016 13:08:00	0.87	0.13
run4	9/28/2016 13:08:15	0.63	0.14
run4	9/28/2016 13:08:30	0.47	0.15
run4	9/28/2016 13:08:45	0.41	0.14
run4	9/28/2016 13:09:00	0.37	0.14
run4	9/28/2016 13:09:15	0.35	0.13
run4	9/28/2016 13:09:30	0.33	0.13
run4	9/28/2016 13:09:45	0.31	0.12
run4	9/28/2016 13:10:00	0.29	0.11
run4	9/28/2016 13:10:15	0.27	0.12
run4	9/28/2016 13:10:30	0.26	0.13
run4	9/28/2016 13:10:45	0.26	0.11
run4	9/28/2016 13:11:00	0.26	0.12
run4	9/28/2016 13:11:15	0.26	0.14
run4	9/28/2016 13:11:30	0.26	0.16
run4	9/28/2016 13:11:45	0.27	0.15
run4	9/28/2016 13:12:00	0.27	0.15
run4	9/28/2016 13:12:15	0.27	0.12
run4	9/28/2016 13:12:30	0.27	0.11
run4	9/28/2016 13:12:45	0.27	0.11
run4	9/28/2016 13:13:00	0.27	0.12
run4	9/28/2016 13:13:15	0.27	0.12
run4	9/28/2016 13:13:30	0.27	0.13
run4	9/28/2016 13:13:45	0.27	0.12
run4	9/28/2016 13:14:00	0.27	0.10
run4	9/28/2016 13:14:15	0.27	0.11
run4	9/28/2016 13:14:30	0.27	0.12
run4	9/28/2016 13:14:45	0.27	0.11
run4	9/28/2016 13:15:00	0.27	0.12
run4	9/28/2016 13:15:15	0.28	0.12
run4	9/28/2016 13:15:30	0.30	0.14
run4	9/28/2016 13:15:45	0.32	0.12
run4	9/28/2016 13:16:00	0.36	0.12

run4	9/28/2016	13:16:15	0.40	0.16
run4	9/28/2016	13:16:30	0.44	0.15
run4	9/28/2016	13:16:45	0.48	0.15
run4	9/28/2016	13:17:00	0.53	0.17
run4	9/28/2016	13:17:15	0.57	0.18
run4	9/28/2016	13:17:30	0.61	0.13
run4	9/28/2016	13:17:45	0.63	0.16
run4	9/28/2016	13:18:00	0.65	0.17
run4	9/28/2016	13:18:15	0.71	0.09
run4	9/28/2016	13:18:30	0.83	0.10
run4	9/28/2016	13:18:45	0.92	0.13
run4	9/28/2016	13:19:00	1.01	0.14
run4	9/28/2016	13:19:15	1.06	0.17
run4	9/28/2016	13:19:30	1.08	0.18
run4	9/28/2016	13:19:45	1.08	0.17
run4	9/28/2016	13:20:00	1.07	0.15
run4	9/28/2016	13:20:15	1.07	0.15
run4	9/28/2016	13:20:30	1.05	0.13
run4	9/28/2016	13:20:45	1.02	0.11
run4	9/28/2016	13:21:00	0.98	0.13
run4	9/28/2016	13:21:15	0.94	0.15
run4	9/28/2016	13:21:30	0.90	0.17
run4	9/28/2016	13:21:45	0.85	0.18
run4	9/28/2016	13:22:00	0.81	0.14
run4	9/28/2016	13:22:15	0.77	0.13
run4	9/28/2016	13:22:30	0.73	0.14
run4	9/28/2016	13:22:45	0.70	0.12
run4	9/28/2016	13:23:00	0.67	0.15
run4	9/28/2016	13:23:15	0.61	0.15
run4	9/28/2016	13:23:30	0.50	0.16
run4	9/28/2016	13:23:45	0.40	0.12
run4	9/28/2016	13:24:00	0.31	0.12
run4	9/28/2016	13:24:15	0.27	0.11
run4	9/28/2016	13:24:30	0.26	0.13
run4	9/28/2016	13:24:45	0.26	0.14
run4	9/28/2016	13:25:00	0.26	0.13
run4	9/28/2016	13:25:15	0.27	0.12
run4	9/28/2016	13:25:30	0.27	0.15
run4	9/28/2016	13:25:45	0.28	0.13
run4	9/28/2016	13:26:00	0.29	0.12
run4	9/28/2016	13:26:15	0.29	0.11
run4	9/28/2016	13:26:30	0.29	0.11
run4	9/28/2016	13:26:45	0.30	0.12
run4	9/28/2016	13:27:00	0.30	0.11
run4	9/28/2016	13:27:15	0.30	0.11
run4	9/28/2016	13:27:30	0.31	0.11
run4	9/28/2016	13:27:45	0.31	0.12
run4	9/28/2016	13:28:00	0.32	0.11
run4	9/28/2016	13:28:15	0.33	0.11
run4	9/28/2016	13:28:30	0.34	0.11
run4	9/28/2016	13:28:45	0.35	0.09
run4	9/28/2016	13:29:00	0.35	0.10
run4	9/28/2016	13:29:15	0.36	0.10
run4	9/28/2016	13:29:30	0.37	0.09
run4	9/28/2016	13:29:45	0.37	0.10
run4	9/28/2016	13:30:00	0.37	0.12
run4	9/28/2016	13:30:15	0.37	0.10

run4	9/28/2016	13:30:30	0.37	0.13
run4	9/28/2016	13:30:45	0.38	0.18
run4	9/28/2016	13:31:00	0.39	0.14
run4	9/28/2016	13:31:15	0.39	0.10
run4	9/28/2016	13:31:30	0.38	0.14
run4	9/28/2016	13:31:45	0.37	0.15
run4	9/28/2016	13:32:00	0.36	0.14
run4	9/28/2016	13:32:15	0.35	0.14
run4	9/28/2016	13:32:30	0.34	0.11
run4	9/28/2016	13:32:45	0.33	0.10
run4	9/28/2016	13:33:00	0.36	0.08
run4	9/28/2016	13:33:15	0.39	0.12
run4	9/28/2016	13:33:30	0.43	0.16
run4	9/28/2016	13:33:45	0.44	0.13
run4	9/28/2016	13:34:00	0.44	0.13
run4	9/28/2016	13:34:15	0.43	0.16
run4	9/28/2016	13:34:30	0.41	0.13
run4	9/28/2016	13:34:45	0.40	0.14
run4	9/28/2016	13:35:00	0.39	0.16
run4	9/28/2016	13:35:15	0.39	0.19
run4	9/28/2016	13:35:30	0.38	0.19
run4	9/28/2016	13:35:45	0.37	0.15
run4	9/28/2016	13:36:00	0.35	0.13
run4	9/28/2016	13:36:15	0.34	0.14
run4	9/28/2016	13:36:30	0.34	0.16
run4	9/28/2016	13:36:45	0.35	0.17
run4	9/28/2016	13:37:00	0.37	0.16
run4	9/28/2016	13:37:15	0.38	0.13
run4	9/28/2016	13:37:30	0.39	0.12
run4	9/28/2016	13:37:45	0.39	0.14
run4	9/28/2016	13:38:00	0.35	0.14
run4	9/28/2016	13:38:15	0.31	0.13
run4	9/28/2016	13:38:30	0.26	0.14
run4	9/28/2016	13:38:45	0.24	0.13
run4	9/28/2016	13:39:00	0.24	0.12
run4	9/28/2016	13:39:15	0.25	0.12
run4	9/28/2016	13:39:30	0.26	0.12
run4	9/28/2016	13:39:45	0.27	0.12
run4	9/28/2016	13:40:00	0.28	0.12
run4	9/28/2016	13:40:15	0.28	0.13
run4	9/28/2016	13:40:30	0.29	0.13
run4	9/28/2016	13:40:45	0.30	0.12
run4	9/28/2016	13:41:00	0.31	0.12
run4	9/28/2016	13:41:15	0.32	0.12
run4	9/28/2016	13:41:30	0.33	0.12
run4	9/28/2016	13:41:45	0.33	0.12
run4	9/28/2016	13:42:00	0.33	0.12
run4	9/28/2016	13:42:15	0.33	0.11
run4	9/28/2016	13:42:30	0.33	0.11
run4	9/28/2016	13:42:45	0.34	0.15
run4	9/28/2016	13:43:00	0.35	0.12
run4	9/28/2016	13:43:15	0.36	0.10
run4	9/28/2016	13:43:30	0.37	0.10
run4	9/28/2016	13:43:45	0.37	0.10
run4	9/28/2016	13:44:00	0.38	0.11
run4	9/28/2016	13:44:15	0.38	0.11
run4	9/28/2016	13:44:30	0.38	0.11

run4	9/28/2016 13:44:45	0.38	0.09
run4	9/28/2016 13:45:00	0.37	0.09
run4	9/28/2016 13:45:15	0.37	0.09
run4	9/28/2016 13:45:30	0.37	0.12
run4	9/28/2016 13:45:45	0.37	0.12
run4	9/28/2016 13:46:00	0.37	0.12
run4	9/28/2016 13:46:15	0.36	0.16
run4	9/28/2016 13:46:30	0.35	0.15
run4	9/28/2016 13:46:45	0.34	0.15
run4	9/28/2016 13:47:00	0.33	0.17
run4	9/28/2016 13:47:15	0.31	0.16
run4	9/28/2016 13:47:30	0.30	0.17
run4	9/28/2016 13:47:45	0.29	0.17
run4	9/28/2016 13:48:00	0.29	0.17
run4	9/28/2016 13:48:15	0.28	0.16
run4	9/28/2016 13:48:30	0.30	0.15
run4	9/28/2016 13:48:45	0.31	0.16
run4	9/28/2016 13:49:00	0.32	0.17
run4	9/28/2016 13:49:15	0.33	0.19
run4	9/28/2016 13:49:30	0.33	0.17
run4	9/28/2016 13:49:45	0.33	0.16
run4	9/28/2016 13:50:00	0.32	0.14
run4	9/28/2016 13:50:15	0.32	0.12
run4	9/28/2016 13:50:30	0.30	0.15
run4	9/28/2016 13:50:45	0.30	0.16
run4	9/28/2016 13:51:00	0.28	0.13
run4	9/28/2016 13:51:15	0.27	0.12
run4	9/28/2016 13:51:30	0.27	0.17
run4	9/28/2016 13:51:45	0.27	0.18
run4	9/28/2016 13:52:00	0.27	0.13
run4	9/28/2016 13:52:15	0.27	0.11
run4	9/28/2016 13:52:30	0.27	0.10
run4	9/28/2016 13:52:45	0.27	0.11
run4	9/28/2016 13:53:00	0.27	0.12
run4	9/28/2016 13:53:15	0.27	0.14
run4	9/28/2016 13:53:30	0.26	0.16
run4	9/28/2016 13:53:45	0.24	0.13
run4	9/28/2016 13:54:00	0.23	0.12
run4	9/28/2016 13:54:15	0.23	0.12
run4	9/28/2016 13:54:30	0.23	0.11
run4	9/28/2016 13:54:45	0.23	0.10
run4	9/28/2016 13:55:00	0.24	0.10
run4	9/28/2016 13:55:15	0.26	0.11
run4	9/28/2016 13:55:30	0.27	0.11
run4	9/28/2016 13:55:45	0.28	0.12
run4	9/28/2016 13:56:00	0.29	0.10
run4	9/28/2016 13:56:15	0.30	0.10
run4	9/28/2016 13:56:30	0.31	0.10
run4	9/28/2016 13:56:45	0.32	0.11
run4	9/28/2016 13:57:00	0.34	0.10
run4	9/28/2016 13:57:15	0.35	0.10
run4	9/28/2016 13:57:30	0.36	0.11
run4	9/28/2016 13:57:45	0.37	0.11
run4	9/28/2016 13:58:00	0.37	0.11
run4	9/28/2016 13:58:15	0.38	0.09
run4	9/28/2016 13:58:30	0.38	0.10
run4	9/28/2016 13:58:45	0.38	0.11

run4	9/28/2016	13:59:00	0.37	0.11						
run4	9/28/2016	13:59:15	0.37	0.13						
run4	9/28/2016	13:59:30	0.37	0.13						
run4	9/28/2016	13:59:45	0.36	0.10						
run4	9/28/2016	14:00:00	0.36	0.11						
run4	9/28/2016	14:00:15	0.35	0.12						
run4	9/28/2016	14:00:30	0.35	0.14						
run4	9/28/2016	14:00:45	0.35	0.12						
run4	9/28/2016	14:01:00	0.34	0.13						
run4	9/28/2016	14:01:15	0.33	0.14						
run4	9/28/2016	14:01:30	0.32	0.12						
run4	9/28/2016	14:01:45	0.31	0.12						
run4	9/28/2016	14:02:00	0.30	0.14						
run4	9/28/2016	14:02:15	0.29	0.15						
run4	9/28/2016	14:02:30	0.28	0.15						
run4	9/28/2016	14:02:45	0.27	0.15						
run4	9/28/2016	14:03:00	0.26	0.15						
run4	9/28/2016	14:03:15	0.25	0.15						
run4	9/28/2016	14:03:30	0.25	0.12						
run4	9/28/2016	14:03:45	0.31	0.12						
run4	9/28/2016	14:04:00	0.49	0.13						
run4	9/28/2016	14:04:15	0.65	0.12						
run4	9/28/2016	14:04:30	0.75	0.12						
run4	9/28/2016	14:04:45	0.76	0.14						
run4	9/28/2016	14:05:00	0.76	0.16						
run4	9/28/2016	14:05:15	0.75	0.15						
run4	9/28/2016	14:05:30	0.74	0.12						
run4	9/28/2016	14:05:45	0.73	0.13						
averun4	9/28/2016	13:02:00	0.73	0.13	64					
scg9	9/28/2016	14:07:00	0.73	0.17	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:07:15	0.22	0.12	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:07:30	0.22	0.30	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:07:45	2.05	0.05	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:08:00	3.78	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:08:15	2.20	0.01	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:08:30	0.36	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:08:45	0.02	0.02	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:09:00	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
scg9	9/28/2016	14:09:15	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
cozero1	9/28/2016	14:09:15	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
thczero1	9/28/2016	14:09:15	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
o2span1	9/28/2016	14:09:15	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
co2span1	9/28/2016	14:09:15	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08	
scg12	9/28/2016	14:09:30	-0.04	0.00	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:09:45	-0.06	0.01	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:10:00	-0.05	0.94	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:10:15	-0.04	4.53	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:10:30	0.14	4.74	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:10:45	0.33	4.76	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:11:00	0.38	4.78	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:11:15	0.35	4.83	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:11:30	0.35	4.93	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:11:45	0.36	5.14	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:12:00	0.38	5.21	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:12:15	0.38	5.22	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:12:30	0.38	5.22	ET0010875/cg12	THC	5.01		0	
scg12	9/28/2016	14:12:45	0.38	5.23	ET0010875/cg12	THC	5.01		0	

scg12	9/28/2016	14:13:00	0.34	5.06	ET0010875/cg12	THC	5.01	0
scg12	9/28/2016	14:13:15	0.37	4.99	ET0010875/cg12	THC	5.01	0
scg12	9/28/2016	14:13:30	0.38	4.99	ET0010875/cg12	THC	5.01	0
thcspan1	9/28/2016	14:13:30	0.38	4.99	ET0010875/cg12	THC	5.01	0
scg4	9/28/2016	14:13:45	0.39	5.00	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:14:00	0.37	4.93	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:14:15	0.36	2.28	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:14:30	0.53	0.05	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:14:45	1.94	-0.05	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:15:00	4.04	-0.05	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:15:15	4.80	-0.05	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:15:30	4.96	-0.05	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:15:45	4.98	-0.07	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:16:00	4.98	-0.07	ALM018547/cg4	CO	5.06	0
scg4	9/28/2016	14:16:15	4.99	-0.07	ALM018547/cg4	CO	5.06	0
o2zero1	9/28/2016	14:16:15	4.99	-0.07	ALM018547/cg4	CO	5.06	0
co2zero1	9/28/2016	14:16:15	4.99	-0.07	ALM018547/cg4	CO	5.06	0
cospan1	9/28/2016	14:16:15	4.99	-0.07	ALM018547/cg4	CO	5.06	0
run5	9/28/2016	14:20:00	0.11	0.19				
run5	9/28/2016	14:20:15	0.11	0.18				
run5	9/28/2016	14:20:30	0.14	0.16				
run5	9/28/2016	14:20:45	0.13	0.13				
run5	9/28/2016	14:21:00	0.14	0.17				
run5	9/28/2016	14:21:15	0.15	0.20				
run5	9/28/2016	14:21:30	0.35	0.20				
run5	9/28/2016	14:21:45	0.85	0.20				
run5	9/28/2016	14:22:00	0.87	0.16				
run5	9/28/2016	14:22:15	0.43	0.19				
run5	9/28/2016	14:22:30	0.16	0.18				
run5	9/28/2016	14:22:45	0.14	0.16				
run5	9/28/2016	14:23:00	0.12	0.14				
run5	9/28/2016	14:23:15	0.10	0.15				
run5	9/28/2016	14:23:30	0.09	0.15				
run5	9/28/2016	14:23:45	0.09	0.16				
run5	9/28/2016	14:24:00	0.11	0.17				
run5	9/28/2016	14:24:15	0.11	0.13				
run5	9/28/2016	14:24:30	0.11	0.12				
run5	9/28/2016	14:24:45	0.10	0.12				
run5	9/28/2016	14:25:00	0.13	0.12				
run5	9/28/2016	14:25:15	0.18	0.14				
run5	9/28/2016	14:25:30	0.21	0.15				
run5	9/28/2016	14:25:45	0.21	0.16				
run5	9/28/2016	14:26:00	0.19	0.12				
run5	9/28/2016	14:26:15	0.19	0.12				
run5	9/28/2016	14:26:30	0.16	0.13				
run5	9/28/2016	14:26:45	0.16	0.13				
run5	9/28/2016	14:27:00	0.17	0.12				
run5	9/28/2016	14:27:15	0.23	0.12				
run5	9/28/2016	14:27:30	0.30	0.14				
run5	9/28/2016	14:27:45	0.32	0.15				
run5	9/28/2016	14:28:00	0.33	0.16				
run5	9/28/2016	14:28:15	0.34	0.14				
run5	9/28/2016	14:28:30	0.36	0.15				
run5	9/28/2016	14:28:45	0.33	0.12				
run5	9/28/2016	14:29:00	0.30	0.09				
run5	9/28/2016	14:29:15	0.32	0.11				
run5	9/28/2016	14:29:30	0.33	0.11				

run5	9/28/2016	14:29:45	0.34	0.10
run5	9/28/2016	14:30:00	0.36	0.10
run5	9/28/2016	14:30:15	0.35	0.13
run5	9/28/2016	14:30:30	0.34	0.15
run5	9/28/2016	14:30:45	0.33	0.12
run5	9/28/2016	14:31:00	0.33	0.13
run5	9/28/2016	14:31:15	0.34	0.13
run5	9/28/2016	14:31:30	0.36	0.14
run5	9/28/2016	14:31:45	0.31	0.14
run5	9/28/2016	14:32:00	0.32	0.15
run5	9/28/2016	14:32:15	0.31	0.16
run5	9/28/2016	14:32:30	0.32	0.12
run5	9/28/2016	14:32:45	0.31	0.12
run5	9/28/2016	14:33:00	0.31	0.13
run5	9/28/2016	14:33:15	0.31	0.13
run5	9/28/2016	14:33:30	0.31	0.12
run5	9/28/2016	14:33:45	0.38	0.15
run5	9/28/2016	14:34:00	0.49	0.12
run5	9/28/2016	14:34:15	0.48	0.14
run5	9/28/2016	14:34:30	0.29	0.14
run5	9/28/2016	14:34:45	0.17	0.15
run5	9/28/2016	14:35:00	0.13	0.13
run5	9/28/2016	14:35:15	0.14	0.14
run5	9/28/2016	14:35:30	0.12	0.13
run5	9/28/2016	14:35:45	0.31	0.17
run5	9/28/2016	14:36:00	1.36	0.16
run5	9/28/2016	14:36:15	0.55	0.14
run5	9/28/2016	14:36:30	0.43	0.12
run5	9/28/2016	14:36:45	0.43	0.12
run5	9/28/2016	14:37:00	0.42	0.12
run5	9/28/2016	14:37:15	0.41	0.12
run5	9/28/2016	14:37:30	0.40	0.10
run5	9/28/2016	14:37:45	0.39	0.11
run5	9/28/2016	14:38:00	0.37	0.10
run5	9/28/2016	14:38:15	0.36	0.12
run5	9/28/2016	14:38:30	0.35	0.13
run5	9/28/2016	14:38:45	0.33	0.12
run5	9/28/2016	14:39:00	0.32	0.13
run5	9/28/2016	14:39:15	0.30	0.12
run5	9/28/2016	14:39:30	0.30	0.14
run5	9/28/2016	14:39:45	0.29	0.13
run5	9/28/2016	14:40:00	0.30	0.14
run5	9/28/2016	14:40:15	0.30	0.11
run5	9/28/2016	14:40:30	0.30	0.14
run5	9/28/2016	14:40:45	0.29	0.16
run5	9/28/2016	14:41:00	0.24	0.11
run5	9/28/2016	14:41:15	0.18	0.12
run5	9/28/2016	14:41:30	0.14	0.14
run5	9/28/2016	14:41:45	0.13	0.14
run5	9/28/2016	14:42:00	0.13	0.12
run5	9/28/2016	14:42:15	0.14	0.13
run5	9/28/2016	14:42:30	0.15	0.15
run5	9/28/2016	14:42:45	0.16	0.13
run5	9/28/2016	14:43:00	0.17	0.12
run5	9/28/2016	14:43:15	0.18	0.10
run5	9/28/2016	14:43:30	0.20	0.11
run5	9/28/2016	14:43:45	0.20	0.11

run5	9/28/2016	14:44:00	0.21	0.12
run5	9/28/2016	14:44:15	0.22	0.12
run5	9/28/2016	14:44:30	0.22	0.12
run5	9/28/2016	14:44:45	0.23	0.15
run5	9/28/2016	14:45:00	0.24	0.15
run5	9/28/2016	14:45:15	0.24	0.15
run5	9/28/2016	14:45:30	0.25	0.15
run5	9/28/2016	14:45:45	0.26	0.16
run5	9/28/2016	14:46:00	0.27	0.14
run5	9/28/2016	14:46:15	0.27	0.13
run5	9/28/2016	14:46:30	0.28	0.13
run5	9/28/2016	14:46:45	0.28	0.14
run5	9/28/2016	14:47:00	0.29	0.12
run5	9/28/2016	14:47:15	0.30	0.12
run5	9/28/2016	14:47:30	0.30	0.13
run5	9/28/2016	14:47:45	0.30	0.12
run5	9/28/2016	14:48:00	0.30	0.12
run5	9/28/2016	14:48:15	0.30	0.11
run5	9/28/2016	14:48:30	0.30	0.09
run5	9/28/2016	14:48:45	0.30	0.11
run5	9/28/2016	14:49:00	0.31	0.12
run5	9/28/2016	14:49:15	0.32	0.15
run5	9/28/2016	14:49:30	0.33	0.15
run5	9/28/2016	14:49:45	0.32	0.12
run5	9/28/2016	14:50:00	0.32	0.15
run5	9/28/2016	14:50:15	0.31	0.15
run5	9/28/2016	14:50:30	0.30	0.14
run5	9/28/2016	14:50:45	0.29	0.11
run5	9/28/2016	14:51:00	0.29	0.13
run5	9/28/2016	14:51:15	0.29	0.15
run5	9/28/2016	14:51:30	0.30	0.17
run5	9/28/2016	14:51:45	0.30	0.15
run5	9/28/2016	14:52:00	0.31	0.14
run5	9/28/2016	14:52:15	0.30	0.11
run5	9/28/2016	14:52:30	0.30	0.10
run5	9/28/2016	14:52:45	0.30	0.14
run5	9/28/2016	14:53:00	0.31	0.11
run5	9/28/2016	14:53:15	0.32	0.12
run5	9/28/2016	14:53:30	0.33	0.12
run5	9/28/2016	14:53:45	0.35	0.13
run5	9/28/2016	14:54:00	0.36	0.14
run5	9/28/2016	14:54:15	0.35	0.14
run5	9/28/2016	14:54:30	0.34	0.15
run5	9/28/2016	14:54:45	0.34	0.16
run5	9/28/2016	14:55:00	0.34	0.17
run5	9/28/2016	14:55:15	0.34	0.16
run5	9/28/2016	14:55:30	0.35	0.15
run5	9/28/2016	14:55:45	0.36	0.14
run5	9/28/2016	14:56:00	0.37	0.12
run5	9/28/2016	14:56:15	0.36	0.13
run5	9/28/2016	14:56:30	0.35	0.12
run5	9/28/2016	14:56:45	0.34	0.13
run5	9/28/2016	14:57:00	0.34	0.13
run5	9/28/2016	14:57:15	0.35	0.14
run5	9/28/2016	14:57:30	0.36	0.13
run5	9/28/2016	14:57:45	0.36	0.13
run5	9/28/2016	14:58:00	0.35	0.14

run5	9/28/2016	14:58:15	0.35	0.13
run5	9/28/2016	14:58:30	0.33	0.16
run5	9/28/2016	14:58:45	0.32	0.16
run5	9/28/2016	14:59:00	0.30	0.15
run5	9/28/2016	14:59:15	0.30	0.15
run5	9/28/2016	14:59:30	0.30	0.16
run5	9/28/2016	14:59:45	0.31	0.14
run5	9/28/2016	15:00:00	0.32	0.14
run5	9/28/2016	15:00:15	0.32	0.14
run5	9/28/2016	15:00:30	0.33	0.14
run5	9/28/2016	15:00:45	0.33	0.15
run5	9/28/2016	15:01:00	0.33	0.13
run5	9/28/2016	15:01:15	0.33	0.13
run5	9/28/2016	15:01:30	0.33	0.13
run5	9/28/2016	15:01:45	0.34	0.12
run5	9/28/2016	15:02:00	0.34	0.12
run5	9/28/2016	15:02:15	0.34	0.13
run5	9/28/2016	15:02:30	0.34	0.12
run5	9/28/2016	15:02:45	0.34	0.11
run5	9/28/2016	15:03:00	0.34	0.11
run5	9/28/2016	15:03:15	0.34	0.12
run5	9/28/2016	15:03:30	0.34	0.12
run5	9/28/2016	15:03:45	0.34	0.14
run5	9/28/2016	15:04:00	0.35	0.14
run5	9/28/2016	15:04:15	0.35	0.15
run5	9/28/2016	15:04:30	0.35	0.14
run5	9/28/2016	15:04:45	0.35	0.14
run5	9/28/2016	15:05:00	0.35	0.13
run5	9/28/2016	15:05:15	0.35	0.15
run5	9/28/2016	15:05:30	0.36	0.16
run5	9/28/2016	15:05:45	0.38	0.16
run5	9/28/2016	15:06:00	0.39	0.13
run5	9/28/2016	15:06:15	0.39	0.13
run5	9/28/2016	15:06:30	0.40	0.16
run5	9/28/2016	15:06:45	0.41	0.14
run5	9/28/2016	15:07:00	0.42	0.15
run5	9/28/2016	15:07:15	0.43	0.13
run5	9/28/2016	15:07:30	0.42	0.13
run5	9/28/2016	15:07:45	0.42	0.15
run5	9/28/2016	15:08:00	0.41	0.16
run5	9/28/2016	15:08:15	0.40	0.15
run5	9/28/2016	15:08:30	0.40	0.14
run5	9/28/2016	15:08:45	0.39	0.13
run5	9/28/2016	15:09:00	0.38	0.16
run5	9/28/2016	15:09:15	0.38	0.16
run5	9/28/2016	15:09:30	0.39	0.17
run5	9/28/2016	15:09:45	0.39	0.15
run5	9/28/2016	15:10:00	0.40	0.15
run5	9/28/2016	15:10:15	0.42	0.13
run5	9/28/2016	15:10:30	0.42	0.12
run5	9/28/2016	15:10:45	0.41	0.13
run5	9/28/2016	15:11:00	0.39	0.13
run5	9/28/2016	15:11:15	0.38	0.13
run5	9/28/2016	15:11:30	0.38	0.12
run5	9/28/2016	15:11:45	0.36	0.12
run5	9/28/2016	15:12:00	0.34	0.11
run5	9/28/2016	15:12:15	0.34	0.10

run5	9/28/2016	15:12:30	0.34	0.10					
run5	9/28/2016	15:12:45	0.35	0.11					
run5	9/28/2016	15:13:00	0.36	0.11					
run5	9/28/2016	15:13:15	0.37	0.12					
run5	9/28/2016	15:13:30	0.38	0.12					
run5	9/28/2016	15:13:45	0.38	0.14					
run5	9/28/2016	15:14:00	0.39	0.14					
run5	9/28/2016	15:14:15	0.39	0.13					
run5	9/28/2016	15:14:30	0.39	0.12					
run5	9/28/2016	15:14:45	0.39	0.13					
run5	9/28/2016	15:15:00	0.38	0.13					
run5	9/28/2016	15:15:15	0.37	0.15					
run5	9/28/2016	15:15:30	0.36	0.15					
run5	9/28/2016	15:15:45	0.36	0.14					
run5	9/28/2016	15:16:00	0.37	0.14					
run5	9/28/2016	15:16:15	0.37	0.14					
run5	9/28/2016	15:16:30	0.38	0.15					
run5	9/28/2016	15:16:45	0.38	0.15					
run5	9/28/2016	15:17:00	0.38	0.13					
run5	9/28/2016	15:17:15	0.38	0.12					
run5	9/28/2016	15:17:30	0.39	0.12					
run5	9/28/2016	15:17:45	0.39	0.12					
run5	9/28/2016	15:18:00	0.39	0.11					
run5	9/28/2016	15:18:15	0.39	0.10					
run5	9/28/2016	15:18:30	0.38	0.10					
run5	9/28/2016	15:18:45	0.38	0.10					
run5	9/28/2016	15:19:00	0.38	0.11					
run5	9/28/2016	15:19:15	0.38	0.11					
run5	9/28/2016	15:19:30	0.38	0.11					
run5	9/28/2016	15:19:45	0.38	0.12					
run5	9/28/2016	15:20:00	0.38	0.15					
run5	9/28/2016	15:20:15	0.39	0.15					
run5	9/28/2016	15:20:30	0.40	0.13					
run5	9/28/2016	15:20:45	0.40	0.13					
run5	9/28/2016	15:21:00	0.40	0.15					
run5	9/28/2016	15:21:15	0.40	0.12					
run5	9/28/2016	15:21:30	0.40	0.12					
run5	9/28/2016	15:21:45	0.41	0.13					
run5	9/28/2016	15:22:00	0.41	0.12					
run5	9/28/2016	15:22:15	0.42	0.12					
run5	9/28/2016	15:22:30	0.42	0.11					
run5	9/28/2016	15:22:45	0.41	0.12					
run5	9/28/2016	15:23:00	0.40	0.12					
run5	9/28/2016	15:23:15	0.39	0.13					
run5	9/28/2016	15:23:30	0.39	0.15					
run5	9/28/2016	15:23:45	0.38	0.14					
averun5	9/28/2016	14:20:00	0.32	0.13	64				
scg4	9/28/2016	15:25:30	0.42	0.14	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:25:45	0.42	0.14	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:26:00	0.49	0.27	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:26:15	1.97	0.03	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:26:30	5.34	-0.02	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:26:45	6.14	-0.04	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:27:00	5.24	-0.04	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:27:15	4.98	-0.05	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:27:30	5.00	-0.05	ALM018547/cg4	CO	5.06	0	
scg4	9/28/2016	15:27:45	5.05	-0.05	ALM018547/cg4	CO	5.06	0	

o2zero1	9/28/2016	15:27:45	5.05	-0.05	ALM018547/cg4	CO	5.06		0
co2zero1	9/28/2016	15:27:45	5.05	-0.05	ALM018547/cg4	CO	5.06		0
cospan1	9/28/2016	15:27:45	5.05	-0.05	ALM018547/cg4	CO	5.06		0
scg9	9/28/2016	15:28:00	5.06	-0.06	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:28:15	5.07	-0.06	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:28:30	5.04	-0.04	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:28:45	4.81	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:29:00	2.92	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:29:15	0.93	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:29:30	0.06	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:29:45	-0.06	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:30:00	-0.02	0.00	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	15:30:15	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/28/2016	15:30:15	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/28/2016	15:30:15	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/28/2016	15:30:15	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/28/2016	15:30:15	-0.02	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg12	9/28/2016	15:30:45	-0.02	0.00	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:31:00	-0.03	0.23	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:31:15	-0.02	3.85	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:31:30	0.09	4.74	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:31:45	0.33	4.75	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:32:00	0.41	4.77	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:32:15	0.39	4.87	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:32:30	0.38	5.05	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:32:45	0.38	5.13	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	15:33:00	0.39	5.17	ET0010875/cg12	THC	5.01		0
thcspan1	9/28/2016	15:32:45	0.38	5.13	ET0010875/cg12	THC	5.01		0
run6	9/28/2016	15:36:00	0.27	0.16					
run6	9/28/2016	15:36:15	0.27	0.16					
run6	9/28/2016	15:36:30	0.27	0.18					
run6	9/28/2016	15:36:45	0.26	0.17					
run6	9/28/2016	15:37:00	0.26	0.16					
run6	9/28/2016	15:37:15	0.35	0.21					
run6	9/28/2016	15:37:30	1.14	0.20					
run6	9/28/2016	15:37:45	1.76	0.20					
run6	9/28/2016	15:38:00	1.51	0.20					
run6	9/28/2016	15:38:15	0.83	0.20					
run6	9/28/2016	15:38:30	0.47	0.17					
run6	9/28/2016	15:38:45	0.38	0.18					
run6	9/28/2016	15:39:00	0.31	0.16					
run6	9/28/2016	15:39:15	0.28	0.14					
run6	9/28/2016	15:39:30	0.29	0.16					
run6	9/28/2016	15:39:45	0.28	0.16					
run6	9/28/2016	15:40:00	0.24	0.15					
run6	9/28/2016	15:40:15	0.26	0.12					
run6	9/28/2016	15:40:30	0.29	0.13					
run6	9/28/2016	15:40:45	0.29	0.14					
run6	9/28/2016	15:41:00	0.27	0.15					
run6	9/28/2016	15:41:15	0.28	0.15					
run6	9/28/2016	15:41:30	0.29	0.16					
run6	9/28/2016	15:41:45	0.28	0.16					
run6	9/28/2016	15:42:00	0.27	0.16					
run6	9/28/2016	15:42:15	0.26	0.15					
run6	9/28/2016	15:42:30	0.28	0.14					
run6	9/28/2016	15:42:45	0.31	0.15					
run6	9/28/2016	15:43:00	0.32	0.12					

run6	9/28/2016 15:43:15	0.34	0.13
run6	9/28/2016 15:43:30	0.44	0.14
run6	9/28/2016 15:43:45	0.48	0.13
run6	9/28/2016 15:44:00	0.45	0.15
run6	9/28/2016 15:44:15	0.42	0.14
run6	9/28/2016 15:44:30	0.41	0.16
run6	9/28/2016 15:44:45	0.41	0.15
run6	9/28/2016 15:45:00	0.41	0.14
run6	9/28/2016 15:45:15	0.43	0.15
run6	9/28/2016 15:45:30	0.46	0.13
run6	9/28/2016 15:45:45	0.48	0.13
run6	9/28/2016 15:46:00	0.48	0.13
run6	9/28/2016 15:46:15	0.47	0.12
run6	9/28/2016 15:46:30	0.46	0.10
run6	9/28/2016 15:46:45	0.44	0.10
run6	9/28/2016 15:47:00	0.41	0.10
run6	9/28/2016 15:47:15	0.38	0.11
run6	9/28/2016 15:47:30	0.38	0.11
run6	9/28/2016 15:47:45	0.39	0.12
run6	9/28/2016 15:48:00	0.40	0.12
run6	9/28/2016 15:48:15	0.41	0.12
run6	9/28/2016 15:48:30	0.40	0.13
run6	9/28/2016 15:48:45	0.40	0.15
run6	9/28/2016 15:49:00	0.39	0.15
run6	9/28/2016 15:49:15	0.42	0.14
run6	9/28/2016 15:49:30	0.39	0.12
run6	9/28/2016 15:49:45	0.38	0.12
run6	9/28/2016 15:50:00	0.40	0.13
run6	9/28/2016 15:50:15	0.39	0.13
run6	9/28/2016 15:50:30	0.40	0.13
run6	9/28/2016 15:50:45	0.41	0.14
run6	9/28/2016 15:51:00	0.50	0.17
run6	9/28/2016 15:51:15	0.61	0.21
run6	9/28/2016 15:51:30	0.54	0.20
run6	9/28/2016 15:51:45	0.46	0.20
run6	9/28/2016 15:52:00	0.57	0.20
run6	9/28/2016 15:52:15	0.72	0.15
run6	9/28/2016 15:52:30	0.61	0.14
run6	9/28/2016 15:52:45	0.46	0.15
run6	9/28/2016 15:53:00	0.39	0.14
run6	9/28/2016 15:53:15	0.38	0.12
run6	9/28/2016 15:53:30	0.40	0.12
run6	9/28/2016 15:53:45	0.39	0.13
run6	9/28/2016 15:54:00	0.35	0.14
run6	9/28/2016 15:54:15	0.33	0.14
run6	9/28/2016 15:54:30	0.29	0.13
run6	9/28/2016 15:54:45	0.27	0.14
run6	9/28/2016 15:55:00	0.31	0.14
run6	9/28/2016 15:55:15	0.34	0.14
run6	9/28/2016 15:55:30	0.34	0.14
run6	9/28/2016 15:55:45	0.33	0.14
run6	9/28/2016 15:56:00	0.35	0.12
run6	9/28/2016 15:56:15	0.33	0.12
run6	9/28/2016 15:56:30	0.33	0.13
run6	9/28/2016 15:56:45	0.35	0.13
run6	9/28/2016 15:57:00	0.41	0.15
run6	9/28/2016 15:57:15	0.42	0.14

run6	9/28/2016	15:57:30	0.41	0.12
run6	9/28/2016	15:57:45	0.45	0.11
run6	9/28/2016	15:58:00	0.54	0.11
run6	9/28/2016	15:58:15	0.56	0.11
run6	9/28/2016	15:58:30	0.58	0.10
run6	9/28/2016	15:58:45	0.61	0.10
run6	9/28/2016	15:59:00	0.60	0.11
run6	9/28/2016	15:59:15	0.59	0.11
run6	9/28/2016	15:59:30	0.62	0.10
run6	9/28/2016	15:59:45	0.62	0.11
run6	9/28/2016	16:00:00	0.60	0.12
run6	9/28/2016	16:00:15	0.56	0.13
run6	9/28/2016	16:00:30	0.52	0.14
run6	9/28/2016	16:00:45	0.51	0.15
run6	9/28/2016	16:01:00	0.52	0.14
run6	9/28/2016	16:01:15	0.53	0.15
run6	9/28/2016	16:01:30	0.52	0.13
run6	9/28/2016	16:01:45	0.47	0.13
run6	9/28/2016	16:02:00	0.43	0.14
run6	9/28/2016	16:02:15	0.46	0.12
run6	9/28/2016	16:02:30	0.49	0.12
run6	9/28/2016	16:02:45	0.49	0.13
run6	9/28/2016	16:03:00	0.49	0.13
run6	9/28/2016	16:03:15	0.50	0.13
run6	9/28/2016	16:03:30	0.51	0.13
run6	9/28/2016	16:03:45	0.52	0.14
run6	9/28/2016	16:04:00	0.49	0.14
run6	9/28/2016	16:04:15	0.45	0.15
run6	9/28/2016	16:04:30	0.52	0.13
run6	9/28/2016	16:04:45	0.58	0.11
run6	9/28/2016	16:05:00	0.61	0.12
run6	9/28/2016	16:05:15	0.56	0.13
run6	9/28/2016	16:05:30	0.43	0.10
run6	9/28/2016	16:05:45	0.32	0.11
run6	9/28/2016	16:06:00	0.31	0.11
run6	9/28/2016	16:06:15	0.32	0.12
run6	9/28/2016	16:06:30	0.33	0.11
run6	9/28/2016	16:06:45	0.41	0.12
run6	9/28/2016	16:07:00	0.69	0.15
run6	9/28/2016	16:07:15	1.13	0.15
run6	9/28/2016	16:07:30	2.39	0.14
run6	9/28/2016	16:07:45	2.79	0.13
run6	9/28/2016	16:08:00	2.23	0.13
run6	9/28/2016	16:08:15	1.88	0.12
run6	9/28/2016	16:08:30	1.35	0.12
run6	9/28/2016	16:08:45	0.77	0.12
run6	9/28/2016	16:09:00	0.40	0.12
run6	9/28/2016	16:09:15	0.26	0.10
run6	9/28/2016	16:09:30	0.28	0.11
run6	9/28/2016	16:09:45	0.47	0.11
run6	9/28/2016	16:10:00	0.67	0.11
run6	9/28/2016	16:10:15	0.71	0.13
run6	9/28/2016	16:10:30	0.57	0.16
run6	9/28/2016	16:10:45	0.36	0.16
run6	9/28/2016	16:11:00	0.19	0.13
run6	9/28/2016	16:11:15	0.19	0.14
run6	9/28/2016	16:11:30	0.26	0.11

run6	9/28/2016	16:11:45	0.30	0.10
run6	9/28/2016	16:12:00	0.29	0.10
run6	9/28/2016	16:12:15	0.28	0.09
run6	9/28/2016	16:12:30	0.26	0.09
run6	9/28/2016	16:12:45	0.27	0.10
run6	9/28/2016	16:13:00	0.24	0.09
run6	9/28/2016	16:13:15	0.26	0.09
run6	9/28/2016	16:13:30	0.26	0.10
run6	9/28/2016	16:13:45	0.28	0.10
run6	9/28/2016	16:14:00	0.30	0.10
run6	9/28/2016	16:14:15	0.33	0.10
run6	9/28/2016	16:14:30	0.34	0.12
run6	9/28/2016	16:14:45	0.32	0.12
run6	9/28/2016	16:15:00	0.32	0.09
run6	9/28/2016	16:15:15	0.31	0.09
run6	9/28/2016	16:15:30	0.35	0.10
run6	9/28/2016	16:15:45	0.39	0.12
run6	9/28/2016	16:16:00	0.38	0.09
run6	9/28/2016	16:16:15	0.38	0.10
run6	9/28/2016	16:16:30	0.37	0.08
run6	9/28/2016	16:16:45	0.37	0.08
run6	9/28/2016	16:17:00	0.39	0.10
run6	9/28/2016	16:17:15	0.41	0.12
run6	9/28/2016	16:17:30	0.40	0.10
run6	9/28/2016	16:17:45	0.40	0.12
run6	9/28/2016	16:18:00	0.43	0.12
run6	9/28/2016	16:18:15	0.38	0.10
run6	9/28/2016	16:18:30	0.43	0.11
run6	9/28/2016	16:18:45	0.57	0.14
run6	9/28/2016	16:19:00	0.70	0.14
run6	9/28/2016	16:19:15	0.66	0.12
run6	9/28/2016	16:19:30	0.48	0.11
run6	9/28/2016	16:19:45	0.40	0.10
run6	9/28/2016	16:20:00	0.49	0.11
run6	9/28/2016	16:20:15	0.57	0.08
run6	9/28/2016	16:20:30	0.65	0.11
run6	9/28/2016	16:20:45	0.70	0.11
run6	9/28/2016	16:21:00	0.70	0.11
run6	9/28/2016	16:21:15	0.72	0.11
run6	9/28/2016	16:21:30	0.69	0.12
run6	9/28/2016	16:21:45	0.65	0.15
run6	9/28/2016	16:22:00	0.64	0.14
run6	9/28/2016	16:22:15	1.12	0.19
run6	9/28/2016	16:22:30	1.91	0.15
run6	9/28/2016	16:22:45	1.64	0.17
run6	9/28/2016	16:23:00	0.63	0.13
run6	9/28/2016	16:23:15	0.20	0.14
run6	9/28/2016	16:23:30	0.15	0.12
run6	9/28/2016	16:23:45	0.19	0.10
run6	9/28/2016	16:24:00	0.21	0.14
run6	9/28/2016	16:24:15	0.24	0.13
run6	9/28/2016	16:24:30	0.26	0.12
run6	9/28/2016	16:24:45	0.29	0.12
run6	9/28/2016	16:25:00	0.30	0.13
run6	9/28/2016	16:25:15	0.25	0.13
run6	9/28/2016	16:25:30	0.20	0.14
run6	9/28/2016	16:25:45	0.14	0.14

run6	9/28/2016 16:26:00	0.17	0.10
run6	9/28/2016 16:26:15	0.25	0.08
run6	9/28/2016 16:26:30	0.37	0.10
run6	9/28/2016 16:26:45	0.39	0.10
run6	9/28/2016 16:27:00	0.27	0.11
run6	9/28/2016 16:27:15	0.20	0.12
run6	9/28/2016 16:27:30	0.21	0.14
run6	9/28/2016 16:27:45	0.22	0.11
run6	9/28/2016 16:28:00	0.25	0.11
run6	9/28/2016 16:28:15	0.19	0.12
run6	9/28/2016 16:28:30	0.21	0.08
run6	9/28/2016 16:28:45	0.22	0.08
run6	9/28/2016 16:29:00	0.22	0.07
run6	9/28/2016 16:29:15	0.21	0.08
run6	9/28/2016 16:29:30	0.24	0.09
run6	9/28/2016 16:29:45	0.30	0.08
run6	9/28/2016 16:30:00	0.50	0.07
run6	9/28/2016 16:30:15	0.84	0.07
run6	9/28/2016 16:30:30	1.04	0.08
run6	9/28/2016 16:30:45	0.90	0.09
run6	9/28/2016 16:31:00	0.62	0.11
run6	9/28/2016 16:31:15	0.47	0.09
run6	9/28/2016 16:31:30	0.43	0.10
run6	9/28/2016 16:31:45	0.39	0.08
run6	9/28/2016 16:32:00	0.37	0.09
run6	9/28/2016 16:32:15	0.44	0.09
run6	9/28/2016 16:32:30	0.49	0.07
run6	9/28/2016 16:32:45	0.49	0.07
run6	9/28/2016 16:33:00	0.51	0.07
run6	9/28/2016 16:33:15	0.53	0.07
run6	9/28/2016 16:33:30	0.55	0.06
run6	9/28/2016 16:33:45	0.78	0.08
run6	9/28/2016 16:34:00	1.40	0.11
run6	9/28/2016 16:34:15	1.61	0.10
run6	9/28/2016 16:34:30	1.29	0.11
run6	9/28/2016 16:34:45	0.69	0.10
run6	9/28/2016 16:35:00	0.22	0.11
run6	9/28/2016 16:35:15	0.15	0.11
run6	9/28/2016 16:35:30	0.13	0.12
run6	9/28/2016 16:35:45	0.11	0.15
run6	9/28/2016 16:36:00	0.11	0.13
run6	9/28/2016 16:36:15	0.11	0.12
run6	9/28/2016 16:36:30	0.10	0.13
run6	9/28/2016 16:36:45	0.13	0.18
run6	9/28/2016 16:37:00	0.17	0.19
run6	9/28/2016 16:37:15	0.28	0.16
run6	9/28/2016 16:37:30	0.38	0.13
run6	9/28/2016 16:37:45	0.37	0.13
run6	9/28/2016 16:38:00	0.29	0.15
run6	9/28/2016 16:38:15	0.16	0.14
run6	9/28/2016 16:38:30	0.14	0.11
run6	9/28/2016 16:38:45	0.13	0.09
run6	9/28/2016 16:39:00	0.10	0.09
run6	9/28/2016 16:39:15	0.09	0.09
run6	9/28/2016 16:39:30	0.11	0.07
run6	9/28/2016 16:39:45	0.12	0.10
run6	9/28/2016 16:40:00	0.12	0.12

run6	9/28/2016	16:40:15	0.10	0.10					
run6	9/28/2016	16:40:30	0.11	0.08					
run6	9/28/2016	16:40:45	0.11	0.11					
run6	9/28/2016	16:41:00	0.14	0.07					
averun6	9/28/2016	15:36:00	0.47	0.12	64				
scg12	9/28/2016	16:42:00	0.10	0.13	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:42:15	0.13	0.15	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:42:30	0.17	2.41	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:42:45	1.27	4.81	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:43:00	2.77	4.83	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:43:15	1.85	4.83	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:43:30	0.64	4.84	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:43:45	0.42	4.86	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:44:00	0.39	5.00	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:44:15	0.38	5.01	ET0010875/cg12	THC	5.01		0
scg12	9/28/2016	16:44:30	0.37	5.02	ET0010875/cg12	THC	5.01		0
thcspan1	9/28/2016	16:44:30	0.37	5.02	ET0010875/cg12	THC	5.01		0
scg9	9/28/2016	16:44:45	0.36	5.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:45:00	0.38	5.03	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:45:15	0.38	4.08	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:45:30	0.38	0.47	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:45:45	0.26	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:46:00	-0.08	0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:46:15	-0.20	0.02	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:46:30	-0.02	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg9	9/28/2016	16:46:45	0.05	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
cozero1	9/28/2016	16:46:30	-0.02	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
thczero1	9/28/2016	16:46:45	0.05	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
o2span1	9/28/2016	16:46:45	0.05	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
co2span1	9/28/2016	16:46:45	0.05	-0.01	EB0080791/cg9	CO2	10.96	O2	11.08
scg4	9/28/2016	16:47:00	0.05	-0.02	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:47:15	0.04	-0.02	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:47:30	0.03	0.05	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:47:45	0.23	-0.06	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:48:00	2.02	-0.07	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:48:15	3.96	-0.08	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:48:30	4.98	-0.07	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:48:45	5.16	-0.06	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:49:00	5.19	-0.07	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:49:15	5.24	-0.07	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:49:30	5.10	-0.08	ALM018547/cg4	CO	5.06		0
scg4	9/28/2016	16:49:45	5.08	-0.07	ALM018547/cg4	CO	5.06		0
o2zero1	9/28/2016	16:49:45	5.08	-0.07	ALM018547/cg4	CO	5.06		0
co2zero1	9/28/2016	16:49:45	5.08	-0.07	ALM018547/cg4	CO	5.06		0
cospan1	9/28/2016	16:49:45	5.08	-0.07	ALM018547/cg4	CO	5.06		0
so2zero									
so2span									
noxzero									
noxspan									
co2zero									
co2span									
o2zero									
o2span									
thczero									
thcspan									
cozero									
cospan									

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Project Start Date	9/19/2016				
Project Number	13-323				
Project Name	COMM Engineering				
Project Supervisor(s)	J. Johnson				
Project Manager	M. Hutcherson				
Location:	Lafayette, LA				
Latitude	30.23144	**Longitude**	-92.04158		
Elevation	37.12				
Sample Location(s)	Units 1, 2 & 3				
Sampling Personnel:	B. Ho, B. Rios				
Plant Contact (Name):		**Phone**		**Email**	
Alternate Plant Contact (Name):	Andrew Bienvenu	**Phone**	337-237-4373	**Email**	abienvenu@commengineering.com
Third Party Observers (Name):		**Phone**		**Email**	
Contract Sampling Personnel (Name):		**Phone**		**Email**	

Critical Occurances/Method Deviations

Scope Changes

Sampling Vehicles

Truck Number:	Days on project	Beginning Mileage	Ending Mileage	Total Mileage	Truck Number:	Days on project	Beginning Mileage	Ending Mileage	Total Mileage

Reference Method Monitors Used

Type (Select)	Make	Model	S/N	Range	Remarks (eg. Rental, Instrument Malfunction, etc...)

Calibration Gas Cylinders Used

Calibration Cylinder S/N	ppmv or % (Select)	Zero, Low, Mid, Span	Component 1	Component 1 Conc.	Component 2	Component 2 Conc.	Remarks

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Reference Method Monitor System Information Used

Reference Method Monitor System # 1	System Order from Stack to Manifold (select)	Date	Leak Check @ ("Hg)	Leak Check Rate (Δ"Hg)	Probe Temp. - °F	Heated Line Temp. - °F	Chiller Temp. - °F	System Flow Rate - LPM
Component # 1	Stainless Probe	9/21/2016	20.0	0.0		250	40	6.0 LPM
Component # 2	Three Way Valve	9/22/2016	20.0	0.0		250	40	6.0 LPM
Component # 3	Heated Teflon Sample Line	9/23/2016	20.0	0.0		250	40	6.0 LPM
Component # 4	Electronic Chiller System							
Component # 5	Manifold System	9/26/2016	20.0	0.0		250	40	6.0 LPM
Component # 6		9/27/2016	20.0	0.0		250	40	6.0 LPM
Component # 7		9/28/2016	20.0	0.0		250	40	6.0 LPM
Component # 8		9/30/2016	20.0	0.0		250	40	6.0 LPM

Reference Method Monitor System Remarks

Reference Method Monitor System # 2	System Order from Stack to Manifold (select)	Date	Leak Check @ ("Hg)	Leak Check Rate (Δ"Hg)	Probe Temp. - °F	Heated Line Temp. - °F	Chiller Temp. - °F	System Flow Rate - LPM
Component # 1	Stainless Probe	9/21/2016	20.0	0.0		250	40	6.0 LPM
Component # 2	Three Way Valve	9/22/2016	20.0	0.0		250	40	6.0 LPM
Component # 3	Heated Teflon Sample Line	9/23/2016	20.0	0.0		250	40	6.0 LPM
Component # 4								
Component # 5		9/26/2016	20.0	0.0		250	40	6.0 LPM
Component # 6		9/27/2016	20.0	0.0		250	40	6.0 LPM
Component # 7		9/28/2016	20.0	0.0		250	40	6.0 LPM
Component # 8		9/30/2016	20.0	0.0		250	40	6.0 LPM

Reference Method Monitor System Remarks

Calibrated Sampling Equipment Used (Wet Trains)

Equipment Description (select)	Equipment Number	Calibration Factor	Calibration Date	Remarks

Reageants and Solvents Used

Reag./Solv. Description (select)	Manufacturer	Lot No.	Expiration Date	Remarks

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Daily Log

Date: 9/19/2016 — Total Time: 10:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Loadout	7:00	10:00					
Travel	10:00	11:15					
Move on	11:15	15:00					
Travel	15:00	16:30					
Loadout	16:30	17:00					
	17:00						

Notable Comments

Date: 9/20/2016 — Total Time: 14:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00					
Set up/cal	7:00	8:00					
Standby Plant	8:00	18:00	flow meter problems				
Travel	18:00	19:30					
	19:30						

Notable Comments

Date: 9/21/2016 — Total Time: 12:15

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00		R1C1	9:22	10:26	
Set up/cal	7:00	7:45		R2C1	10:45	11:49	
Standby Plant	7:45	9:15	Wait for unit to get to condition	R3C1	12:10	13:14	
Testing	9:15	14:00	UNIT 3				
Standby Plant	14:00	15:30	Fuel Issues	R1C2	13:50	XXXX	
Testing	15:30	16:15					
Travel	16:15	17:45					
	17:45						

Notable Comments

Run 1 Cond 2 paused at 13:56 due to plant fuel problems, testing resumed at 15:42, run was aborted at 15:48 due to fuel problems.

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Date 9/22/2016 Total Time 14:30

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00		R2C2	8:40	9:44	
Set up/cal	7:00	8:30		R3C2	12:00	XXXXX	
Testing	8:30	9:45		R4C2	15:30	16:34	
Standby Plant	9:45	15:30	Fuel Issues	R5C2	17:00	18:04	
Testing	15:30	18:30					
Travel	18:30	20:00					
	20:00						

Notable Comments

Run 3 Condition 2 was aborted at 12:04 p.m. due to plant fuel problems.

Date 9/23/2016 Total Time 14:45

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00		R1C3	8:50	9:54	
Set up/cal	7:00	8:45		R2C3	10:15	11:19	
Testing	8:45	12:45		R3C3	11:40	12:44	
Standby Plant	12:45	14:30	Flow Meter Problems				
Testing	14:30	18:45		R1C4	14:40	15:44	
Travel	18:45	20:15		R2C4	15:57	17:01	
	20:15			R3C4	17:15	18:19	

Notable Comments

Date 9/26/2016 Total Time 12:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00		R1C1	11:15	12:19	
Set up/cal	7:00	8:00		R2C1	12:34	13:38	
Standby Plant	8:00	11:15	Setup on Unit 2	R3C1	13:55	14:59	
Testing	11:15	15:30					
Travel	15:30	17:00					
Other	17:00	17:30	Pack/Ship Samples				
	17:30						

Notable Comments

METCO ENVIRONMENTAL

ELECTRONIC PROJECT LOG

Date 9/27/2016 Total Time 14:15

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00		R1C2	14:22	15:26	
Set up/cal	7:00	8:00		R2C2	15:40	16:44	
Standby Plant	8:00	14:15	Fuel Valve/Regulator issues	R3C2	16:57	18:01	
Testing	14:15	18:15					
Travel	18:15	19:45					
	19:45						
Notable Comments							

Date 9/28/2016 Total Time 13:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Travel	5:30	7:00		R1C3	8:52	9:54	
Set up/cal	7:00	8:45		R2C3	10:10	11:14	
Testing	8:45	17:00		R3C3	11:26	12:30	
Travel	17:00	18:30					
	18:30			R1C4	13:02	14:06	
				R2C4	14:20	15:24	
				R3C4	15:36	16:40	
Notable Comments							

Date 9/29/2016 Total Time 8:00

Time Log (Facility Time Only)				Run Times			
Description (select)	Start	Stop	Remarks	Run #	Start	Stop	Methods
Standby Plant	8:00	16:00	No Testing, Plant Setup on Unit 4				
Notable Comments							

APPENDIX G

Visible Emission Data

#10

✓ PICTURE

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY COMMA **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** COMMA

COMPANY REPRESENTATIVE _____ **DATE** 9-26-16

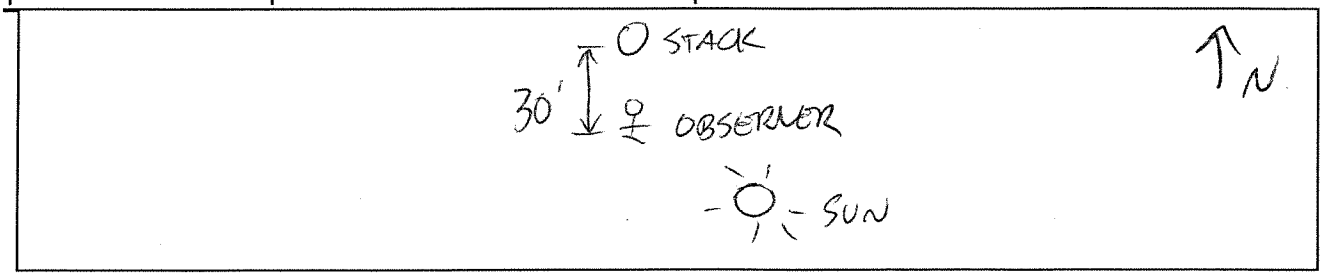
Sky Conditions Partly Cloudy Wind Direction VNW

Precipitation 0 Wind Speed 4 mph

INDUSTRY _____ PROCESS UNIT MODEL 2 RUN # 4A

0-30-01

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	AB 11:15	20:00	0:00
	JS 11:35	20:00	0:00
	AB 11:55	20:00	0:00
	JS 12:15	4:00	0:00
End Observation	12:19 p.m.	64:00	0:00

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

ENVIRONMENTAL

#11

✓ Picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Scheider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9-26-16

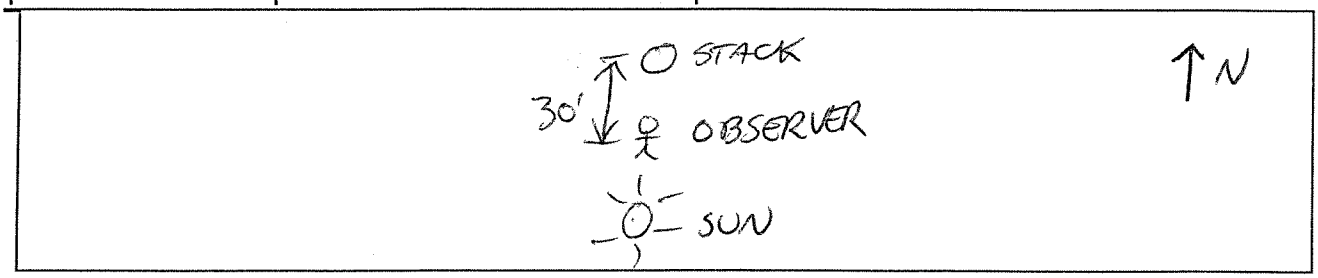
Sky Conditions Partly Cloudy Wind Direction CALM

Precipitation 0 Wind Speed CALM 0

INDUSTRY _____ PROCESS UNIT Model 2 - Run # 4B

0-30-01

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS		CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS	12:34	20:00	0:00
	AB	12:54	20:00	0
	JS	1:14	20:00	0
	AB	1:34	4:00	0
End Observation		1:39 p.m.	64:00	0:00

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: _____

#12
✓ Picture

ENVIRONMENTAL

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm OBSERVER A. Bienvenu / J. Schneider

LOCATION _____ AFFILIATION Comm

COMPANY REPRESENTATIVE _____ DATE 9-26-16

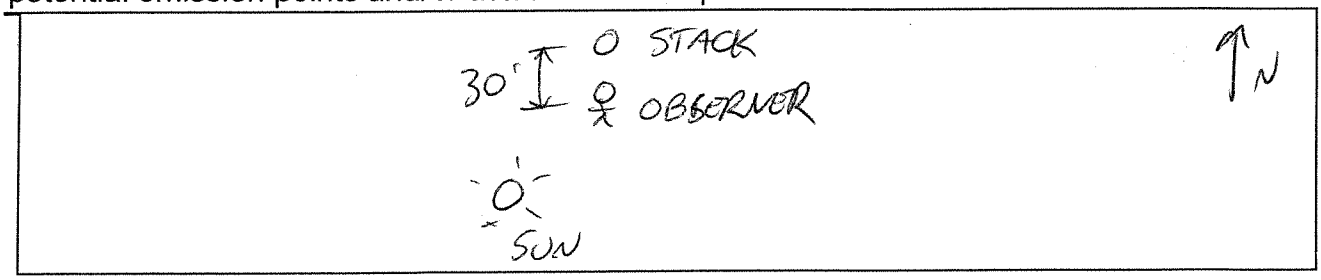
Sky Conditions Partly Cloudy Wind Direction N

Precipitation 0 Wind Speed 4 MPH

INDUSTRY _____ PROCESS UNIT Model 2 - RUN 4C

10-30-01

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS		CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS	1:55	20:00	0:00
	AB	2:15	20:00	0:00
	JS	2:35	20:00	0:00
	AB	2:55	4:00	0:00
End Observation		2:59 p.m.	64:00	0:00

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

#1

✓PICTURE

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bierwagen / S. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9/27/16

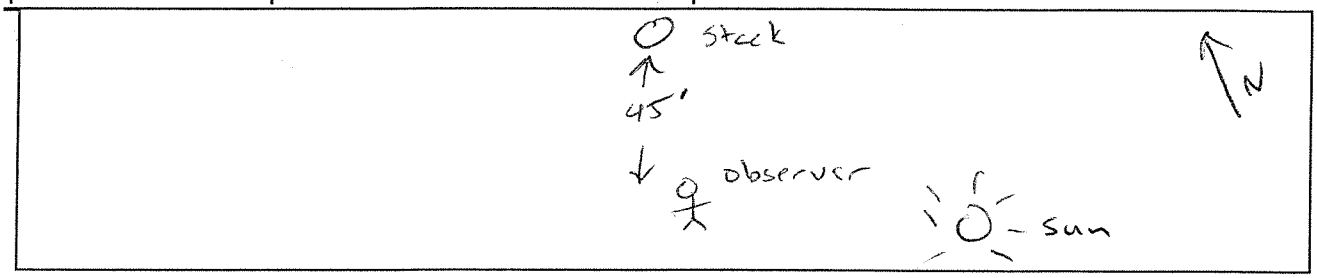
Sky Conditions Clear Wind Direction N

Precipitation 0% Wind Speed 9 mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run #1A

100%

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS		CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	AB	2:22	20:00	0
	SMS	2:42	20:00	0
	AB	3:02	20:00	0
	SMS	3:22	4:00	0
End Observation		3:26 p.m.	64:00	0:00

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: _____

#2

ENVIRONMENTAL

✓ PICTURE

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9/27/16

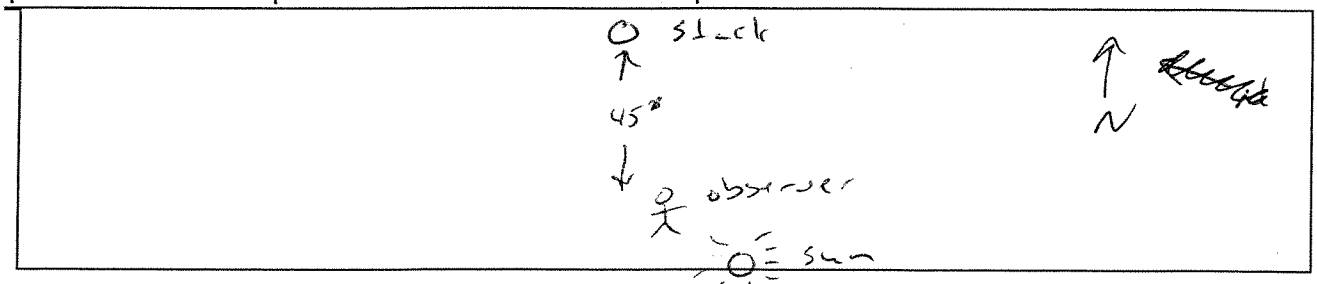
Sky Conditions Clear Wind Direction NNW

Precipitation 0% Wind Speed 7 mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run 18

100%

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS		CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	SMS	3:40	20:00	0
	AB	4:00	20:00	0
	SMS	4:20	20:00	0
	AB	4:40	4:00	0
End Observation		4:44 p.m.	64:00	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

#3

ENVIRONMENTAL

✓ Picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9/27/16

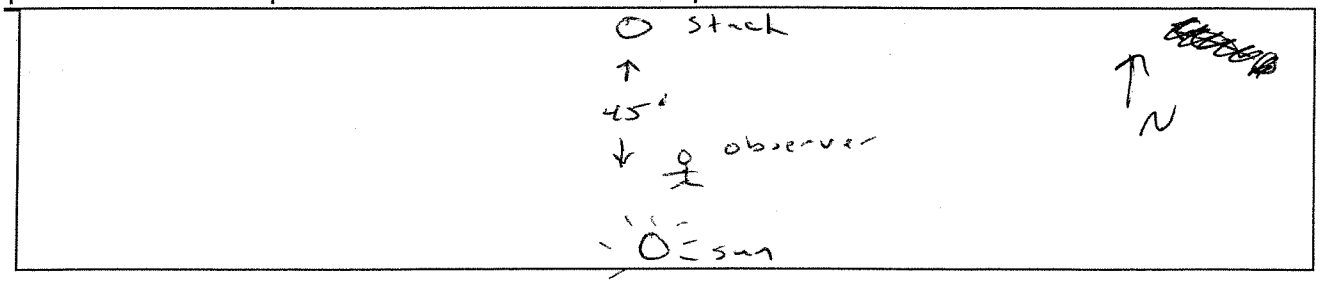
Sky Conditions Clear Wind Direction W

Precipitation 0% Wind Speed 7 mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run 1C

100%

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS 4:57	20:00	0
	AB 5:17	20:00	0
	JS 5:37	20:00	0
	AB 5:57	4:00	0
End Observation	6:01 p.m.	64:00	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

#4

ENVIRONMENTAL

✓ Picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm OBSERVER A. Bienvenu / J. Schneider

LOCATION _____ AFFILIATION Comm

COMPANY REPRESENTATIVE _____ DATE 9/28/10

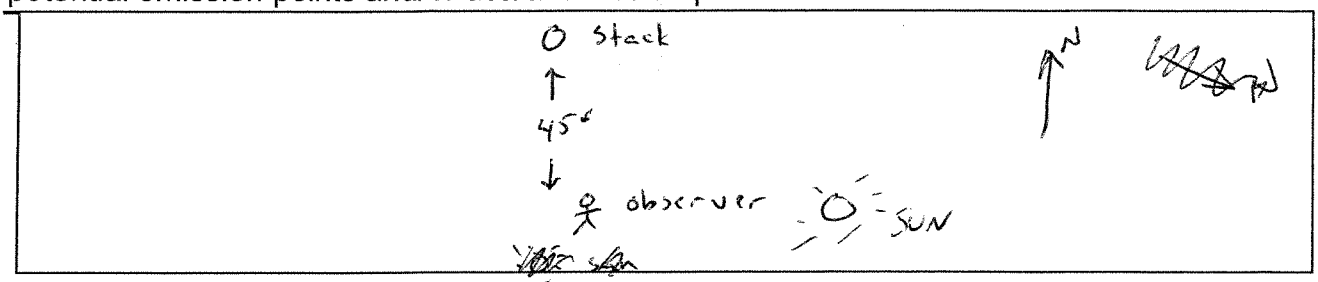
Sky Conditions clear Wind Direction N

Precipitation 0 Wind Speed 6 mph

INDUSTRY _____ PROCESS UNIT Model 2 - run 2A

70-100-70 %

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS 8:52	20:00	0
	AB 9:12	20:00	0
	JS 9:32	20:00	0
	AB 9:52	4:00	0
End Observation	9:56	64:00	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: _____

#5

ENVIRONMENTAL

✓ picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY comm **OBSERVER** J. Schneider / A. Bienvenu

LOCATION _____ **AFFILIATION** comm

COMPANY REPRESENTATIVE _____ **DATE** 9/28/16

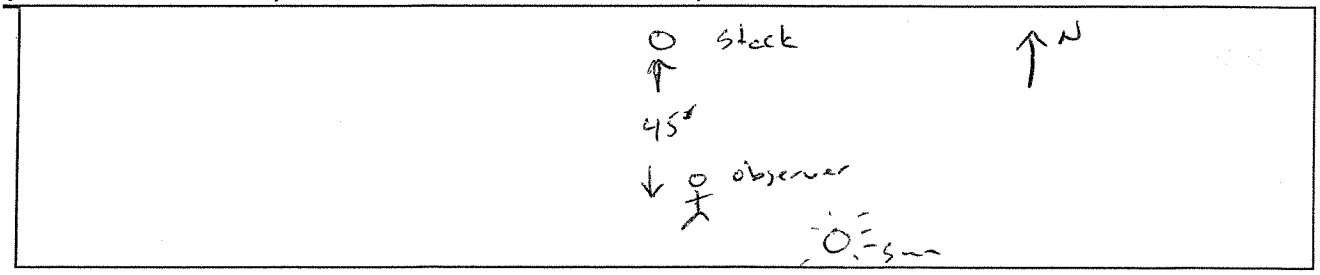
Sky Conditions Cloudy Wind Direction NNE

Precipitation 0% Wind Speed 7mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run 2B

70-100-70 %

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS 10:10	20:00	0
	AB 10:30	20:00	0
	JS 10:50	20:00	0
	AB 11:10	4:00	0
End Observation	11:14	64:00	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

#6

ENVIRONMENTAL

✓ Picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9/28/10

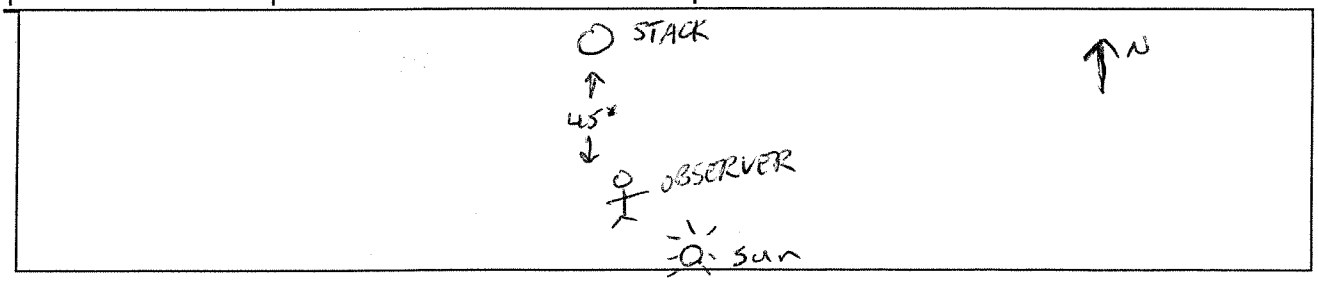
Sky Conditions Partly cloudy / Clear Wind Direction NNE

Precipitation 0 Wind Speed 5 mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run 2C

70-100-70 %

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS 11:20	20:00	6
	AB 11:40	20:00	0
	JS 12:00	20:00	0
	AB 12:20	4:00	0
End Observation	12:30 p.m.	64:00	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

H 7

ENVIRONMENTAL

1 Picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9/28/10

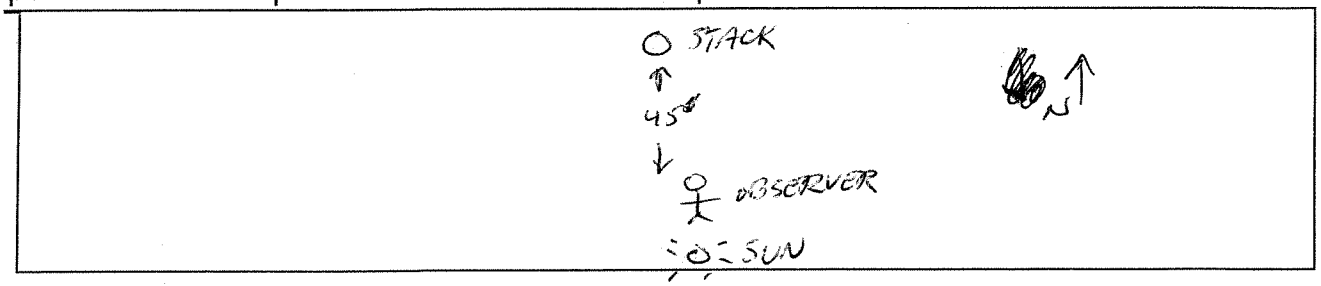
Sky Conditions clear Wind Direction NW

Precipitation 0 Wind Speed 2 mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run 3A

30-70-30 %

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS ~~1302~~ 1:02	20:00	0
	AB 1:22	20:00	0
	JS 1:42	20:00	0
	AB 2:02	4:00	0
End Observation	2:06 p.m.	64:00	0:00

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: ✓

#8

ENVIRONMENTAL

✓ picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9-28-16

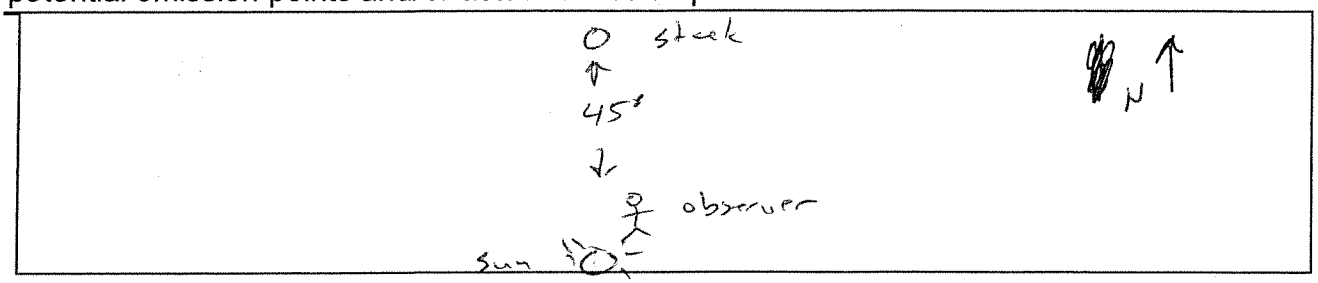
Sky Conditions clear Wind Direction NW

Precipitation 0 Wind Speed 0

INDUSTRY _____ PROCESS UNIT Model 2 - Run 3B

30-70-30%

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.



OBSERVATIONS		CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS	2:20	20:00	0
	AB	2:40	20:00	0
	JS	3:00	20:00	0
	AB	3:20	4:00	0
End Observation		3:24 p.m.	64:00	0

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: _____

#9

✓ Picture

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Comm **OBSERVER** A. Bienvenu / J. Schneider

LOCATION _____ **AFFILIATION** Comm

COMPANY REPRESENTATIVE _____ **DATE** 9/28/16

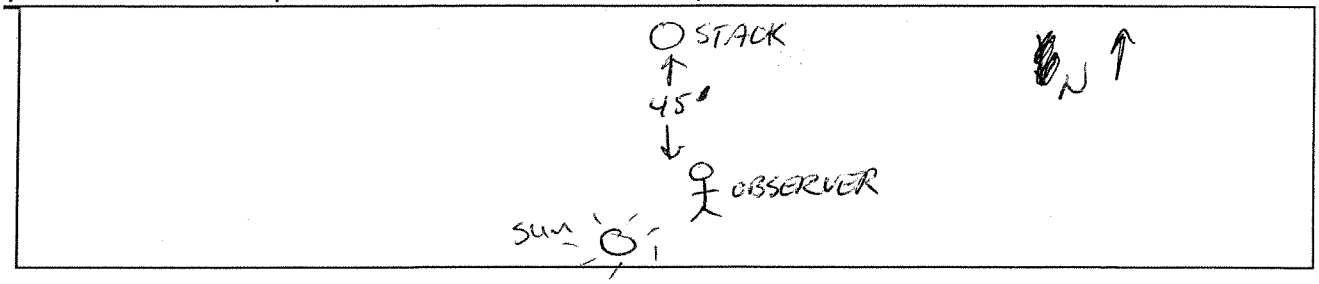
Sky Conditions clear Wind Direction W

Precipitation 0% Wind Speed 4 mph

INDUSTRY _____ PROCESS UNIT Model 2 - Run 3C

30-70-30%

Sketch process unit; indicate observer position relative to source and sun; indicate potential emission points and/or actual emission points.

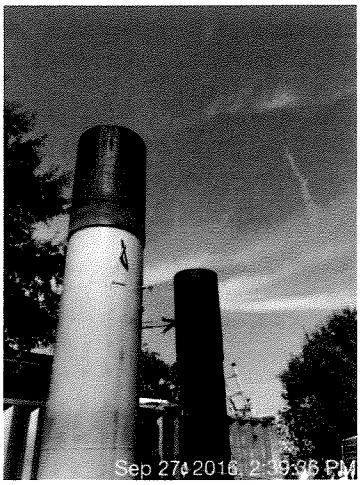


OBSERVATIONS	CLOCK TIME	OBSERVATION PERIOD DURATION, MIN:SEC	ACCUMULATED EMISSION, TIME, MIN:SEC
Begin Observation	JS 3:36	20:00	0
	AB 3:56	20:00	0
	JS 4:16	20:00	0
	AB 4:36	4:00	0
End Observation	4:40 p.m.	64:00	0

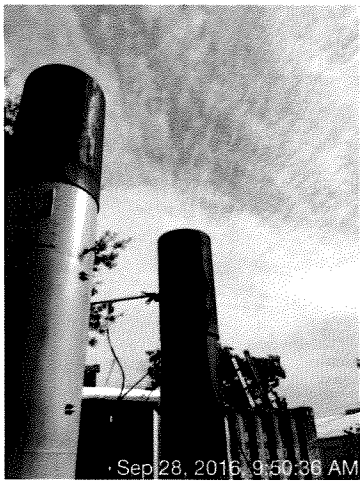
QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓

Checked by: _____

Model 2 Run 1A



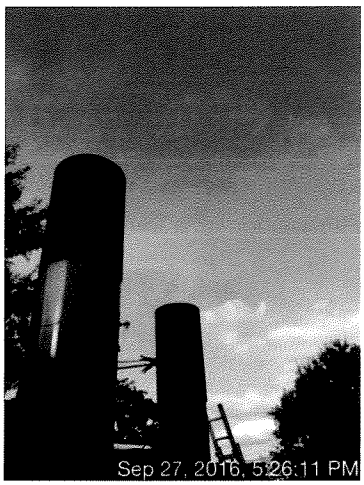
Model 2 Run 2A



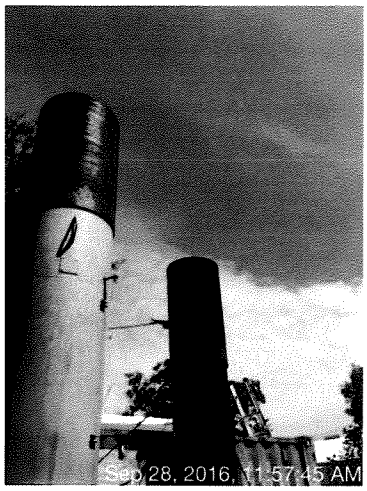
Model 2 Run1B

Model 2 Run 2B

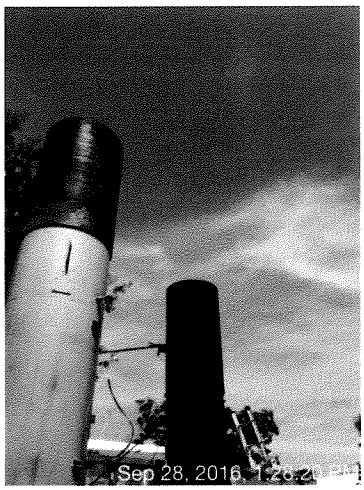
Model 2 Run1C



Model 2 Run 2C

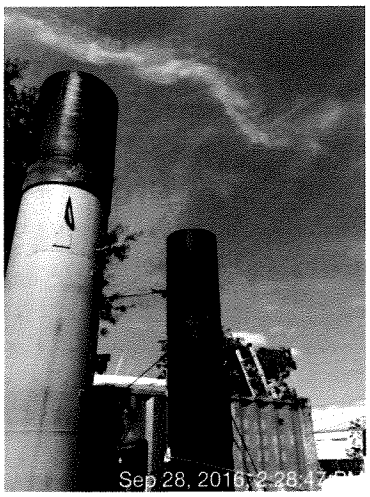


Model 2 Run 3A



Model 2 Run 4A

Model 2 Run 3B



Model 2 Run 4B

Model 2 Run 3C

Model 2 Run 4C

APPENDIX H

Plant Operational Data, Schematic, Fuel Analysis,
and Inlet Flow Meter Calibration Data

(i) A full schematic of the control device and dimensions of the device is attached along with the layout of the testing equipment.

(ii) The maximum net heating value of the device is 1.8 MMBTU/hr.

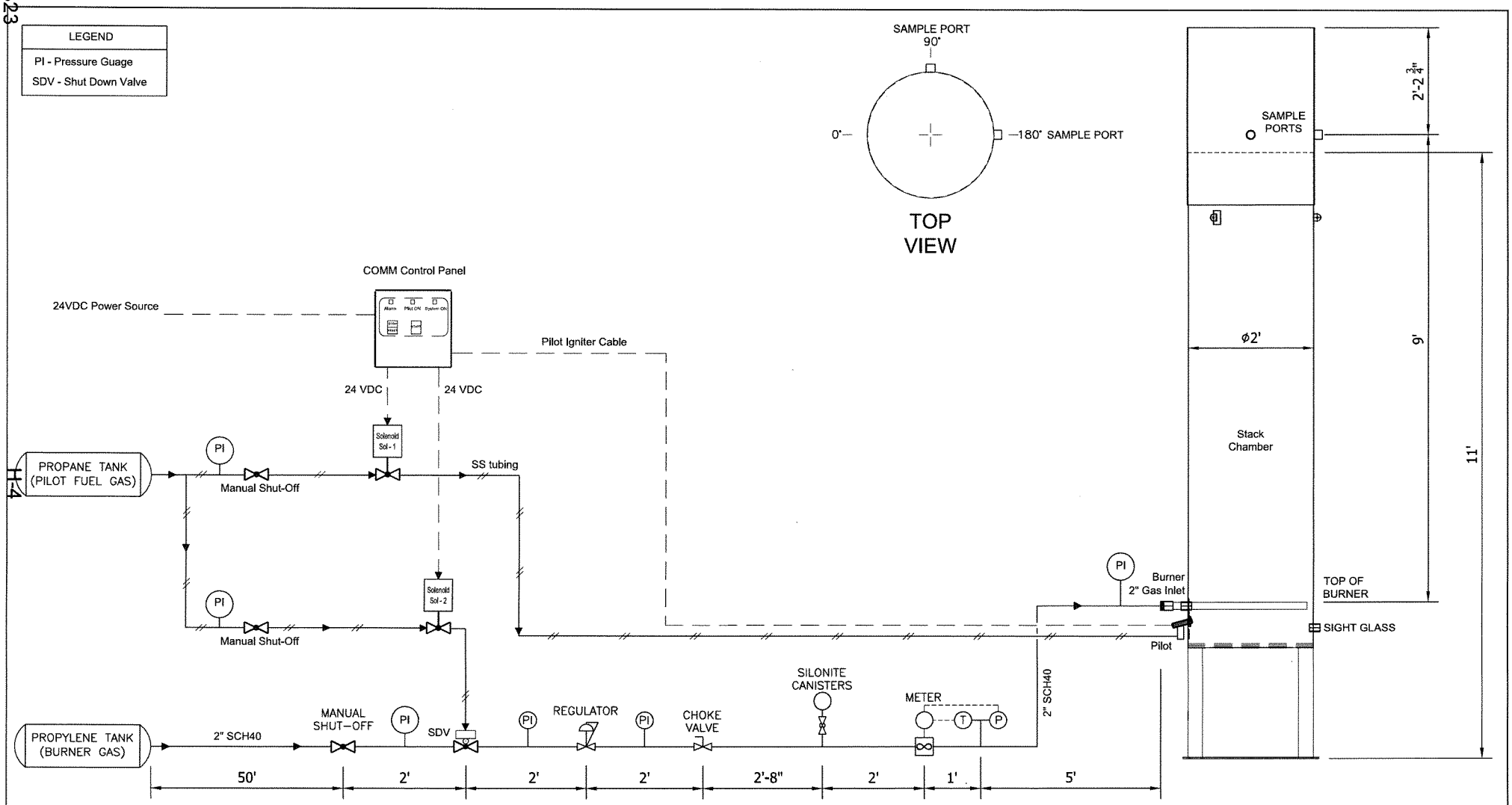
(iii) The test fuel gas flow range: see attached flow tables and charts.
Maximum allowable inlet flow rate: 770 scfh (85.4 lbs/hr)
Minimum allowable inlet flow rate: 0 scfh (0 lbs/hr)

(iv) The air/stream injection/assist ranges, if used. Not used.

(v) (A) Fuel gas delivery pressure and temperature: see attached flow tables for 5 minute interval readings.
(B) Fuel gas moisture range: see attached Propylene Certificate from supplier.
(C) Purge gas usage range: Not used.
(D) Condensate separation range: Not applicable.
(E) Combustion zone temperature range: Not applicable.
(F) Excess air range: see attached Exhaust Gas data.
(G) Flame arrestor(s): No flame arrestor was used on the fuel inlet line during tests.
(H) Burner manifold pressure: see attached flow tables for 5 minute interval readings.
(I) Pilot flame indicator: The controls for each unit include a control panel with an auto-reigniting pilot and indicating light. At startup, the control panel sends a signal to the pilot to spark and allows pilot fuel gas to flow to the pilot. While the pilot is attempting to light (sparking), the pilot indicating light on the front of the panel blinks. The control valve on the main fuel gas line remains closed to prevent unburnt fuel gas to flow into the combustor stack while the pilot attempts to light. Once a pilot flame is detected, the indicating light stays lit (no blinking) and the pilot stops sparking. If no pilot flame is detected, the panel will continue to spark the pilot in short intervals. After 3 failed attempts to establish a pilot flame, a pilot flame fail alarm light will blink red on the front of the control panel. The panel will continue to attempt pilot ignition until the panel is stopped locally or via remote signal. Once a pilot flame is established, after a few seconds, the panel will send a signal to open the control valve on the main fuel gas line to allow fuel through the burner and into the combustor stack for ignition.
(J) Pilot flame design fuel and usage: Pilot can operate on Natural Gas or Propane. Pilot fuel burn rate is 19 scfh at 15 psig supply pressure.
(K) Tip velocity range: Not applicable.
(L) Momentum flux ratio: Not applicable.
(M) Exit temperature range: see Exhaust Gas data.
(N) Exit flow rate: see Exhaust Gas data.
(O) Wind velocity and direction: see Method 22 forms.

Schematic

16-323



H-4

ELEVATION VIEW

(FOR SINGLE UNIT)

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REVISIONS					REFERENCE DRAWINGS	
NO.	DATE	BY	CHK'D	DESCRIPTION	DWG NO.	DESCRIPTION

COMM ENGINEERING

COMM

MODEL 2 COMBUSTOR TESTING SCHEMATIC

DWG. SCALE: NTS	PLOT SCALE: 1:1		DWG. SIZE: B
DES. BY: AB	DATE: 6/16/2016	CHK:	DATE:
DWN. BY: AB	DATE: 6/16/2016	APV:	DATE:
APPROVED BY:	DATE:	PROJECT NO. 160649	
DRAWING NO.			REV. A

Plant Operational Data

Method 2A Calculations - Fuel Inlet Flow Rates (SCFH)
COMM Engineering
Model 2 Tests

September 26, 2016	**Average Metered Ps** *PSIA*	**Average Metered T** *Deg F*	**Average Metered Flow Rate** *SCFH*	**Converted Ps** *in. Hg (abs)*	**Converted Ps** *in. Hg*	**Converted T** *R*	**Meter Default Pbar** *in Hg. (abs)*	**Actual Pbar** *in Hg. (abs)*	**Method 2A Calculated Flow Rate** *SCFH*
Model 2 - Run 4A: 0-30-0% Averages	14.94	98.31	153.36	30.41	0.42	557.98	29.99	30.03	**153.56**
Model 2 - Run 4B: 0-30-0% Averages	14.95	98.15	156.57	30.43	0.44	557.82	29.99	30.03	**156.77**
Model 2 - Run 4C: 0-30-0% Averages	14.95	94.29	158.59	30.45	0.46	553.96	29.99	30.03	**158.80**
September 27, 2016									
Model 2 - Run 1A: 90-100% Averages	16.63	91.63	771.64	33.85	3.86	551.30	29.99	30.00	**771.87**
Model 2 - Run 1B: 90-100% Averages	16.61	89.08	764.35	33.83	3.84	548.75	29.99	30.00	**764.58**
Model 2 - Run 1C: 90-100% Averages	16.61	87.47	759.88	33.82	3.83	547.14	29.99	30.00	**760.10**
September 28, 2016									
Model 2 - Run 2A: 70-100-70% Averages	16.33	77.49	682.10	33.24	3.25	537.16	29.99	30.02	**682.71**
Model 2 - Run 2B: 70-100-70% Averages	16.33	90.06	676.83	33.25	3.26	549.73	29.99	30.02	**677.44**
Model 2 - Run 2C: 70-100-70% Averages	16.34	100.34	679.55	33.26	3.27	560.01	29.99	30.02	**680.17**
Model 2 - Run 3A: 30-70-30% Averages	15.52	98.97	424.85	31.59	1.60	558.64	29.99	30.02	**425.25**
Model 2 - Run 3B: 30-70-30% Averages	15.52	94.73	422.35	31.59	1.60	554.40	29.99	30.02	**422.75**
Model 2 - Run 3C: 30-70-30% Averages	15.56	90.88	426.16	31.67	1.68	550.55	29.99	30.02	**426.57**

Method 2A Formula: Calculated Flow Rate (SCFH) = Metered Flow Rate (SCFH) * [(Actual Pbar + Ps)/(Meter Pbar + Ps)]

COMM Model 2 - Flow Meter Readings

Print Date: 29 Sep 2016
Location: 2104492-002

Meter ID: 92240

Data Source: Archive
Effective Dates: 26 Sep 2016 to 28 Sep 2016

Collect Time: 9/29/2016 8:37:02 AM
Firmware Rev:
Firmware Part Number: 2104497-019
CUSTOMER: COMM Engineering

Meter Name

Station
Meter Name

Time	Ps	T	Flow Rate
26-Sep-16	PSIA	Deg F	SCFH
Model 2 - Run 4A: 0-30-0%			
11:15:00 AM	14.75	95.62	17.36
11:20:00 AM	15.02	95.62	226.09
11:25:00 AM	15.06	95.88	219.71
11:30:00 AM	14.72	96.31	21.30
11:35:00 AM	15.08	96.99	234.31
11:40:00 AM	15.00	97.55	224.10
11:45:00 AM	14.76	98.02	13.40
11:50:00 AM	15.08	98.63	227.56
11:55:00 AM	15.03	99.62	228.03
12:00:00 PM	14.71	100.21	30.35
12:05:00 PM	15.02	100.34	238.07
12:10:00 PM	15.07	100.23	236.31
12:15:00 PM	14.76	100.32	13.70
12:20:00 PM	15.05	100.93	216.72
Averages	14.94	98.31	153.36
Model 2 - Run 4B: 0-30-0%			
12:34:00 PM	14.75	101.60	34.25
12:39:00 PM	15.00	101.30	217.94
12:44:00 PM	15.06	101.08	225.82
12:49:00 PM	14.75	100.44	29.82
12:54:00 PM	15.09	99.76	223.50
12:59:00 PM	15.03	99.30	221.35
1:04:00 PM	14.77	98.16	54.61
1:09:00 PM	15.08	96.03	232.08
1:14:00 PM	15.05	96.63	218.40
1:19:00 PM	14.75	96.46	25.58
1:24:00 PM	15.05	96.48	227.05
1:29:00 PM	15.07	95.89	232.41
1:34:00 PM	14.76	95.64	16.81
1:39:00 PM	15.07	95.31	232.32
Averages	14.95	98.15	156.57
Model 2 - Run 4C: 0-30-0%			
1:55:00 PM	14.76	95.24	24.60
2:00:00 PM	15.03	95.17	218.83
2:05:00 PM	15.04	95.23	225.83
2:10:00 PM	14.77	94.63	42.06
2:15:00 PM	15.06	94.41	214.23

2:20:00 PM	15.05	94.32	233.92
2:25:00 PM	14.75	94.17	34.85
2:30:00 PM	15.08	94.10	223.44
2:35:00 PM	15.07	94.00	215.43
2:40:00 PM	14.78	93.91	40.55
2:45:00 PM	15.06	93.84	222.66
2:50:00 PM	15.07	93.74	226.60
2:55:00 PM	14.77	93.66	61.05
3:00:00 PM	15.06	93.60	236.26
Averages	14.95	94.29	158.59

Time	**Ps**	**T**	**Flow Rate**
27-Sep-16	**PSIA**	**Deg F**	**SCFH**
Model 2 - Run 1A: 90-100%			
2:22:00 PM	16.62	93.33	764.18
2:27:00 PM	16.64	92.55	753.36
2:32:00 PM	16.65	92.40	760.17
2:37:00 PM	16.63	92.22	780.04
2:42:00 PM	16.61	91.88	763.08
2:47:00 PM	16.63	91.74	762.00
2:52:00 PM	16.61	91.59	765.22
2:57:00 PM	16.65	91.43	789.84
3:02:00 PM	16.64	91.65	763.77
3:07:00 PM	16.62	91.00	781.90
3:12:00 PM	16.64	90.79	785.72
3:17:00 PM	16.64	90.85	768.95
3:22:00 PM	16.62	90.74	784.04
3:27:00 PM	16.60	90.63	780.71
Averages	16.63	91.63	771.64
Model 2 - Run 1B: 90-100%			
3:40:00 PM	16.62	90.06	754.06
3:45:00 PM	16.60	89.91	762.23
3:50:00 PM	16.61	89.69	769.19
3:55:00 PM	16.63	89.60	761.56
4:00:00 PM	16.63	89.54	761.35
4:05:00 PM	16.61	89.35	776.40
4:10:00 PM	16.60	89.20	761.50
4:15:00 PM	16.60	88.92	774.31
4:20:00 PM	16.61	88.81	774.72
4:25:00 PM	16.61	88.67	765.81
4:30:00 PM	16.61	88.50	767.30
4:35:00 PM	16.63	88.39	759.25
4:40:00 PM	16.61	88.28	759.80
4:45:00 PM	16.61	88.18	753.48
Averages	16.61	89.08	764.35
Model 2 - Run 1C: 90-100%			
4:57:00 PM	16.63	87.81	751.88
5:02:00 PM	16.59	87.74	759.38
5:07:00 PM	16.62	87.69	767.02
5:12:00 PM	16.61	87.62	753.03
5:17:00 PM	16.61	87.60	769.18
5:22:00 PM	16.59	87.58	760.92
5:27:00 PM	16.62	87.52	753.91

5:32:00 PM	16.64	87.47	747.28
5:37:00 PM	16.61	87.39	765.94
5:42:00 PM	16.61	87.35	773.07
5:47:00 PM	16.62	87.32	753.96
5:52:00 PM	16.62	87.29	759.94
5:57:00 PM	16.59	87.14	765.68
6:02:00 PM	16.61	87.02	757.10
Averages	16.61	87.47	759.88

Time	**Ps**	**T**	**Flow Rate**
28-Sep-16	**PSIA**	**Deg F**	**SCFH**
Model 2 - Run 2A: 70-100-70%			
8:52:00 AM	15.80	75.80	523.98
8:57:00 AM	16.62	75.74	784.29
9:02:00 AM	16.60	75.91	752.55
9:07:00 AM	15.81	75.93	533.79
9:12:00 AM	16.61	76.07	753.37
9:17:00 AM	16.62	76.20	783.69
9:22:00 AM	15.81	76.56	525.49
9:27:00 AM	16.61	77.41	754.05
9:32:00 AM	16.61	78.02	766.27
9:37:00 AM	15.80	78.43	548.96
9:42:00 AM	16.63	78.86	758.55
9:47:00 AM	16.62	79.34	761.31
9:52:00 AM	15.81	80.01	534.87
9:57:00 AM	16.60	80.55	768.17
Averages	16.33	77.49	682.10
Model 2 - Run 2B: 70-100-70%			
10:10:00 AM	15.79	82.91	535.71
10:15:00 AM	16.63	84.36	752.82
10:20:00 AM	16.62	85.75	768.33
10:25:00 AM	15.81	86.94	524.92
10:30:00 AM	16.61	88.02	761.27
10:35:00 AM	16.62	89.04	754.01
10:40:00 AM	15.79	90.16	532.15
10:45:00 AM	16.65	90.97	751.89
10:50:00 AM	16.63	91.95	762.58
10:55:00 AM	15.80	93.02	547.14
11:00:00 AM	16.62	93.57	747.95
11:05:00 AM	16.62	94.14	756.67
11:10:00 AM	15.82	94.75	529.02
11:15:00 AM	16.63	95.23	751.11
Averages	16.33	90.06	676.83
Model 2 - Run 2C: 70-100-70%			
11:26:00 AM	15.82	97.76	548.76
11:31:00 AM	16.62	98.26	765.16
11:36:00 AM	16.65	99.60	761.37
11:41:00 AM	15.79	99.83	529.21
11:46:00 AM	16.59	100.32	767.05
11:51:00 AM	16.61	100.41	753.76
11:56:00 AM	15.85	99.90	528.78
12:01:00 PM	16.66	100.67	760.75

12:06:00 PM	16.63	100.96	752.43
12:11:00 PM	15.76	101.23	549.52
12:16:00 PM	16.63	101.48	754.10
12:21:00 PM	16.56	101.42	750.49
12:26:00 PM	15.86	101.56	526.50
12:31:00 PM	16.70	101.32	765.85
Averages	16.34	100.34	679.55

Model 2 - Run 3A: 30-70-30%

1:02:00 PM	15.05	100.89	225.37
1:07:00 PM	15.79	100.61	544.30
1:12:00 PM	15.77	100.33	525.22
1:17:00 PM	15.05	100.05	226.79
1:22:00 PM	15.74	99.72	525.98
1:27:00 PM	15.77	99.45	535.79
1:32:00 PM	15.06	99.11	216.60
1:37:00 PM	15.75	98.64	532.22
1:42:00 PM	15.78	98.38	526.33
1:47:00 PM	15.05	98.15	223.70
1:52:00 PM	15.83	97.98	541.56
1:57:00 PM	15.77	97.73	553.08
2:02:00 PM	15.04	97.41	218.89
2:07:00 PM	15.78	97.11	552.03
Averages	15.52	98.97	424.85

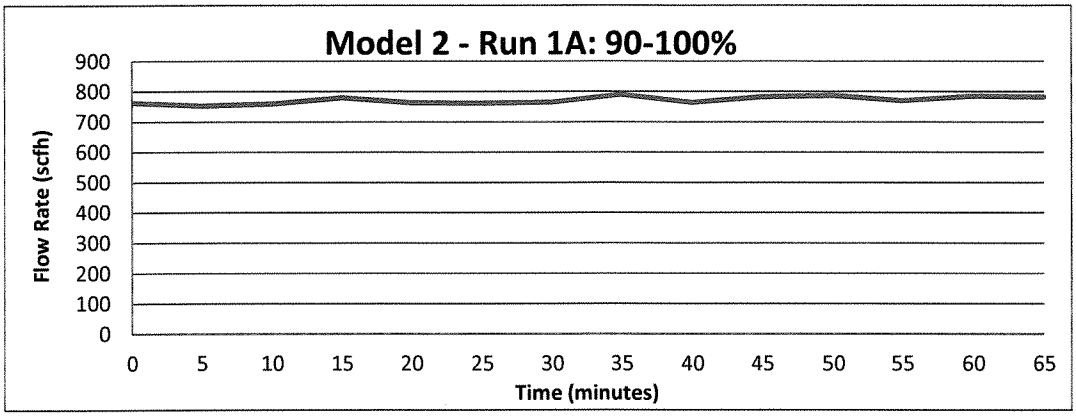
Model 2 - Run 3B: 30-70-30%

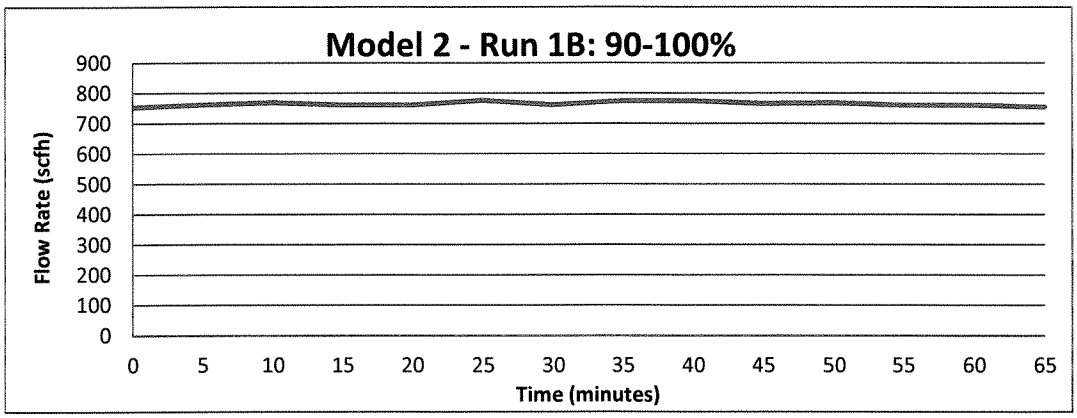
2:20:00 PM	15.06	96.51	228.24
2:25:00 PM	15.78	96.19	535.98
2:30:00 PM	15.78	95.90	530.03
2:35:00 PM	15.05	95.64	218.63
2:40:00 PM	15.76	95.36	542.08
2:45:00 PM	15.73	95.02	526.02
2:50:00 PM	15.06	94.75	220.07
2:55:00 PM	15.79	94.51	528.47
3:00:00 PM	15.77	94.28	534.19
3:05:00 PM	15.05	94.04	216.82
3:10:00 PM	15.79	93.89	525.46
3:15:00 PM	15.77	93.70	546.55
3:20:00 PM	15.06	93.37	228.87
3:25:00 PM	15.75	93.07	531.48
Averages	15.52	94.73	422.35

Model 2 - Run 3C: 30-70-30%

3:36:00 PM	15.11	92.63	226.79
3:41:00 PM	15.84	92.41	529.35
3:46:00 PM	15.77	92.06	527.24
3:51:00 PM	15.12	91.84	219.06
3:56:00 PM	15.86	91.52	538.38
4:01:00 PM	15.82	91.27	528.18
4:06:00 PM	15.06	91.01	223.10
4:11:00 PM	15.79	90.76	541.37
4:16:00 PM	15.81	90.44	532.92
4:21:00 PM	15.12	90.12	224.23
4:26:00 PM	15.81	89.93	546.61
4:31:00 PM	15.81	89.67	552.22

4:36:00 PM	15.12	89.43	226.35
4:41:00 PM	15.77	89.21	550.47
Averages	15.56	90.88	426.16


Model 2 - Run 1A: 90-100%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 1B: 90-100%
Flow Rate (scfh)
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700
600
500
400
300
200
100
0
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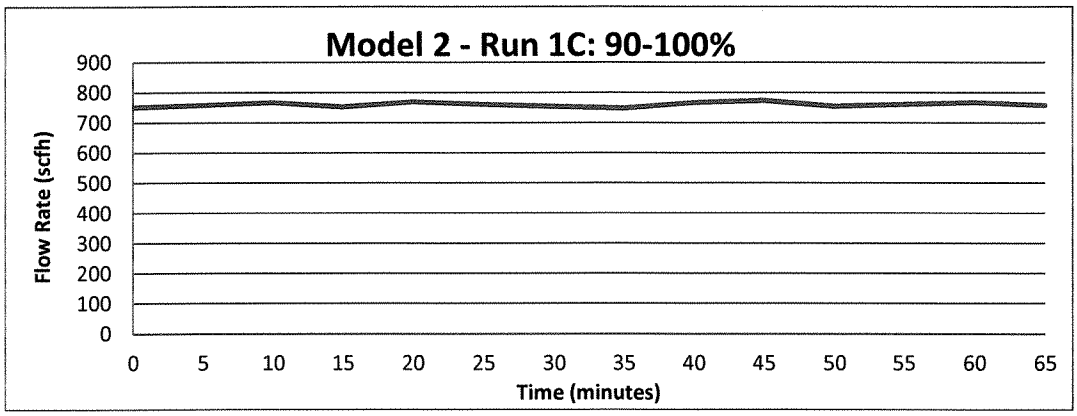
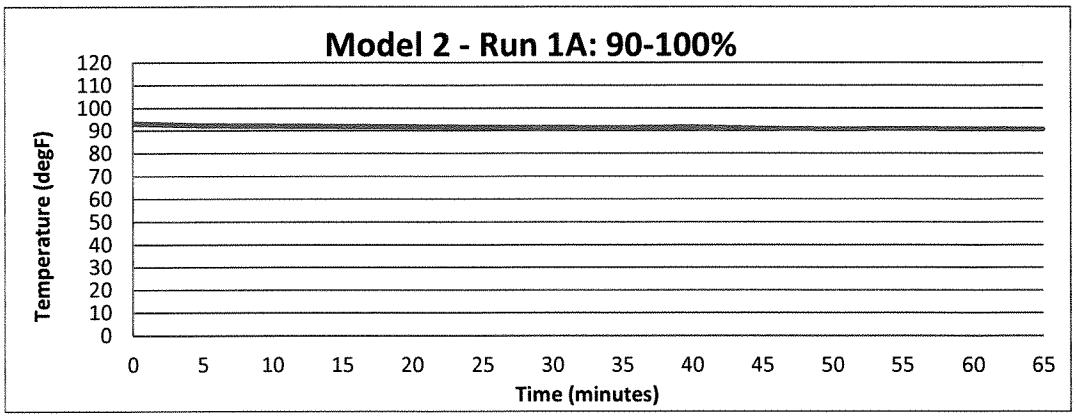
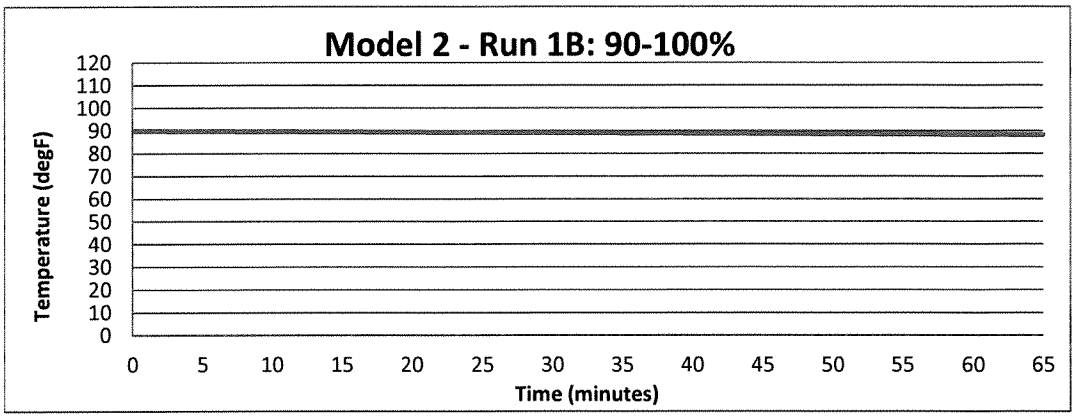
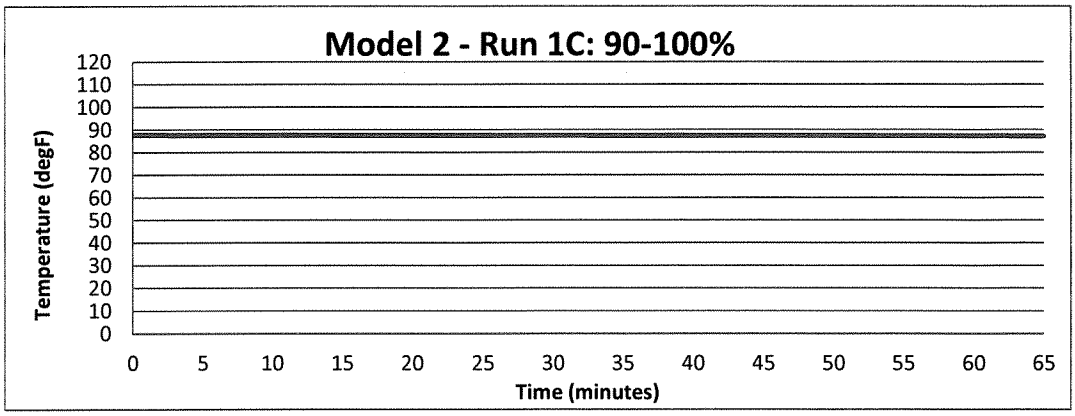
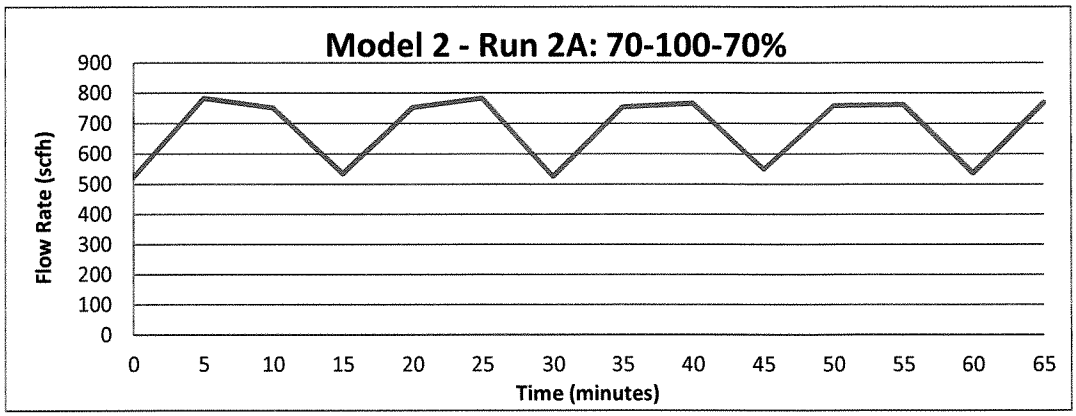
Time (minutes)

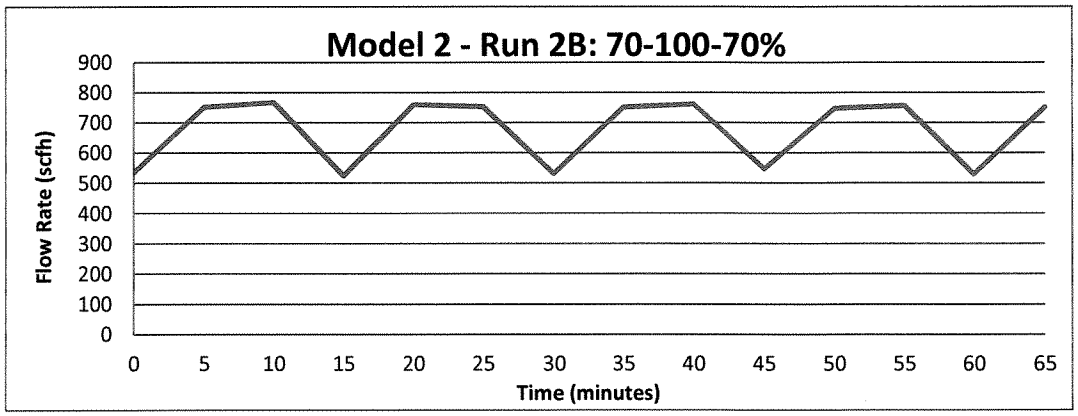

Model 2 - Run 1C: 90-100%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

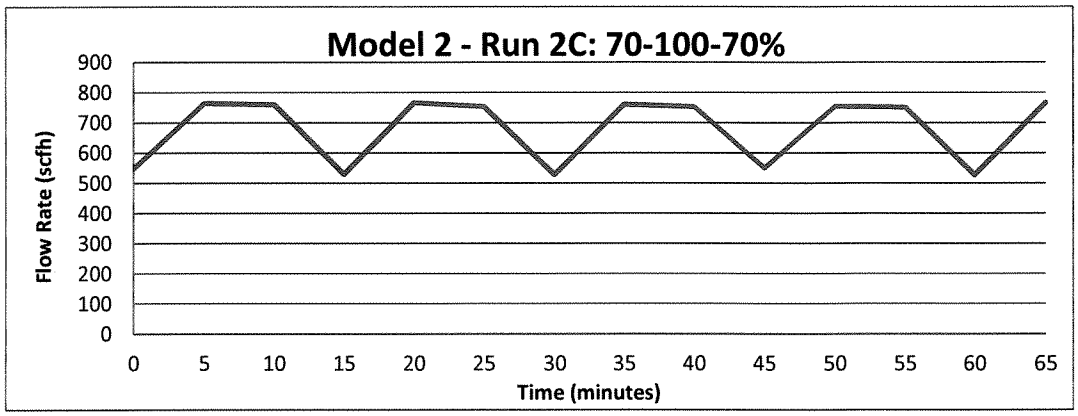

Model 2 - Run 1A: 90-100%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 1B: 90-100%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 1C: 90-100%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2A: 70-100-70%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2B: 70-100-70%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2C: 70-100-70%
Flow Rate (scfh)
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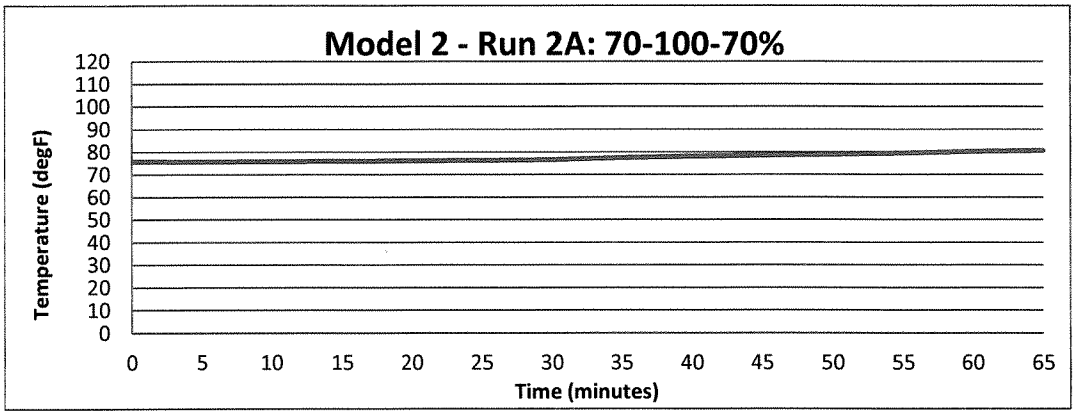
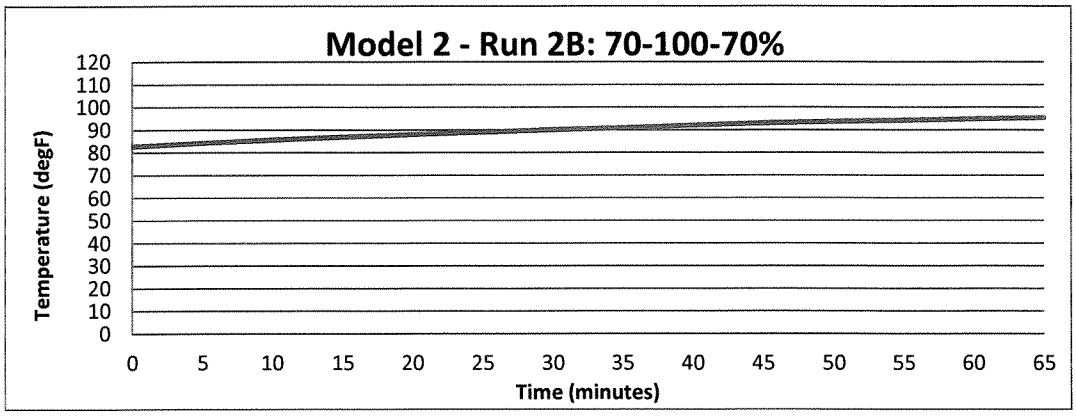
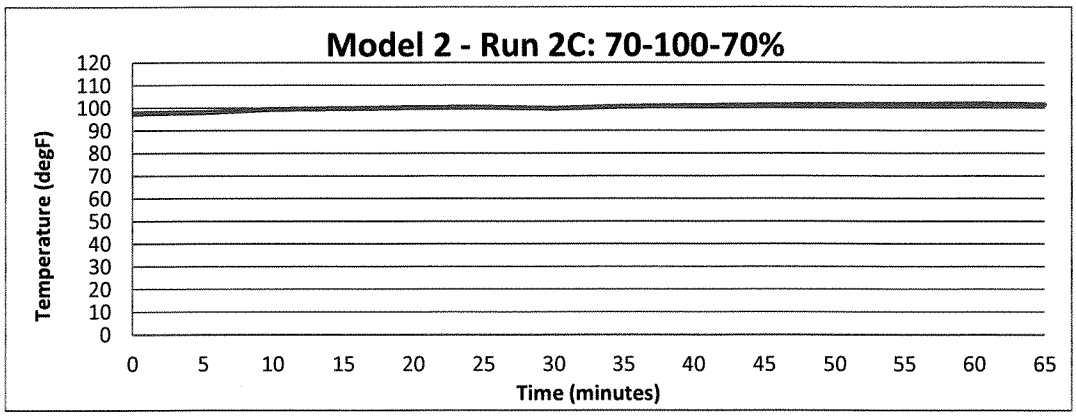
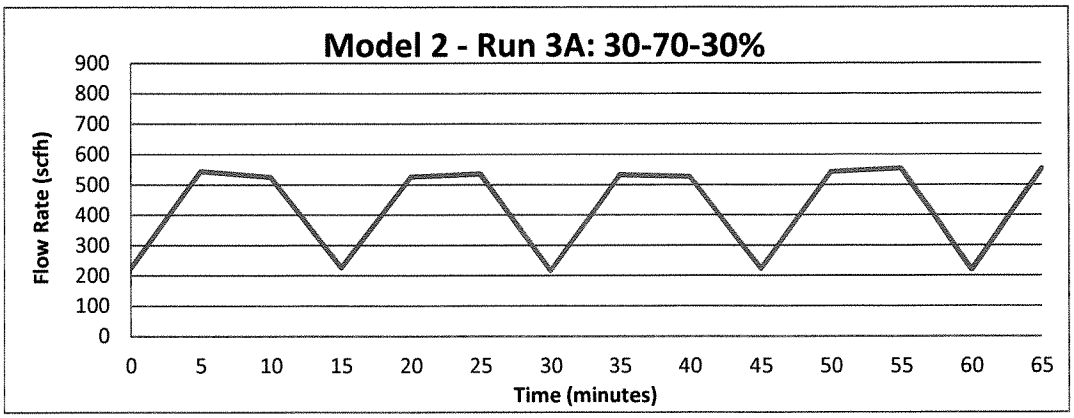
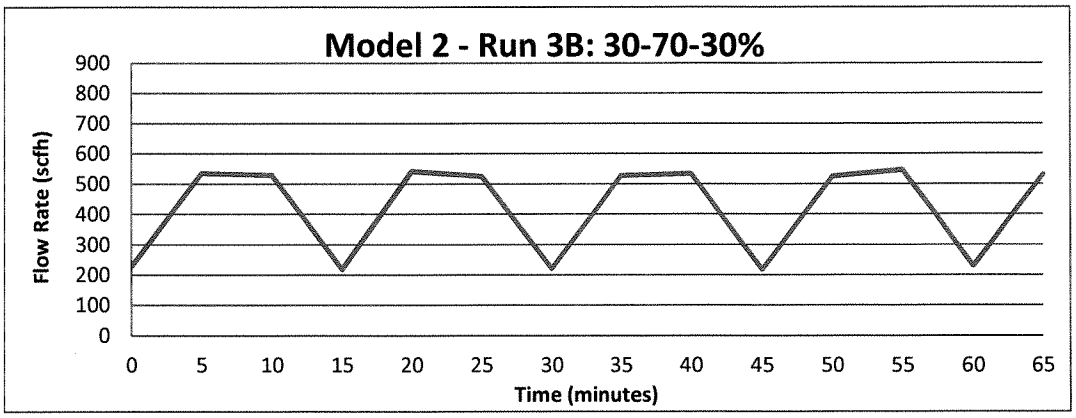
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2A: 70-100-70%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2B: 70-100-70%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2C: 70-100-70%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 3A: 30-70-30%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 3B: 30-70-30%
Flow Rate (scfh)
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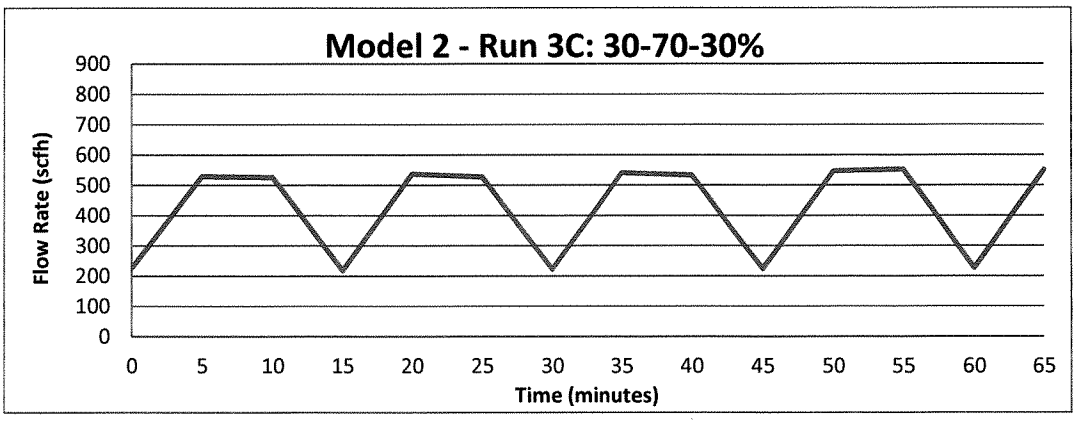
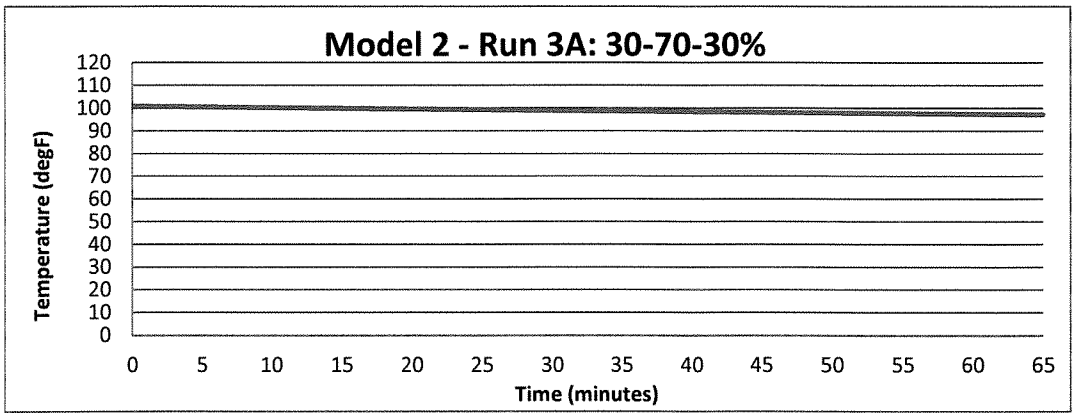
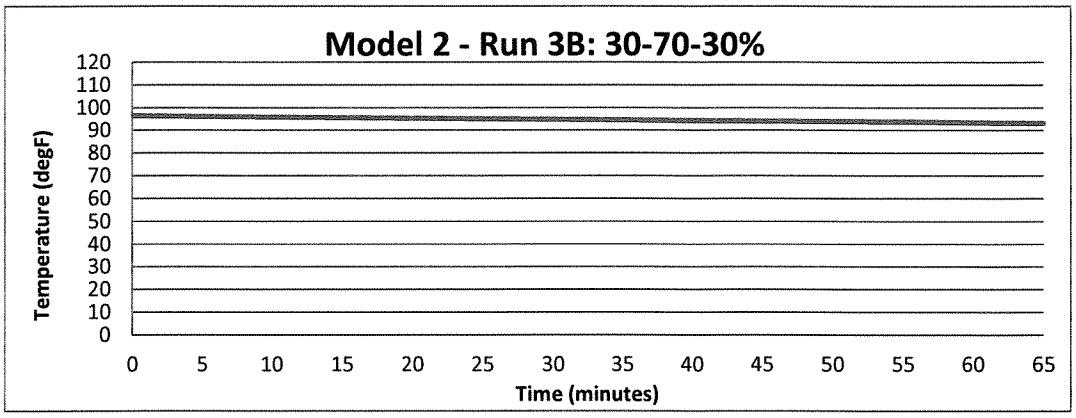
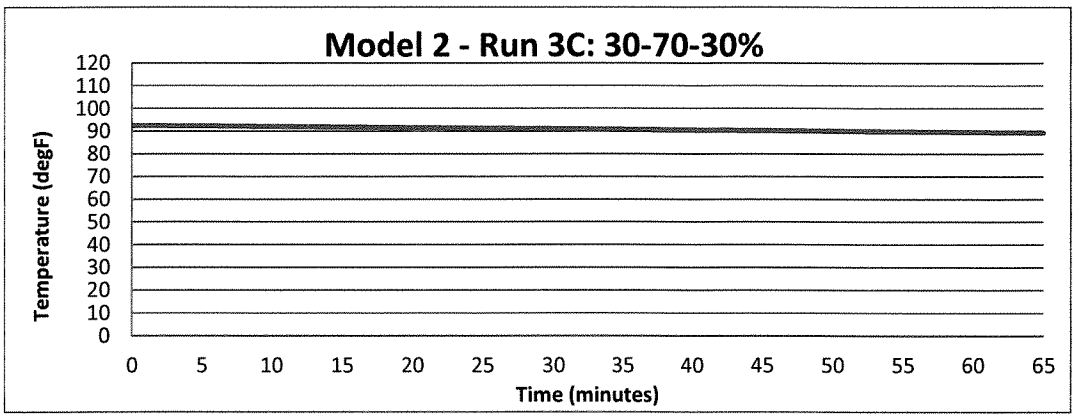
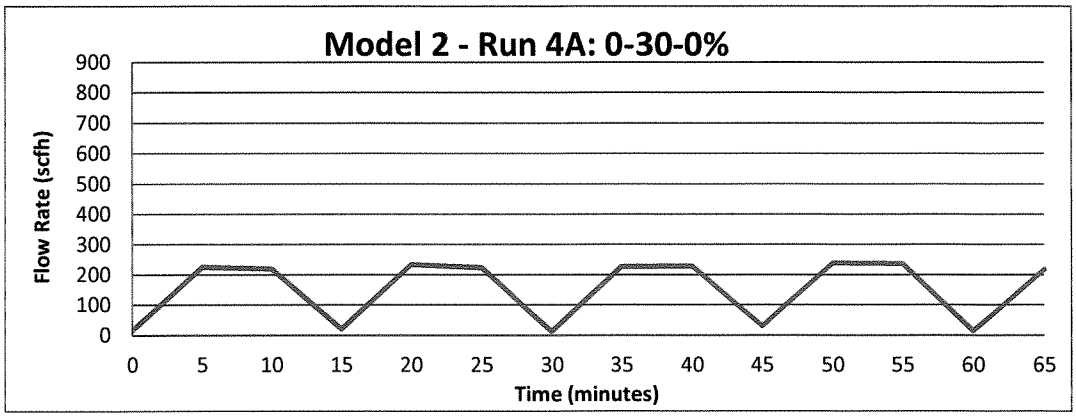
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

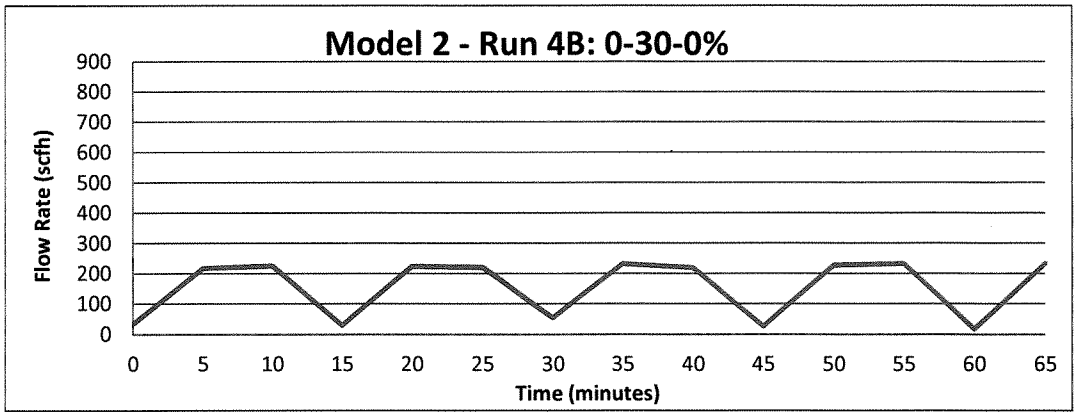

Model 2 - Run 3C: 30-70-30%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

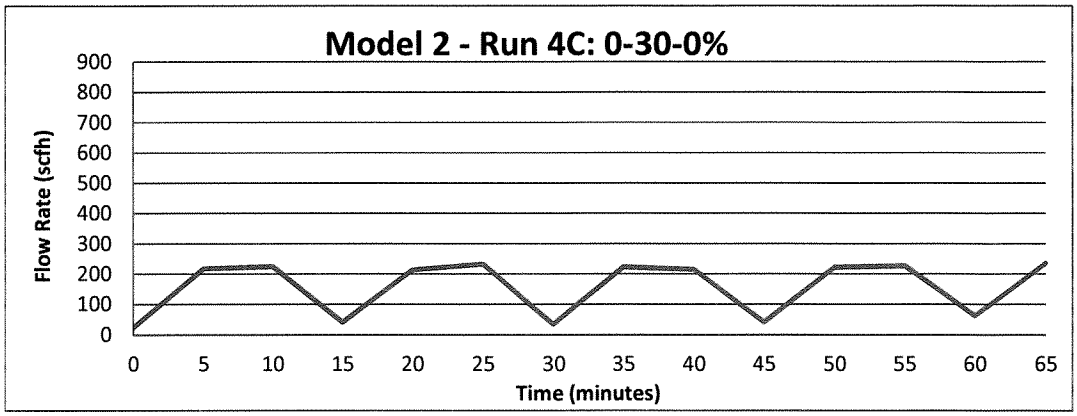

Model 2 - Run 3A: 30-70-30%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

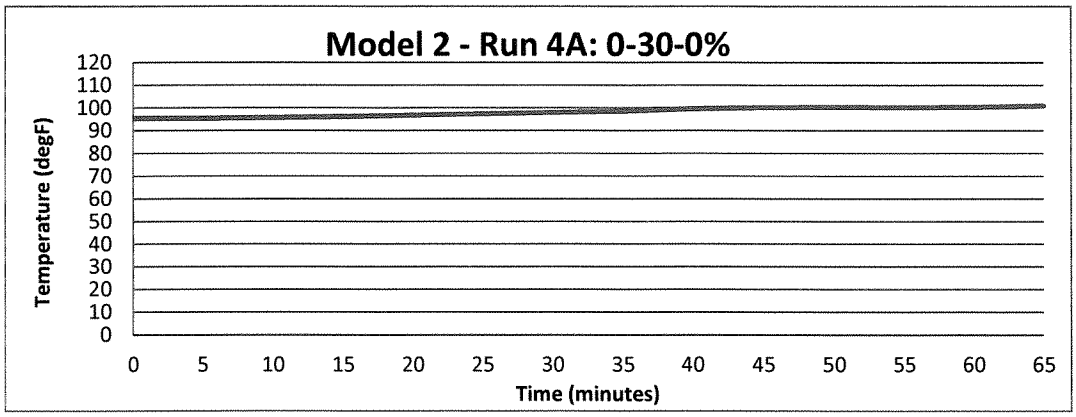

Model 2 - Run 3B: 30-70-30%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

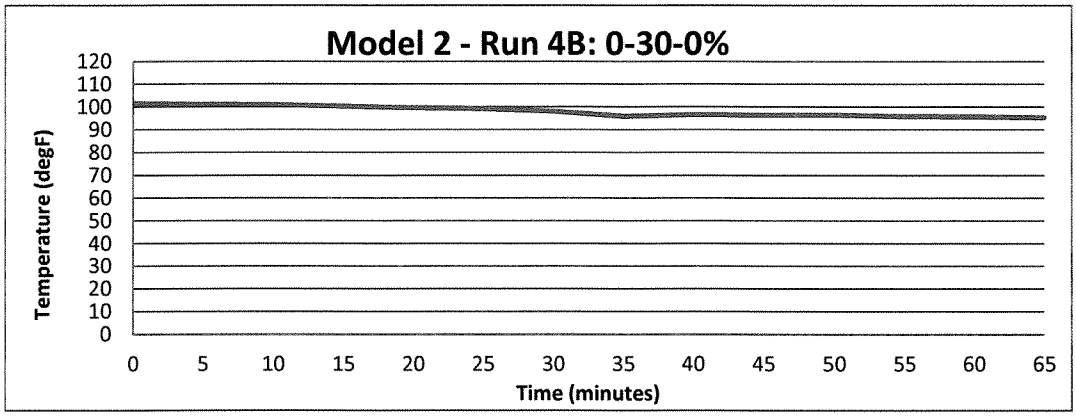

Model 2 - Run 3C: 30-70-30%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

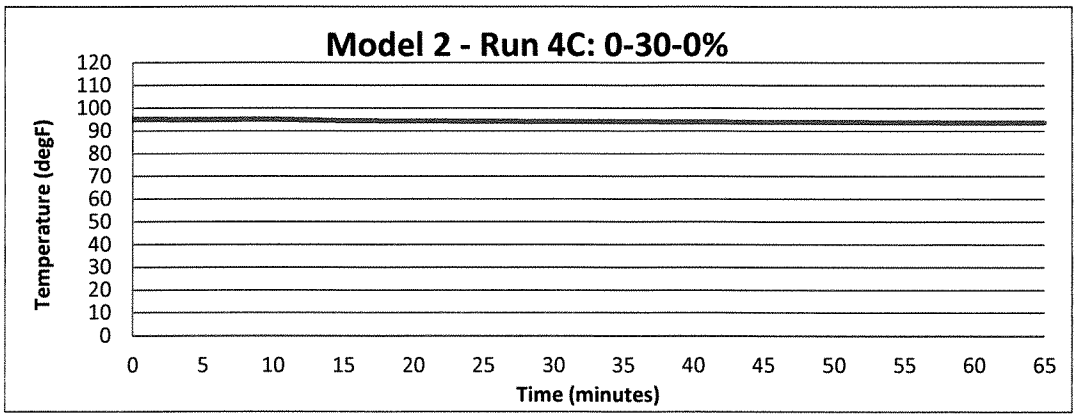

Model 2 - Run 4A: 0-30-0%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 4B: 0-30-0%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 4C: 0-30-0%
Flow Rate (scfh)
900
800
700
600
500
400
300
200
100
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 4A: 0-30-0%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 4B: 0-30-0%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 4C: 0-30-0%
Temperature (degF)
120
110
100
90
80
70
60
50
40
30
20
10
0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)

Flow Meter Calibration

zedi

TEL: 337-234-7017

FAX: 337-233-0314

DMD Model 5 Prover
Date: 9/19/2016

Name: ZEDI/RENTAL COM ENG
Location:
Operator's Name or ID: TOM EDWARDS
Master Meter Type: 10M(10000cfh/283.2m3)
Master Serial #: 1097053
Meter Output: Uncorrected
Field Meter Type: NUFLO
Field Meter Serial #: 2SBG16088
Alternate Serial Number:
Test Setup:
Comments:
ACCURACY - 99.85
K- FACTOR - 336.88
Test Completed: Span Test Result: PASS +/- 1.00

	21:08:32	21:11:11	21:13:15
Flow Rate: (acfh)	2097.439	1544.917	997.759
Test Volume: (cf)	21.000	15.500	10.000
Drive Rate or Pulses/Test:	7074.480	5221.640	3368.800
Ambient Pressure: (psia)	14.742	14.742	14.742
Master Temperature: (°F)	77.671	77.522	78.269
Master Pressure: (psig)	-0.134	-0.081	-0.040
Master Differential: (psig)	0.008	0.006	0.003
Master Volume: (cf)	21.377	15.716	10.184
Meter Temperature: (°F)	73.618	73.469	73.321
Meter Pressure: (psig)	-0.032	-0.017	-0.007
Meter Differential: (psig)	0.003	0.001	0.000
Test Duration:	00:00:36	00:00:36	00:00:36
Upper Pass/Fail Limit:	0.500	0.500	0.500
Lower Pass/Fail Limit:	0.500	0.500	0.500
% Pressure Correction:	-0.693	-0.433	-0.224
% Temp. Correction:	-0.754	-0.754	-0.920
% Uncorrected Proof:	101.513	101.129	101.620
% Corrected Proof:	100.049	99.931	100.460
% Accuracy:	99.951	100.069	99.542
% Error:	-0.049	0.069	-0.458
Single Test Result:	Pass	Pass	Pass

COMMENTS:

Monday, September 19, 2016

* WITNESS

ZEDI EMPLOYEE

zedi

DMD Model 5 Prover
Date: 9/30/2016

TEL: 337-234-7017

FAX: 337-233-0314

Name: RENTAL METER/ COMM NGINEERING
Location: LAFAYETTE LA
Operator's Name or ID: Tom Edwards
Master Meter Type: 10M(10000cfh/283.2m3)
Master Serial #: 1097053
Meter Output: Uncorrected
Field Meter Type: NUFLO
Field Meter Serial #: 11285888602
Alternate Serial Number:
Test Setup:
Comments:
ACCURACY - 100.17
K- FACTOR - 126.78
Test Completed: Span Test Result: PASS +/- 1.00

	14:43:57	14:46:37	14:48:41
Flow Rate: (acfh)	6705.369	4044.679	1995.518
Test Volume: (cf)	70.000	50.000	20.000
Drive Rate or Pulses/Test:	8874.250	6338.750	2535.500
Ambient Pressure: (psia)	14.760	14.760	14.760
Master Temperature: (°F)	71.248	71.845	72.592
Master Pressure: (psig)	-0.875	-0.367	-0.109
Master Differential: (psig)	0.875	0.367	0.109
Master Volume: (cf)	74.122	51.534	20.327
Meter Temperature: (°F)	67.962	68.111	67.813
Meter Pressure: (psig)	-0.155	-0.062	-0.017
Meter Differential: (psig)	0.104	0.040	0.010
Test Duration:	00:00:39	00:00:45	00:00:36
Upper Pass/Fail Limit:	0.500	0.500	0.500
Lower Pass/Fail Limit:	0.500	0.500	0.500
% Pressure Correction:	-4.928	-2.072	-0.627
% Temp. Correction:	-0.619	-0.703	-0.898
% Uncorrected Proof:	105.572	102.767	101.355
% Corrected Proof:	99.749	99.930	99.815
% Accuracy:	100.252	100.070	100.185
% Error:	0.252	0.070	0.185
Single Test Result:	Pass	Pass	Pass

COMMENTS:

Friday, September 30, 2016

* WITNESS

ZEDI EMPLOYEE

Fuel Analysis

GAS INNOVATIONS

CERTIFICATE OF CONFORMANCE

PROPYLENE

INSTRUMENT PURITY / POLYMER GRADE

Guaranteed Specifications		Minimal Purity
99.5 % +	Propylene	99.50 % +
Sum of all impurities to	Ethane	< 1 PPM
be < 0.50 %	Propane	2707 PPM
	Carbon Dioxide	< 1 PPM
Water < 5 PPM	Water	< 3 PPM
Liquid Phase Analysis	Nitrogen	< 10 PPM
	Total saturated C4's	208 PPM
	Oxygen	< 2 PPM
	Sulfur	Non Detected
	Methane	< 1 PPM

Certified by: Randy Chatham Date: 9-14-16

SO# 00078911

Cylinder Serial Number(s)
Bulk

Batch Number
PRY-091416-I

CUSTOMER PO#: **1555-160649**
Lot Number: PRY-053116-I

18005 E. Highway 225, La Porte, TX 77571 Tel- 281-471-2200 Fax- 281-471-2201 www.gasinnovations.com

APPENDIX I

Resumes of Test Personnel

PATTERSON, Robert M; President

Education	B. S. 1983, Central Michigan University; Mt. Pleasant, Michigan, in Geology and Earth Science-Meteorology.
Professional Training Courses	Attended a two-day short course, "Performing and Observing Source Sampling" in Dallas, Texas. Attended a one-day short course on basic supervision. Attended a four-week management course presented by the American Management Association, 1991-1992.
Certification	Certified Visible Emissions Evaluator Certified Cabot Full-Face Respirator Fit Tester
Professional Memberships	Source Evaluation Society American Management Association
Technical Experience	Participated in the sampling of over 1,000 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 1986-present. Over twenty-six years experience with EPA and Texas Air Control Board methods of sampling - both stationary sources and ambient air. CFR, Title 40, Chapter I, Part 60, EPA Methods 1 through 25, and 101 through 110. Performance Specifications 1 through 5. CFR, Title 40, Chapter I, Part 50, Appendix A through F. "Sampling Procedures Manual, Texas Air Control Board, January 1983." Parts 1-1 through 14-6, Appendix B through Appendix M. Experienced with sampling Method 0010, Modified Method 5 Sampling Train; Method 0030, Volatile Organic Sampling Train; and various EPA and "Site Specific" multiple metal and acid gas sampling trains.

(continued)

PATTERSON, Robert M (cont'd)

Technical Experience (cont'd)

Over twenty-six years experience with EPA and Texas Air Control Board methods of analysis of both stationary and ambient air samples. Particulate matter, SO_3, SO_2, H_2SO_4, NO_x, CO, CO_2, O_2, H_2S, F, TRS, HCl, Cl_2, NH_3, VOC, C_1-C_7, and other organics. Both laboratory and on-site analyses were performed.

Experienced in the sampling and analysis of commercial calibration gas cylinders for sulfur dioxide, oxides of nitrogen, carbon dioxide, oxygen, carbon monoxide, and C_1-C_7 hydrocarbons.

Thoroughly trained in the operation and routine maintenance of the following:

- MSA LIRA Model 202S Infrared Analyzer
- Analytical Instrument Development, Inc. Model 340A Calibration System
- Shimadzu GC-Mini 2 Gas Chromatograph
- Thermo Environmental Model 10AR Oxides of Nitrogen Analyzer
- Thermo Oxygen Analyzer
- Teledyne Model 326 Oxygen Analyzer
- Thermo Environmental Model 48 Carbon Monoxide Analyzer
- Thermo Environmental Model 40 Sulfur Dioxide Analyzer
- Ratfisch Model RS 100 Total Hydrocarbon Analyzer
- Western Research Model 721AT Sulfur Dioxide Analyzer
- Horiba Model PIR 2000 Carbon Dioxide Analyzer
- Ratfisch Model RS 55 Total Hydrocarbon Analyzer
- J.U.M. Model VE-7 Total Hydrocarbon Analyzer

MONFRIES, James R; Senior Quality Assurance Manager

Education	B. S. 1975, University of Texas at Arlington; Arlington, Texas, in Biology with a minor in Chemistry. Graduate work at the University of Texas at Dallas in the Environmental Science Department.
Professional Training Courses	Attended a two-day short course, "Performing and Observing Source Sampling" in Dallas, Texas, July 1976.
Certification	Qualified Individual (Groups I, II, III, and IV) Certified Visible Emissions Evaluator
Professional Memberships	Air and Waste Management Association Source Evaluation Society - Past President
Technical Experience	Participated in the sampling of over 700 sources, serving in the supervisory capacity on over 500 sources. Many of the sources were sampled simultaneously using more than one sampling train at several points in the flue gas stream, 1976-present. Also supervised several ambient air monitoring studies, including a permanent five-station high volume air sampling network in South Texas, a permanent four-station high volume air sampling network in Pennsylvania, and a permanent seven-station sulfur dioxide sampling network in East Texas. Was Quality Assurance Manager for several ambient air monitoring studies; including a four-station high volume air sampling network for TSP and PM10 in Midlothian, Texas; a single-station high volume air sampling network for PM10 in South Texas, a two-station high volume air sampling network for TSP in Wichita Falls, Texas, and a four-station continuous air sampling network for TSP and PM10 in Jewett, Texas using Thermo Andersen FH 62 C14 Beta Gauge Dust Monitors.

(continued)

MONFRIES, James R (cont'd)

Thirty years experience with EPA and Texas Commission on Environmental Quality methods of analysis of both source and ambient air samples for particulates, SO_2, SO_3, H_2SO_4, H_2S, HCl, Cl_2, NO_x, Hydrocarbons, and TRS.

Experienced in the analysis of commercial calibration gas cylinders for sulfur dioxide and oxides of nitrogen.

Experienced with VOST and Modified Method 5 Sampling Procedures.

Thoroughly trained in the operation and routine maintenance of the following:

- Lear Siegler, Inc. SM800 Stack Gas Monitor
- Du Pont Model 460/1 Photometric Analyzer System
- Lear Siegler, Inc. SM1000 Ambient SO_2 Monitor
- Calibrated Instruments Ultragas SO_2 Monitor
- Meloy 285E SO_2 Analyzer
- Meloy SA-700 Fluorescent SO_2 Analyzer
- MSA LIRA Model 202S Infrared Analyzer
- Analytical Instrument Development, Inc. Model 340A Calibration System
- Shimadzu GC-Mini 2 Gas Chromatograph
- Thermo Environmental Model 10S NO_x Analyzer
- Thermo Oxygen Analyzer
- Teledyne Model 326 Oxygen Analyzer
- Thermo Environmental Model 48 Carbon Monoxide Analyzer
- Thermo Environmental Model 40 Sulfur Dioxide Analyzer
- Ratfisch Model RS 103 Total Hydrocarbon Analyzer
- Western Research Model 721AT Sulfur Dioxide Analyzer
- Horiba Model PIR 2000 Carbon Dioxide Analyzer
- Ratfisch Model RS 55 Total Hydrocarbon Analyzer
- J.U.M. Model VE-7 Total Hydrocarbon Analyzer
- Thermo Andersen Model FH 62 C14 Dust Monitor

JOHNSON, Jeremiah; Project Supervisor III

Education	B. S. Agriculture Development, August 2000; Texas A & M University; College Station, Texas.
Certifications	Qualified Individual (Groups I, II, III and IV) Certified Visible Emissions Evaluator HAZMAT certified Adult CPR certified Standard First Aid certified
Technical Experience	Participated in the sampling of over 500 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2001-present. Experienced with Modified Method 5 Sampling Train (Method 0010). Experienced with VOST sampling procedure (Method 0030). Experienced with calibration techniques for all field-testing equipment. Experienced with various multiple metal and acid gas sampling trains. Has performed on-site SO_2 analysis and H_2S fuel gas analysis. Thoroughly trained in the operation and routine maintenance of the following: • Thermo Environmental Model 10S and 42C Oxides of Nitrogen Analyzers • Teledyne Model 326 Oxygen Analyzer

(continued)

JOHNSON, Jeremiah (cont'd)

Technical Experience (cont'd)

Operation and maintenance (cont'd)

- Western Research Model 721 AT Sulfur Dioxide Analyzer.
- Horiba Model PIR 2000 Carbon Dioxide Analyzer
- J.U.M. Model VE-7 Total Hydrocarbon Analyzer
- Thermo Environmental Model 48 Carbon Monoxide Analyzer

METCO
ENVIRONMENTAL

ATTESTATION OF COMPLIANCE
(QUALIFIED INDIVIDUAL)

I, Jeremiah Johnson of TestAmerica Air Emission Corp. (DBA METCO Environmental
(Qualified Individual)

Understand and acknowledge that all test projects conducted under his/her supervision will conform to the METCO Environmental's quality manual and to this practice [ASTM D 7036-04] in all respects.

I, Neal Shappley of TestAmerica Air Emission Corp. (DBA METCO Environmental
(Technical Director)

I certify the aforementioned qualified individual has participated in at least 10 tests employing the methods for which they are qualified and passed the qualification exam(s).

2-26-13
(Qualified Individual Signature/Date)

Jeremiah Johnson
(Printed Name)

8/25/13
(Technical Director Signature/Date)

Neal Shappley
(Printed Name)

The relevant external qualification exam(s) were administered by the Source Evaluation Society.

Group 1 Exam Date 1/31/13 # 09109 QSTI Number (if applicable)_____

Group 2 Exam Date 1/31/13 # 09112 QSTI Number (if applicable)_____

Group 3 Exam Date 1/31/13 # 09113 QSTI Number (if applicable)_____

Group 4 Exam Date 01/09/15 # 11444 QSTI Number (if applicable)_____

Group 5 Exam Date 7/6/12 QSTI Number (if applicable)_____

Version 2
February 2013

HO, Benson L; Environmental Scientist III

Education	B. S. May 2013, Major: Biochemistry, Minor: Chemistry; Louisiana State University Agricultural and Mechanical College, Baton Rouge, LA.
Technical Experience	Participated in the sampling of over 75 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2014-present.

RIOS, Brandon; Environmental Scientist

Education	B.S. University of Mississippi, Oxford, MS. Major: Geology. Graduated May 2014
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2015-present.

MADDEN, Alex A ; Environmental Scientist

Education	B. S. in Environmental Management Systems, Dec 2014; Louisiana State University, Baton Rouge, LA
Technical Experience	Participated in the sampling of over 25 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2016-present.

From:	Andrew Bienvenu
To:	Mia, Marcia
Cc:	Garwood, Gerri; Jason Huckaby; Bill Schneider
Subject:	RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer"s Performance Test Report (Part 2 of 2)
Date:	Friday, February 24, 2017 1:39:51 PM
Attachments:	removed.txt COMM OOOO Manufacturer"s Test - EPA Review Responses 2-24-2017.pdf

Marcia,

Please see attached pdf file for the information requested below.

Please review this information and let us know if there is anything else you need from us.

Thank you,

Andrew Bienvenu
COMM Engineering
PO Box 53463 | Lafayette, LA 70505
1319 W. Pinhook Road, Ste 401 | Lafayette, LA 70503
Office: 337.237.4373 ext 132
Fax: 337.234.1805

COMM ENGINEERING

From: Mia, Marcia [mailto:Mia.Marcia@epa.gov]
Sent: Wednesday, February 01, 2017 1:35 PM
To: Andrew Bienvenu
Cc: Garwood, Gerri; Jason Huckaby
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Andrew,
We have completed our initial review of the COMM Model 2, Model 3 and Model 4 Combustor which were submitted on 12/05/17.

We have the following follow-up items. You may reply via email and we can follow-up via conference call if there are any more questions. Thanks in advance.

Models 2/3/4

1. §60.5413(d)(10) requires 12 color photos (one from each test run) of the Method 22 VE test – The photos provided were black and white. Please provide color photos.
2. §60.5413(d)(12)(v)(I) requires a pilot flame indicator – Please provide the operator manual (hyperlink is sufficient) to the burner management system.
3. §60.5413(d)(3) and §60.5413(d)(12)(vi) require strip charts for the operation parameters – Pressure was not included. Please provide a graphical representation of the pressure data.

4. §60.5413(d)(5)(ii)(A) and (B) requires inlet testing using ASTM D1945-03 – Your test report indicates you used ASTM D1946-90. Please explain.

Model 2

1. §60.5413(d)(5)(ii)(A) requires labs for hydrocarbons for the inlet fuel – The nitrogen and oxygen levels for the condition one canister indicate leakage, and a propylene content <80%. Please explain.

Model 3

1. §60.5413(d)(7)(i) requires that Outlet Testing be conducted in accordance with Method 3C – You indicated in your report that Condition III-3 is not considered to be representative, with CO2 being non-detect. You therefore averaged the CO2 and O2 data from runs 1 and 2 and used that number for the run 3 data. Please explain why you were unable to get representative results, especially since you collected a duplicate bag. Please recalculate using only the data from runs 1 and 2 (instead of including an average for runs 1 and 2 in place of the data for run 3).

Marcia B Mia
Office of Compliance/Air Branch
2227A WJCS
U.S. Environmental Protection Agency
202-564-7042

From: Mia, Marcia **On Behalf Of** Oil_and_Gas_PT
Sent: Wednesday, January 25, 2017 10:18 AM
To: 'Andrew Bienvenu' <abienvenu@commengineering.com>
Cc: Garwood, Gerri <Garwood.Gerri@epa.gov>; Jason Huckaby <Jason.Huckaby@erg.com>
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

We have the initial review completed I need to generate the follow-up email which I will work on and try to get out COB today. Thanks.

Marcia B Mia
Office of Compliance/Air Branch
2227A WJCS
U.S. Environmental Protection Agency
202-564-7042

From: Andrew Bienvenu [mailto:abienvenu@commengineering.com]
Sent: Monday, January 16, 2017 5:39 PM
To: Oil_and_Gas_PT <Oil_and_Gas_PT@epa.gov>
Cc: Garwood, Gerri <Garwood.Gerri@epa.gov>; Jason Huckaby <Jason.Huckaby@erg.com>
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

February 24, 2017

Ms. Marcia Mia
EPA – Office of Compliance/Air Branch
1200 Pennsylvania Ave. N.W
2227A WJCS

RE: **EPA OOOO Manufacturer's Test Reports – Initial Review Follow-Up**
COMM Model 2, 3, and 4 Combustors

Dear Marcia:

Here are COMM's reponses to the follow-up items from the EPA's initial reviews.

Models 2/3/4

1. §60.5413(d)(10) requires 12 color photos (one from each test run) of the Method 22 VE test – The photos provided were black and white. Please provide color photos.

   COMM Response: See Appendix A for color photos.

2. §60.5413(d)(12)(v)(I) requires a pilot flame indicator – Please provide the operator manual (hyperlink is sufficient) to the burner management system.

   COMM Response: ACL 3200 controller – controller is operated in "Flame Ionization" mode.
   http://acl-manufacturing.com/pdf/2015_01_15__ACL3200_Rev_4A_Installation_Manual_v0_2g.pdf

3. §60.5413(d)(3) and §60.5413(d)(12)(vi) require strip charts for the operation parameters – Pressure was not included. Please provide a graphical representation of the pressure data.

   COMM Response: See Appendix B for pressure strip charts.

4. §60.5413(d)(5)(ii)(A) and (B) requires inlet testing using ASTM D1945-03 – Your test report indicates you used ASTM D1946-90. Please explain.

   COMM Response: See Appendix C for clarifications from Metco and Enthalpy.

Model 2

1. §60.5413(d)(5)(ii)(A) requires labs for hydrocarbons for the inlet fuel – The nitrogen and oxygen levels for the condition one canister indicate leakage, and a propylene content <80%. Please explain.

   COMM Response: See Appendix C for clarifications from Metco and Enthalpy.

Model 3

1. §60.5413(d)(7)(i) requires that Outlet Testing be conducted in accordance with Method 3C – You indicated in your report that Condition III-3 is not considered to be representative, with CO2 being non-detect. You therefore averaged the CO2 and O2 data from runs 1 and 2 and used that number for the run 3 data. Please explain why you were unable to get representative results, especially since you collected a duplicate bag. Please recalculate using only the data from runs 1 and 2 (instead of including an average for runs 1 and 2 in place of the data for run 3).

   COMM Response: See Appendix C for clarifications from Metco and Enthalpy.

If you have questions, please give us a call.

Regards,

Andrew Bienvenu
VP - Engineering
COMM Engineering
Office: 337.237.4373 ext 132
Fax: 337.234.1805

Appendix A – Color Photos

Model 2 Run 1A

Model 2 Run 2A

Model 2 Run1B

Model 2 Run 2B

Model 2 Run1C

Model 2 Run 2C

Model 2 Run 3A

Model 2 Run 4A

Model 2 Run 3B

Model 2 Run 4B

Model 2 Run 3C

Model 2 Run 4C

Model 3 Run 1A

Model 3 Run 2A

Model 3 Run1B

Model 3 Run 2B

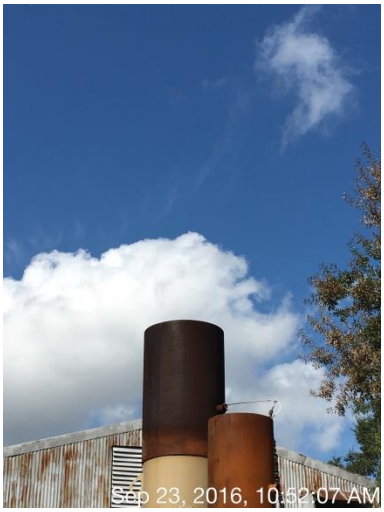
Model 3 Run1C

Model 3 Run 2C

Model 3 Run 3A

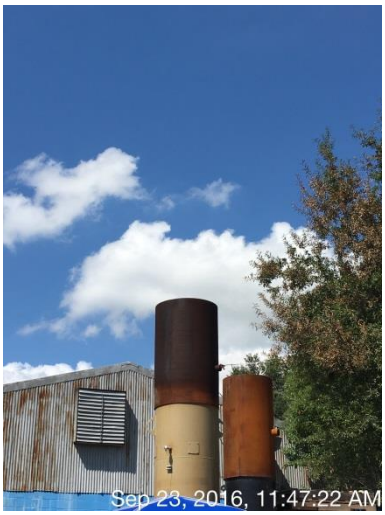
Model 3 Run 4A

Model 3 Run 3B



Model 3 Run 4B

Model 3 Run 3C



Model 3 Run 4C

Model 4 Run 1A

Model 4 Run 2A

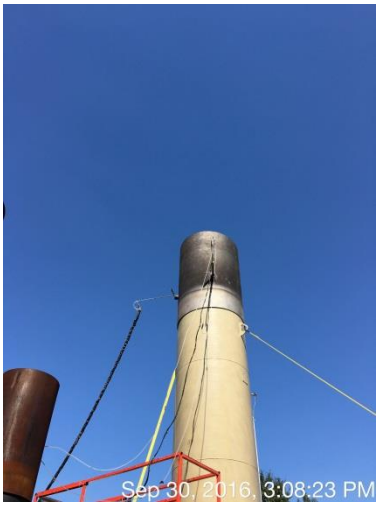
Model 4 Run1B

Model 4 Run 2B

Model 4 Run1C

Model 4 Run 2C

Model 4 Run 3A



Model 4 Run 4A

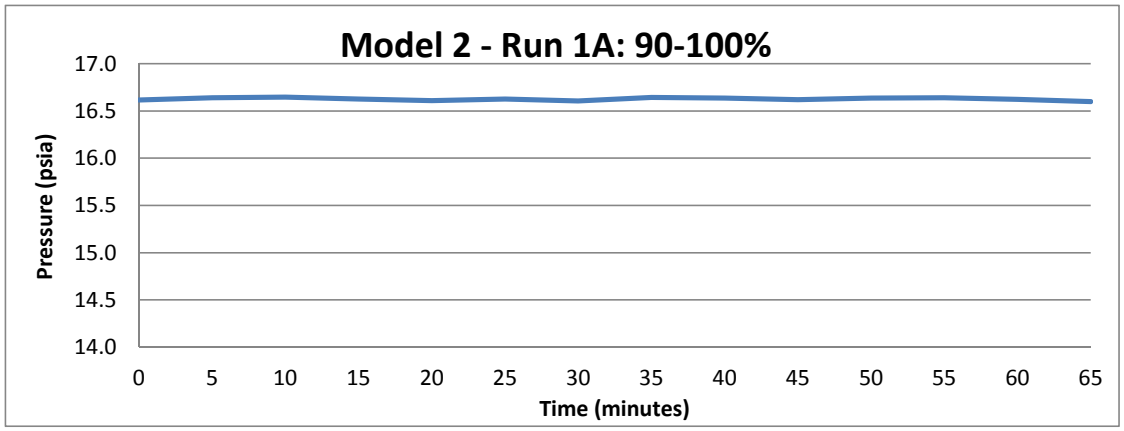
Model 4 Run 3B

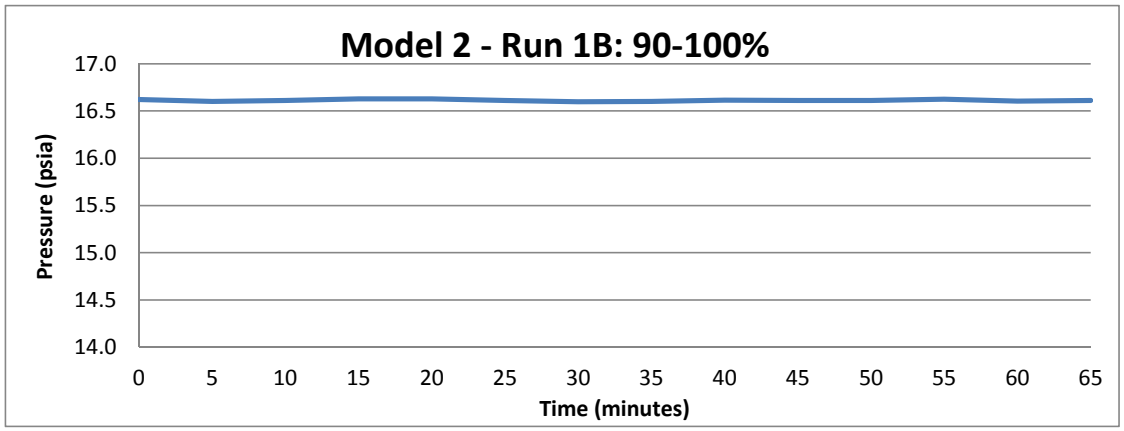
Model 4 Run 4B

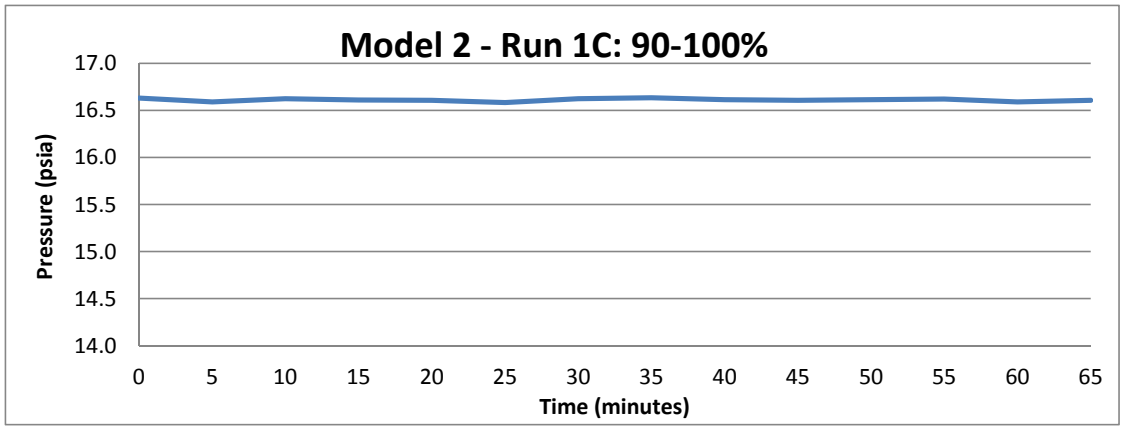
Model 4 Run 3C

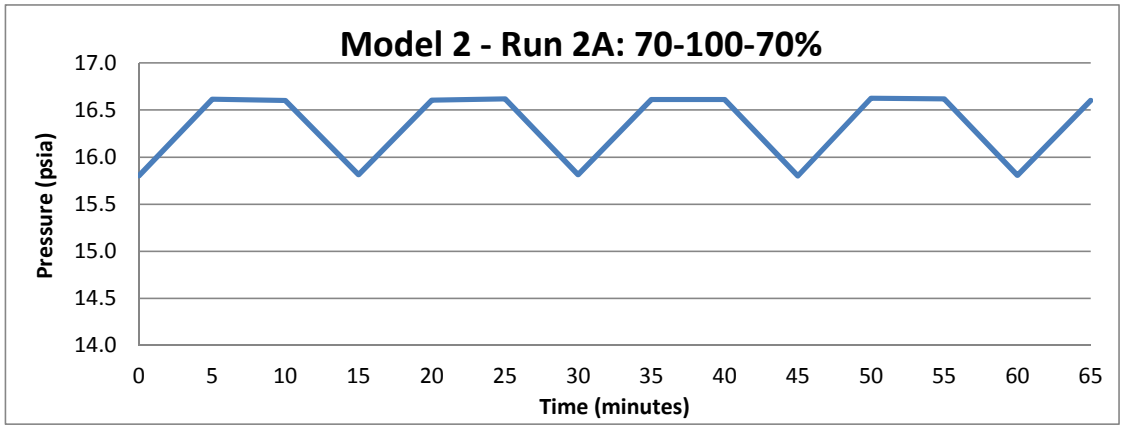
Model 4 Run 4C

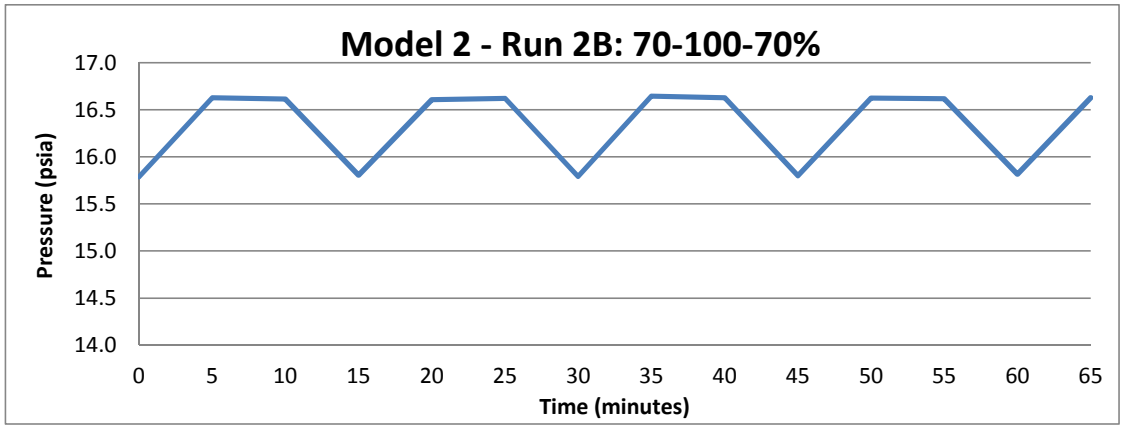
Appendix B – Strip Charts (Pressure)

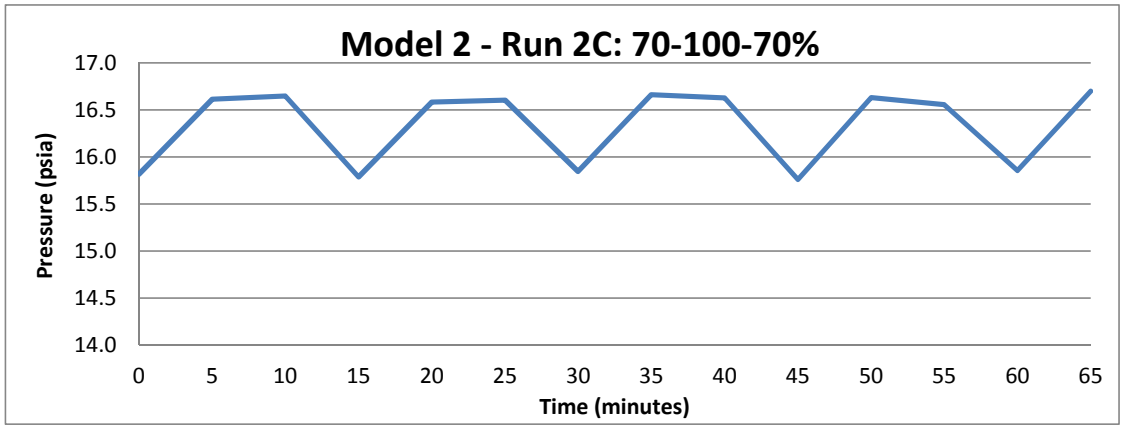

Model 2 - Run 1A: 90-100%
Pressure (psia)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 1B: 90-100%
Pressure (psia)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 1C: 90-100%
Pressure (psia)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2A: 70-100-70%
Pressure (psia)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2B: 70-100-70%
Pressure (psia)
17.0
16.5
16.0
15.5
15.0
14.5
14.0
0 5 10 15 20 25 30 35 40 45 50 55 60 65
Time (minutes)


Model 2 - Run 2C: 70-100-70%
Pressure (psia)
17.0
16.5
16.0
15.5
15.0
14.5
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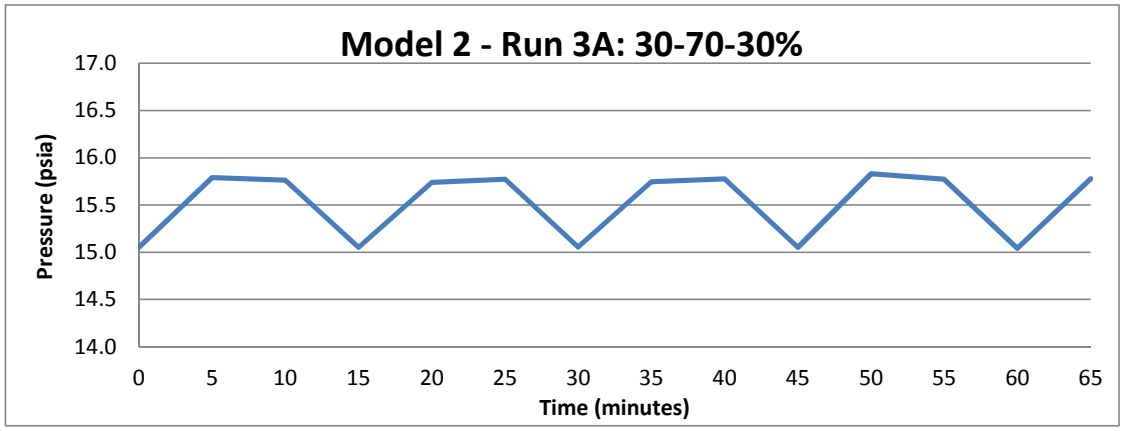
Time (minutes)


Model 2 - Run 3A: 30-70-30%
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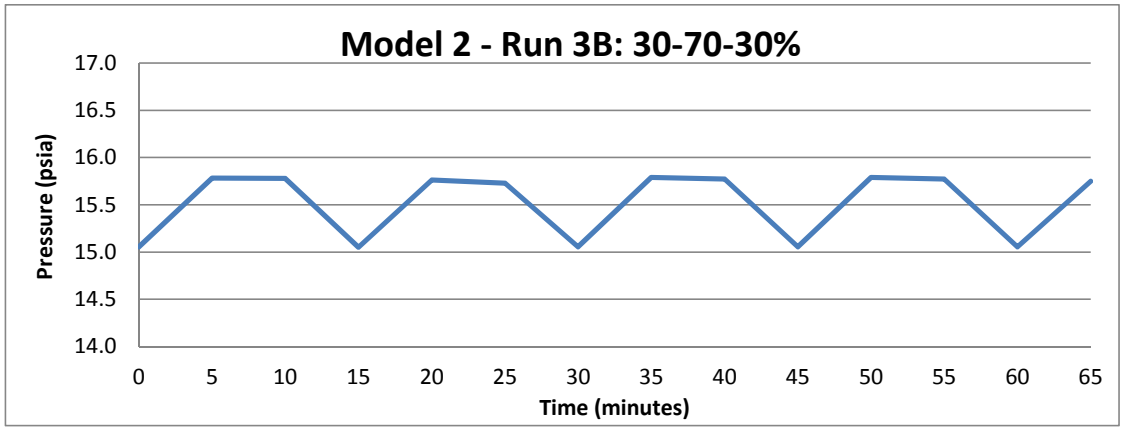
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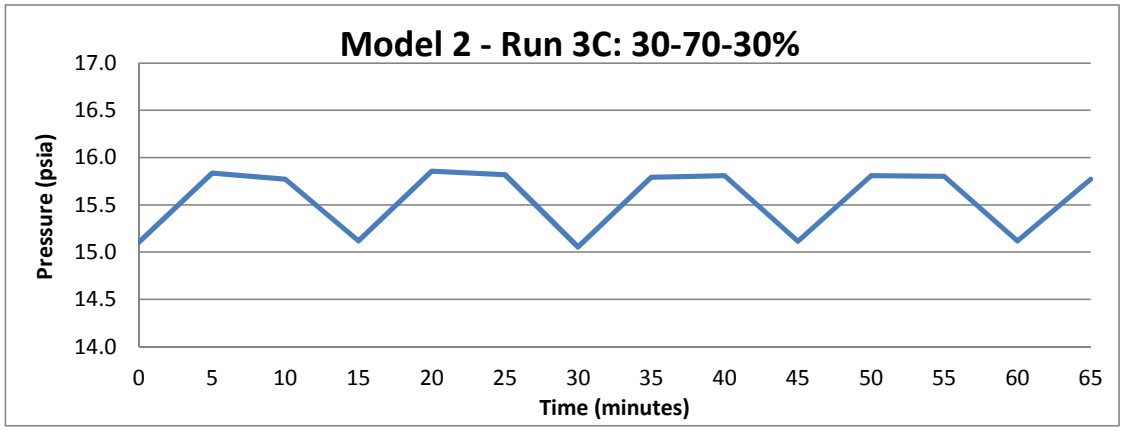
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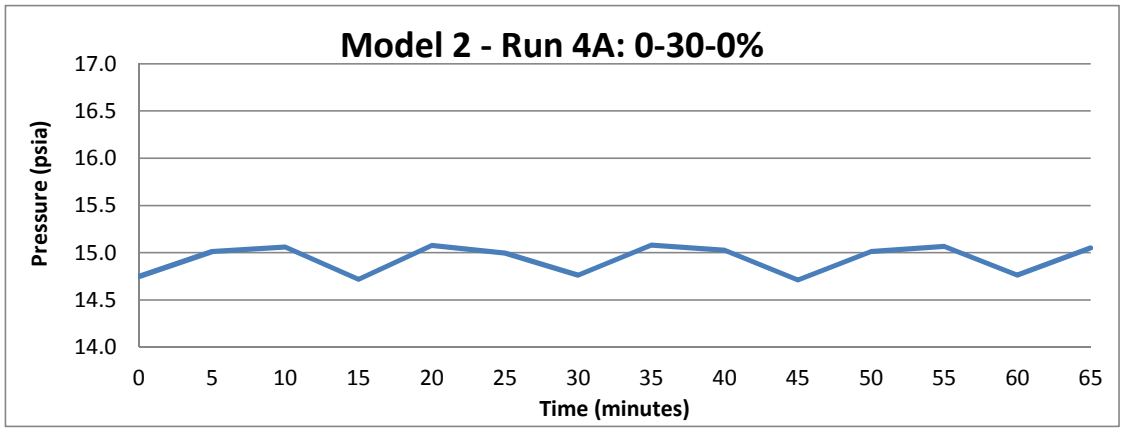
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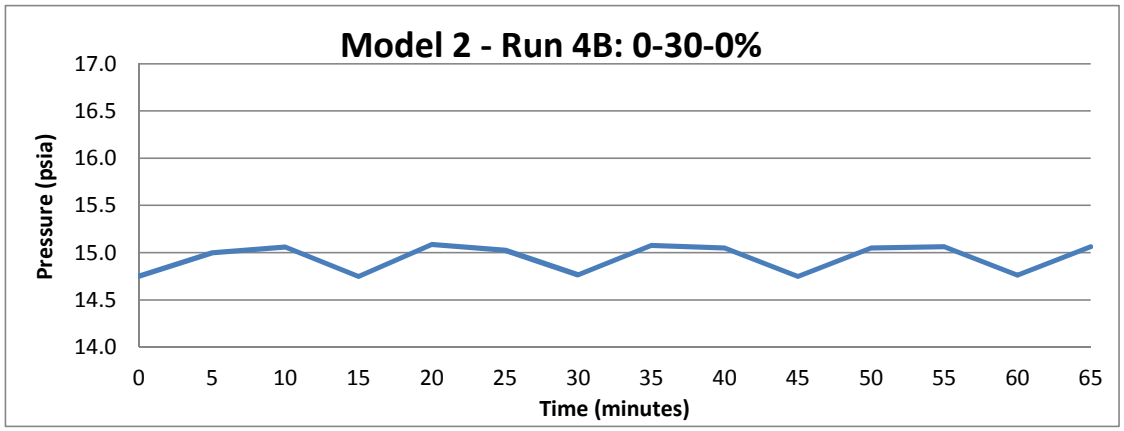
Model 2 - Run 4B: 0-30-0%
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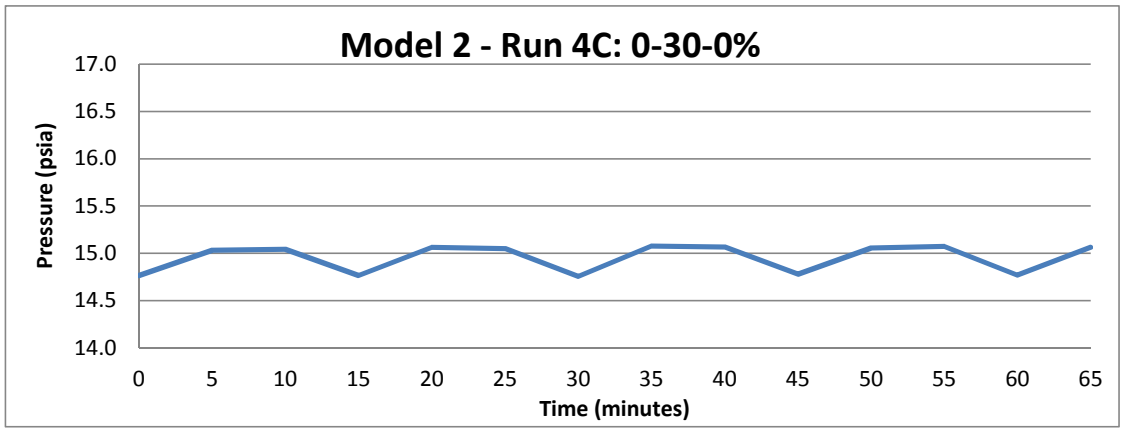
Model 2 - Run 4C: 0-30-0%
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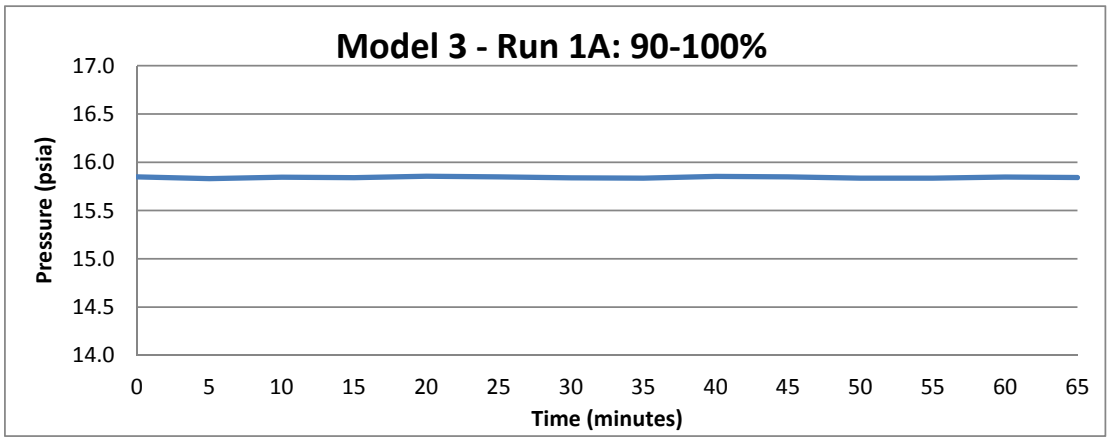
Time (minutes)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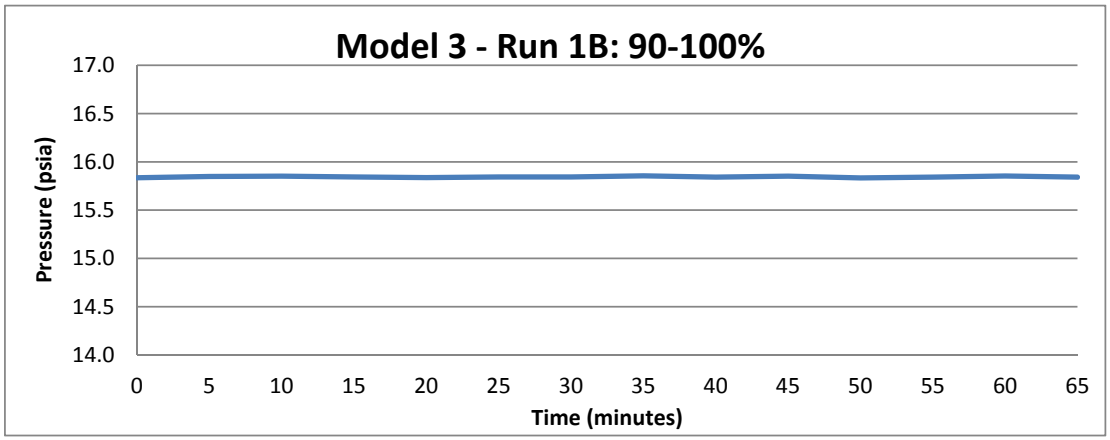
Time (minutes)


Model 3 - Run 1B: 90-100%
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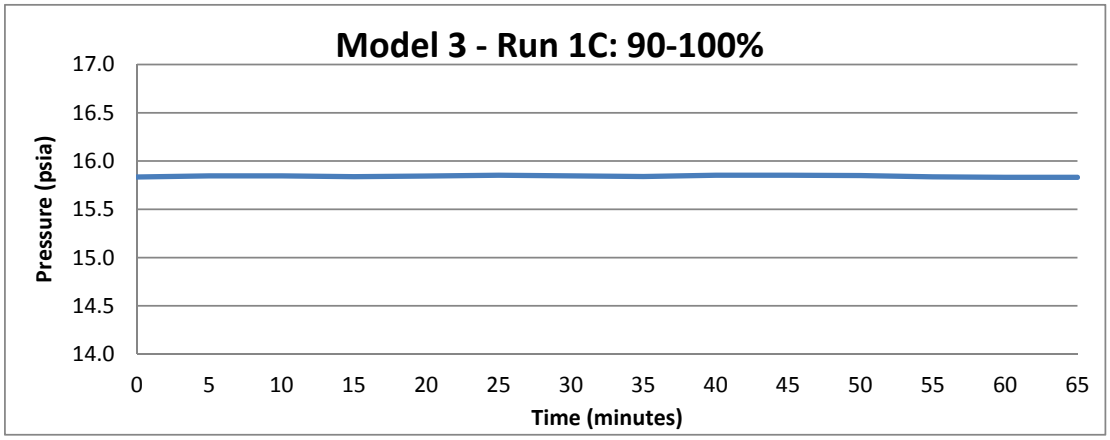
Time (minutes)


Model 3 - Run 1C: 90-100%
Pressure (psia)
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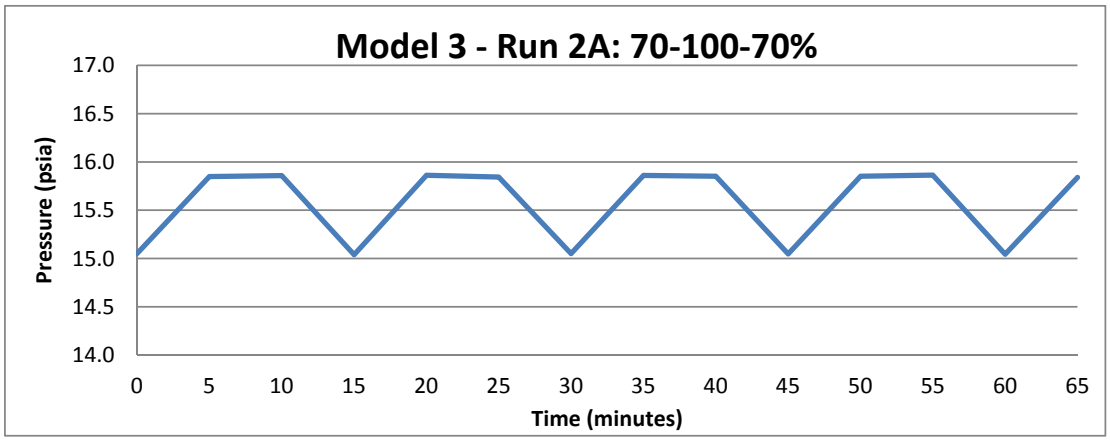
Time (minutes)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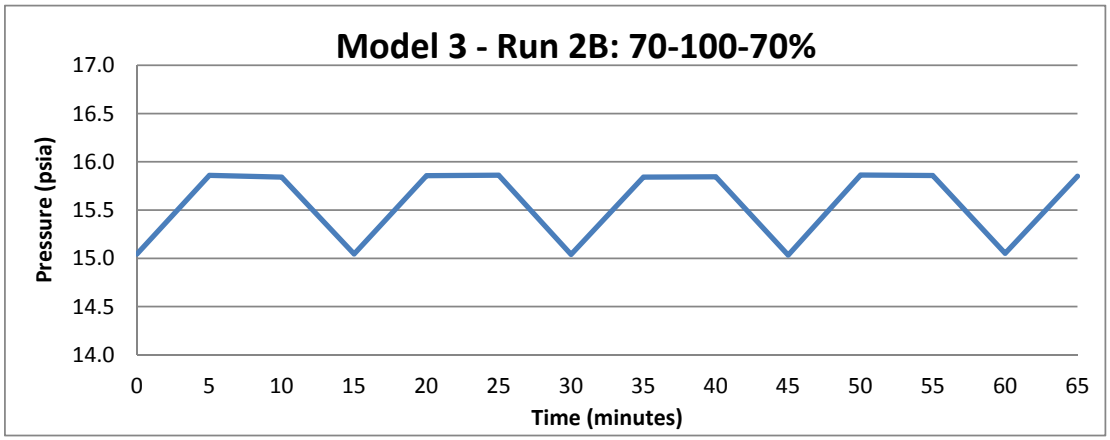
Model 3 - Run 2B: 70-100-70%
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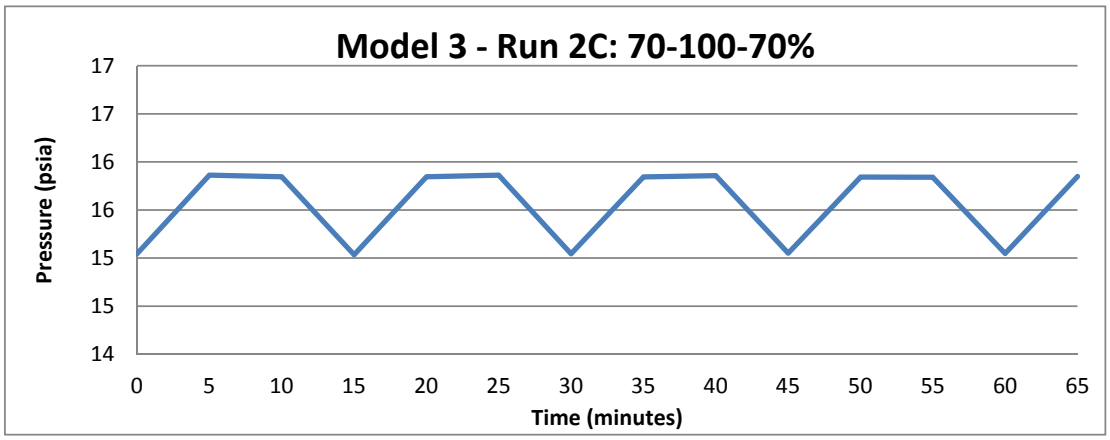
Time (minutes)


Model 3 - Run 2C: 70-100-70%
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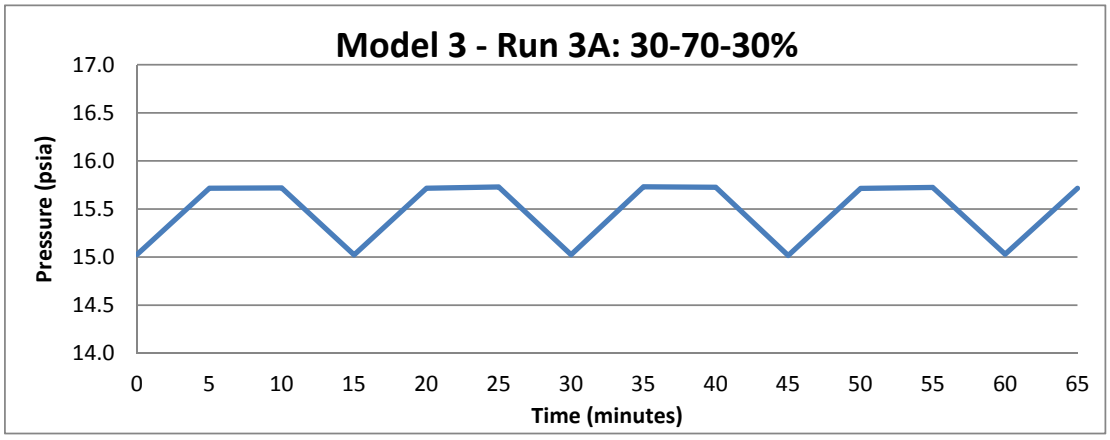
Time (minutes)


Model 3 - Run 3A: 30-70-30%
Pressure (psia)
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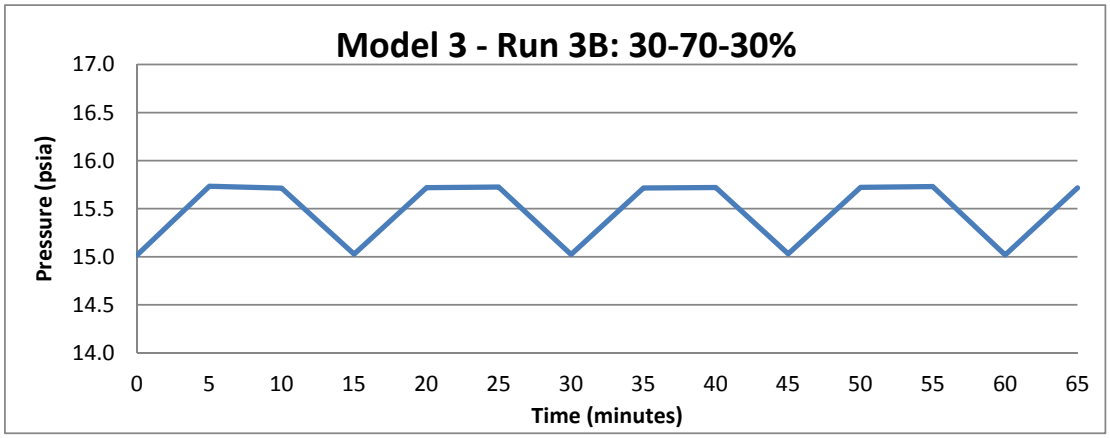
Time (minutes)


Model 3 - Run 3B: 30-70-30%
Pressure (psia)
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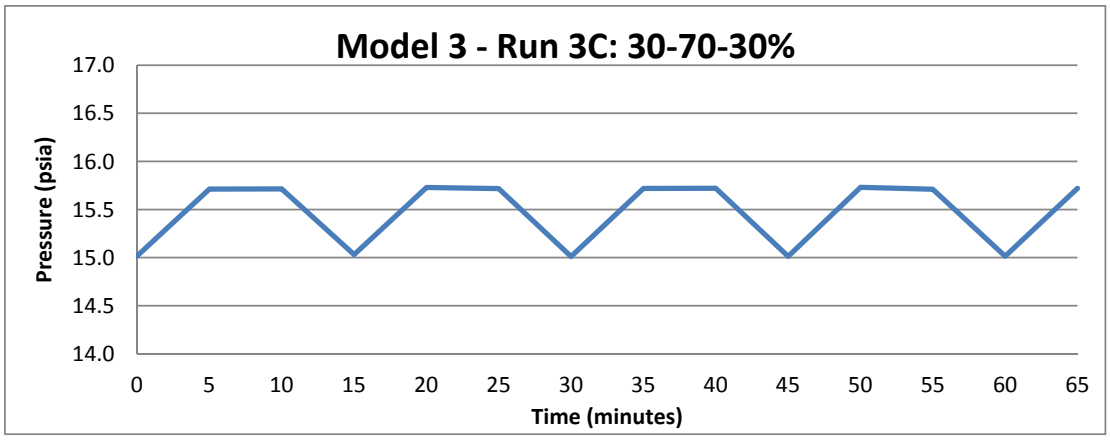
Time (minutes)


Model 3 - Run 3C: 30-70-30%
Pressure (psia)
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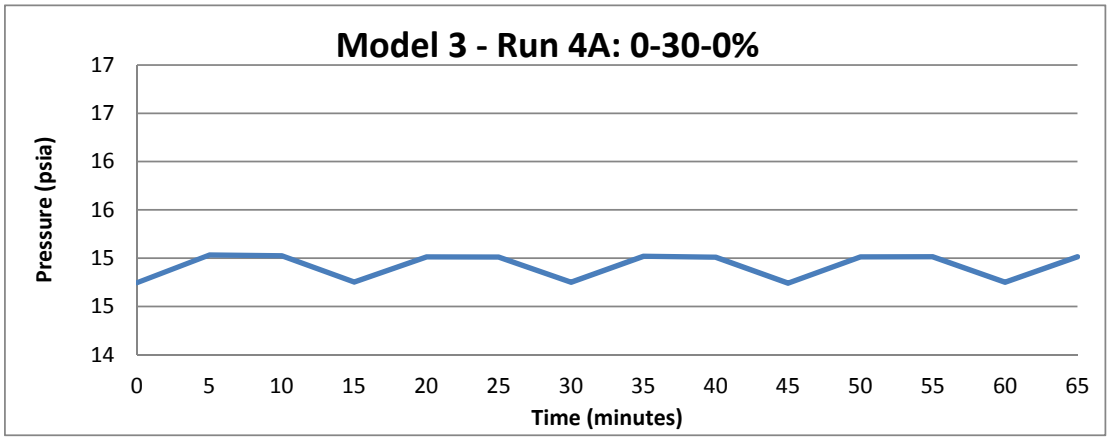
Time (minutes)


Model 3 - Run 4A: 0-30-0%
Pressure (psia)
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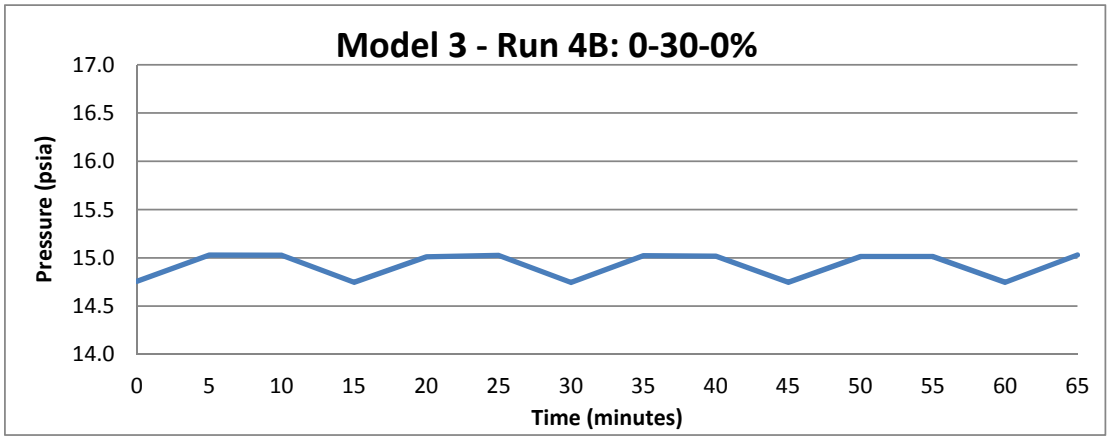
Time (minutes)


Model 3 - Run 4B: 0-30-0%
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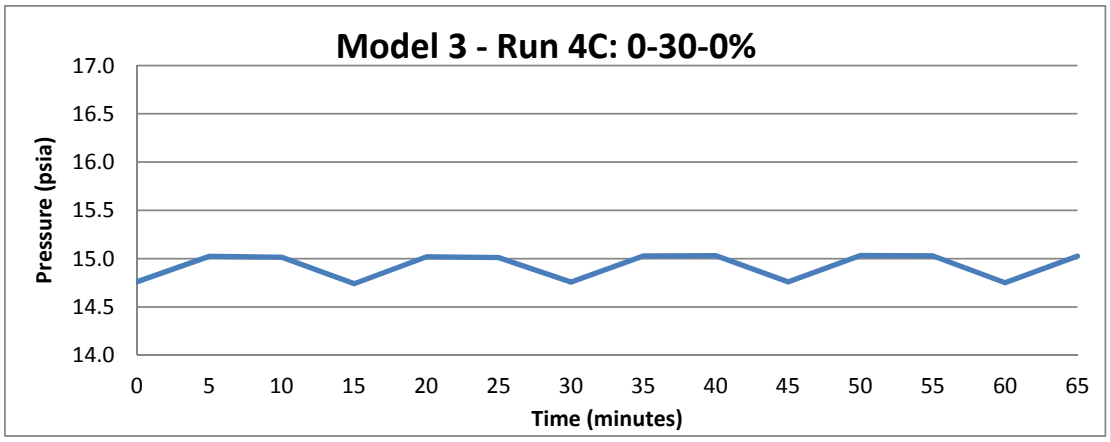
Time (minutes)


Model 3 - Run 4C: 0-30-0%
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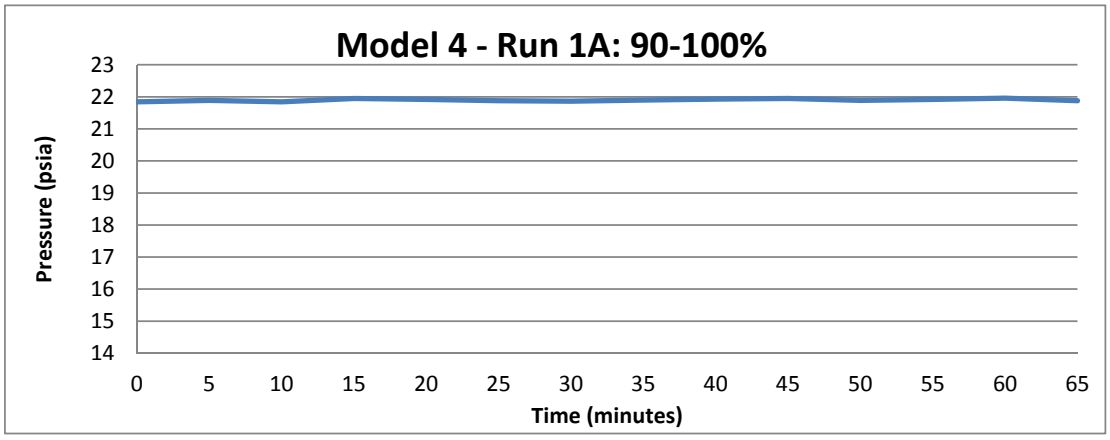
Model 4 - Run 1A: 90-100%
Pressure (psia)
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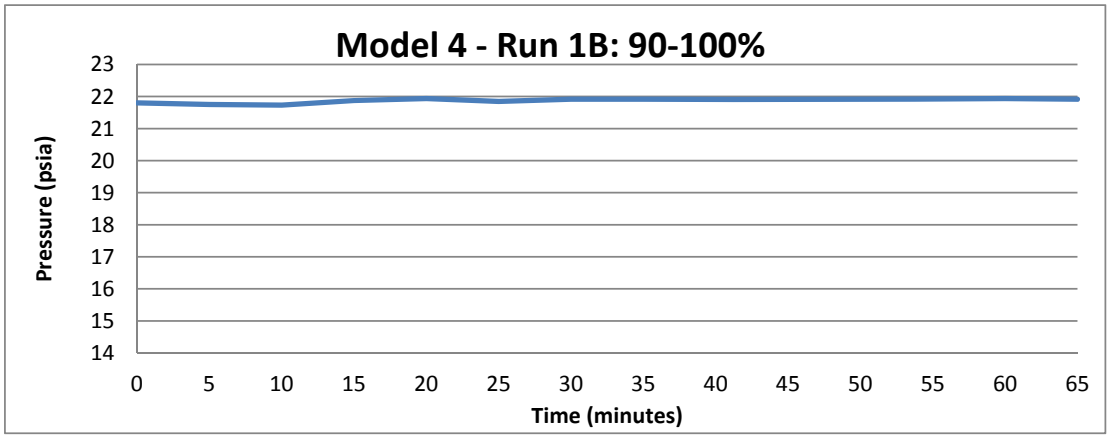
Time (minutes)


Model 4 - Run 1B: 90-100%
Pressure (psia)
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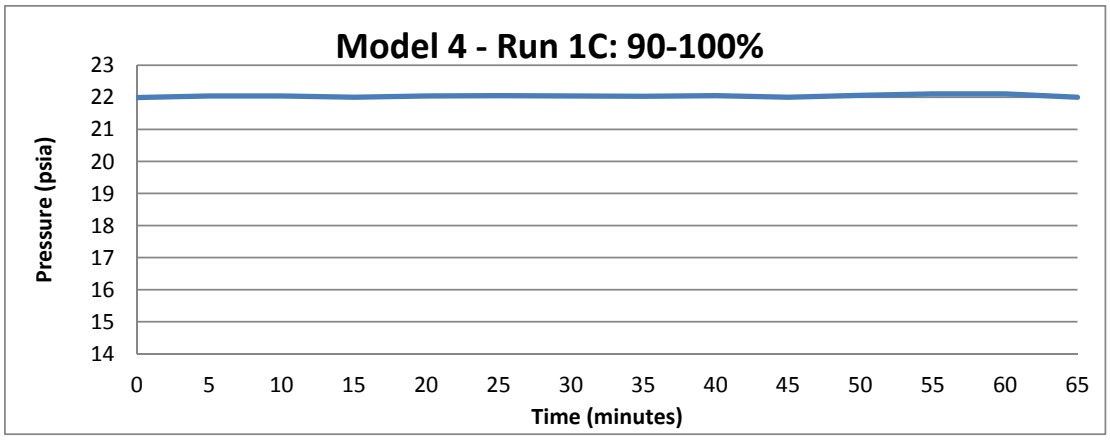
Time (minutes)


Model 4 - Run 1C: 90-100%
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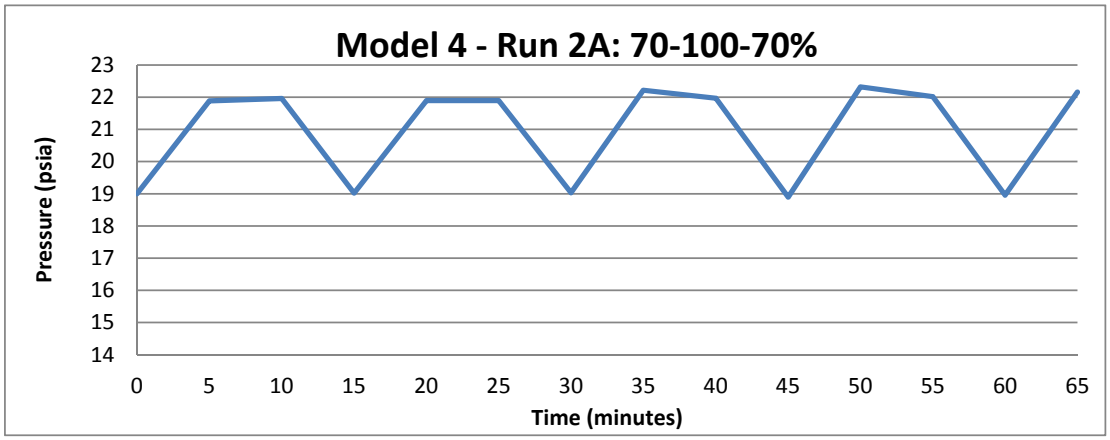
Time (minutes)


Model 4 - Run 2A: 70-100-70%
Pressure (psia)
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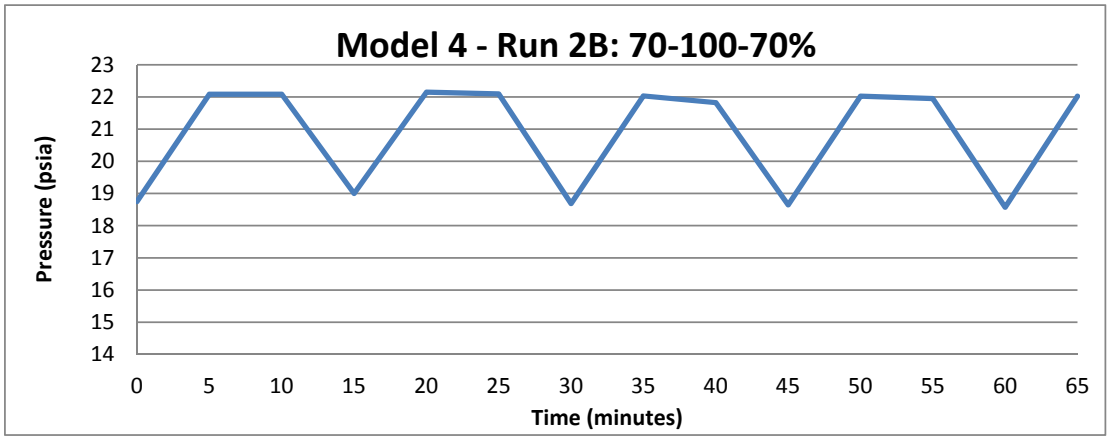
Model 4 - Run 2B: 70-100-70%
Pressure (psia)
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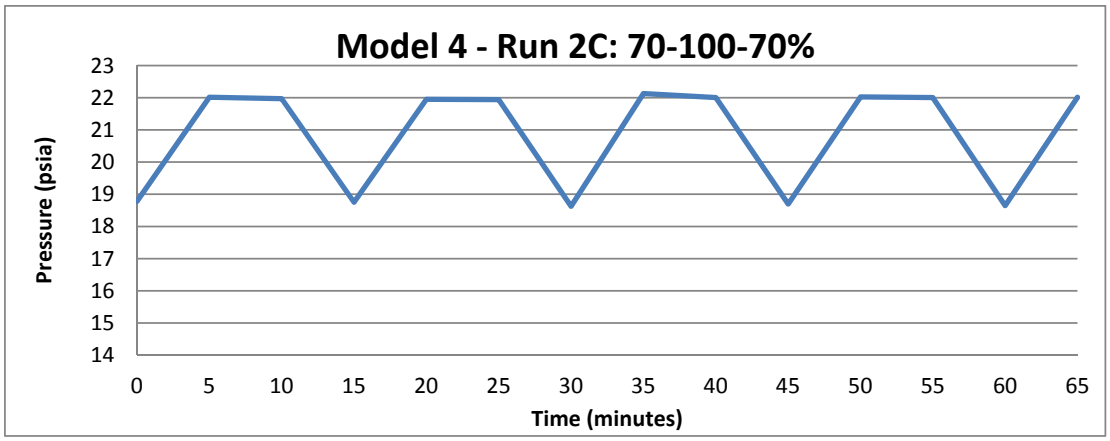
Model 4 - Run 2C: 70-100-70%
Pressure (psia)
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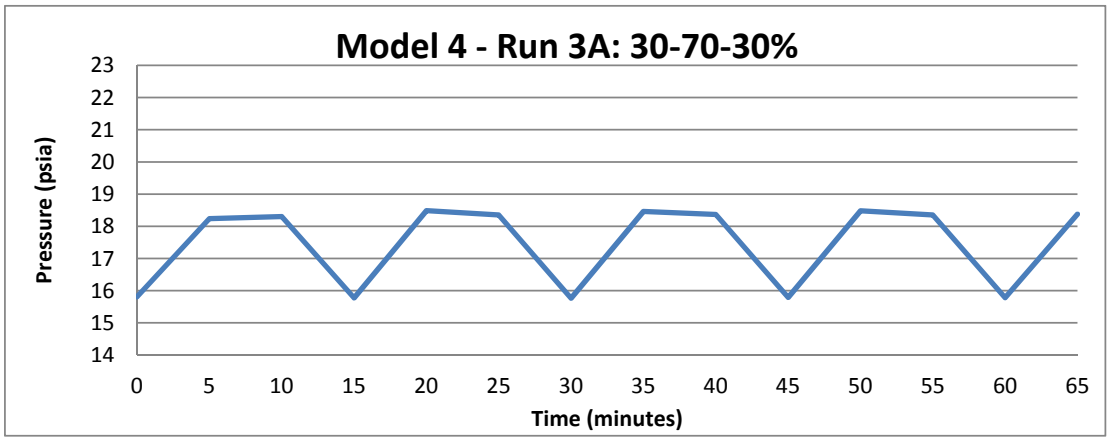
Model 4 - Run 3A: 30-70-30%
Pressure (psia)
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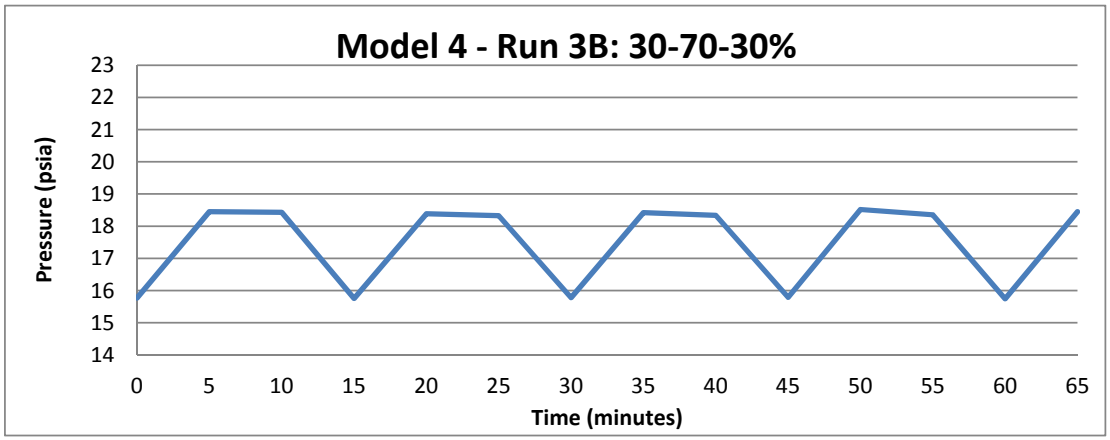
Model 4 - Run 3B: 30-70-30%
Pressure (psia)
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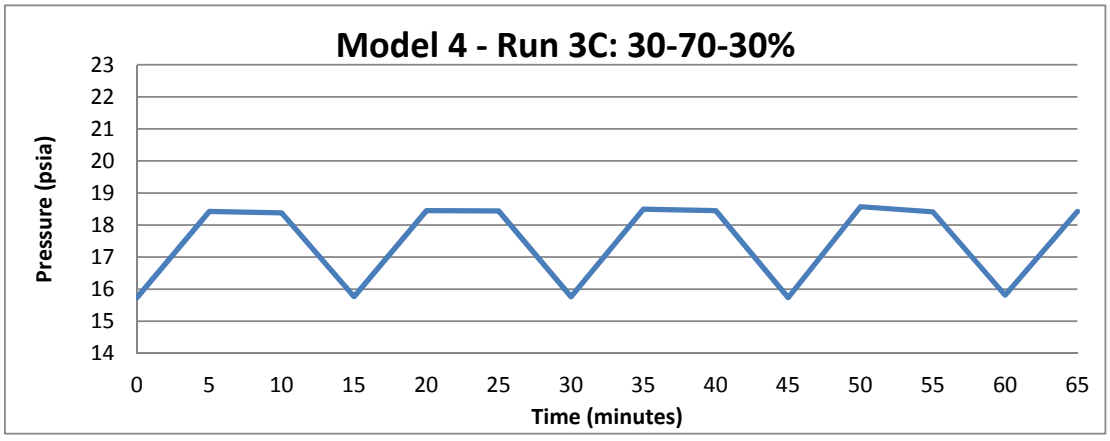
Model 4 - Run 3C: 30-70-30%
Pressure (psia)
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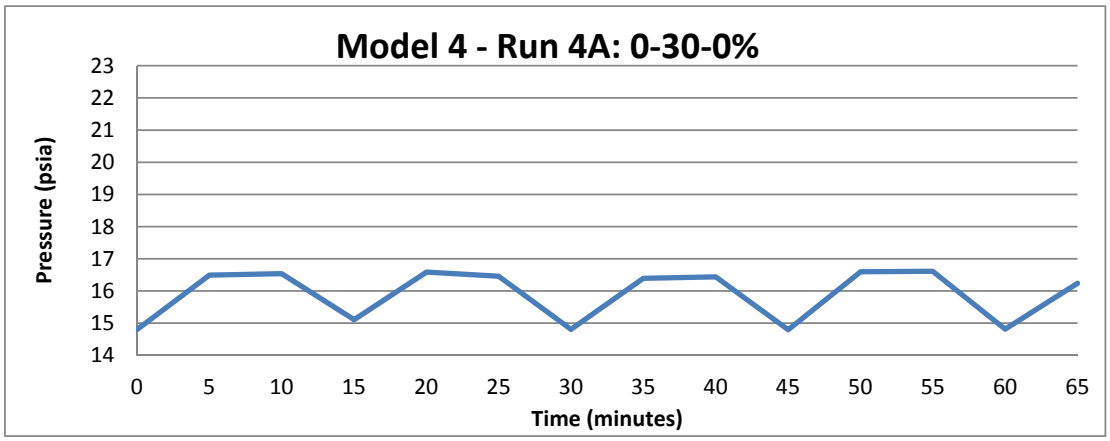
Model 4 - Run 4A: 0-30-0%
Pressure (psia)
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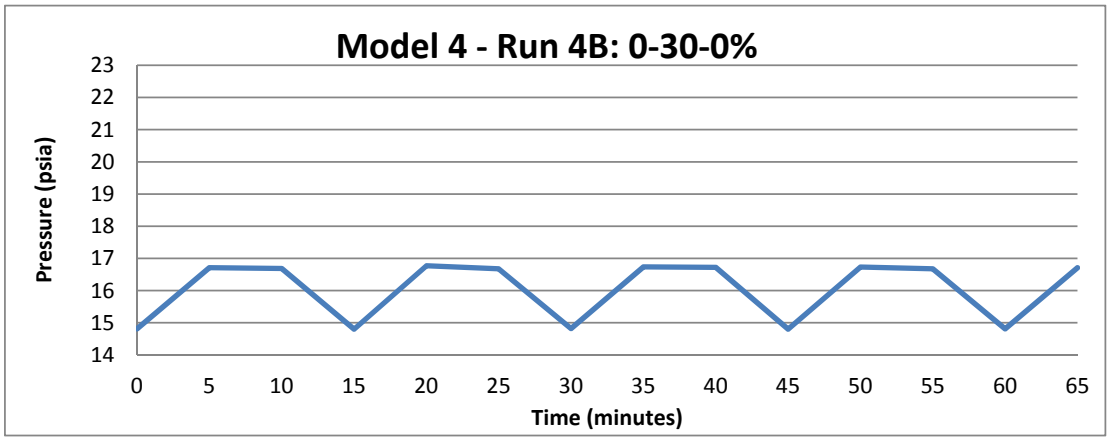
Time (minutes)


Model 4 - Run 4B: 0-30-0%
Pressure (psia)
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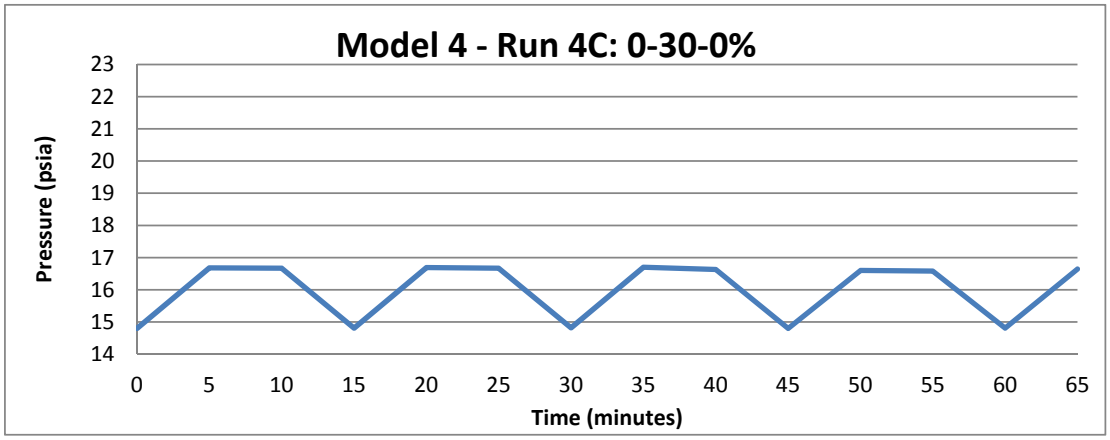
Time (minutes)


Model 4 - Run 4C: 0-30-0%
Pressure (psia)
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Time (minutes)

Appendix C – 3rd Party Tester and Lab Clarifications

METCO
ENVIRONMENTAL

Ph: 800-394-1194
Fx: 972-931-8398

February 24, 2017

Mr. Andrew Bienvenu
COMM Engineering
PO Box 53463
Lafayette, LA 70503

Dear Mr. Bienvenu:

Thank you very much for the opportunity to provide a response to the EPA questions regarding the Subpart OOOO testing that METCO performed on three COMM Engineering combustors.

1. Models 2/3/4 – 60.5413(d)(5)(ii)(A) and (B) requires inlet testing using ASTM D1945-03 – Your test report indicates you used ASTM D1946-90. Please explain.

   Enthalpy has revised their analytical reports for all three models to reflect the correction to ASTM D1945-03. All requirements of that method were followed but the original lab reports mistakenly identified ASTM D1946-90 as it is used more frequently. Two pages from one of the reports is provided on the following pages to show the revised narrative summary identifying the use of ASTM D1945-03 and the header from one of the summary pages. There are too many pages to provide them in this format, but complete revised analytical reports could be provided if requested. Each lab report is almost 600 pages.

2. Model 2 - 60.5413(d)(5)(ii)(A) requires labs for hydrocarbons for the inlet fuel – The nitrogen and oxygen levels for the condition one canister indicate leakage, and a propylene content <80%. Please explain.

   Three pages from Enthalpy's revised analytical report are provided on the following pages. In short, all of the canisters for each condition are analyzed **undiluted** as part of their SOP. This step identifies in many cases how much of a sample dilution must be made to the sample gas (if necessary) to place the analysis within the calibration range of the instrument. The undiluted analysis indicated a propylene content of 1,024,204 ppm. Enthalpy notes on the following pages; "There was an error in the second pressurization or the laboratory dilution performed after this pressurization which resulted in a low propylene value for sample **U2-C1-Primary Can1648**." Chromatograms for the undiluted analysis

were added to the revised lab report and can be provided upon request. The original METCO report calculated the DRE results conservatively using the lower reported value of propylene (~80%) and showed a DRE of 99.99%. Obviously, the higher inlet concentration of propylene (~100%) would only increase the DRE to something better than 99.99%. METCO and Enthalpy both apologize that the analytical mistake made during the second pressurization of the canister and calibration dilution was not identified originally, however the data does support that the canister had collected ~100% propylene and is consistent with the other test conditions and combustor models.

3. Model 3 - 60.5413(d)(7)(i) requires that Outlet Testing be conducted in accordance with Method 3C – You indicated in your report that Condition III-3 is not considered to be representative, with CO2 being non-detect. You therefore averaged the CO2 and O2 data from runs 1 and 2 and used that number for the run 3 data. Please explain why you were unable to get representative results, especially since you collected a duplicate bag. Please recalculate using only the data from runs 1 and 2 (instead of including an average for runs 1 and 2 in place of the data for run 3).

   METCO has re-calculated the results based on the two valid Method 3C samples as requested. The revised pages are provided on the following pages of this response. Any data that used Method 3C results for that run were "dashed out". This included any concentrations that were to be corrected to 3% CO2 or any other calculation such as velocity, scfm, acfm, or lbs/hr. Unfortunately there is nothing we can do with regards to the sample itself. Contrary to what the EPA stated, "duplicate" bags were not collected. The bag samples were "split" so that we could retain them here should FedEx lose the samples during transport to Enthalpy. It appears the sample or bag itself were bad and the split sample indicate the same thing. It could have been as simple as a damaged bag from the manufacturer.

   METCO acknowledges that the EPA did not allow the use of EPA Method 3A for O2/CO2 when writing the requirements for Subpart OOOO. However, METCO does use that method in the field as a sound sampling technique to be able to calculate preliminary emissions in the field and to identify in the field of any operational issues that may occur. If requested, METCO can provide the EPA Method 3A results which also support the fact that the Condition 3 Run 3 bag sample was obviously compromised but the unit was operating consistently with the other runs.

Thank you again for the opportunity to respond to the items in question.
Best Regards,

Mike Hutcherson
Director of Field Operations

QUESTION 1

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	NBT
Parameters	ASTM D1945-03

Client #	16-323
Job #	0816-140
# Samples	4 Canisters

Custody

Shannon Hammaker received the samples on 9/27/16 and 9/30/16 after being relinquished by METCO Environmental. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for hydrogen, oxygen, nitrogen, carbon monoxide, methane, and carbon dioxide using the analytical procedures in Enthalpy SOP ENT165 for ASTM D1946 – 90 (Reapproved 2000), Standard Practice for Analysis of Reformed Gas by Gas Chromatography which is equivalent to ASTM D1945-03.

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. All target analytes were referenced to certified gas phase standards.

Upon receipt, the canister pressures were measured and recorded. The canisters were then pressurized and a dilution ratio was calculated for each canister (see the Canister Pressurization page in the Results section of this report).

The Agilent Technologies Model 6890N, Gas Chromatograph "Betty" (S/N US10430048) was equipped with a Thermal Conductivity Detector for these analyses.

Calibration

The calibration curves are included in the Raw Data section of this report. The data analysis method is referenced in the Analysis Method column on the Detailed Results page.

The first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.

ENTHALPY
ANALYTICAL

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 ASTM D1945-03 Canister Analysis

Client No.: 16-323

Summary Table

Sample Name Compound	U2-C1-Primary Can1648 Sample Conc (%)	U2-C2-Primary Can1649 Sample Conc (%)	U2-C3-Primary Can1341 Sample Conc (%)	U2-C4-Primary Can1111 Sample Conc (%)
Hydrogen	0.727 ND	0.629 ND	0.652 ND	0.622 ND
Oxygen	0.652 J	0.439 J	2.13 J	1.39 J
Nitrogen	2.18 J	1.54 J	4.80 J	5.87
Carbon monoxide	0.324 ND	0.280 ND	0.290 ND	0.277 ND
Carbon Dioxide	0.463 ND	0.401 ND	0.415 ND	0.396 ND

QUESTION 2

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	NBT
Parameters	EPA Method 18-Type

Client #	16-323
Job #	0816-140R
# Samples	4 Canisters

Custody

Shannon Hammaker received the samples on 9/27/16 and 9/30/16 after being relinquished by METCO Environmental. The samples were received at ambient temperature and in good condition. Prior to, during, and after analysis, the samples were kept under lock with access only to authorized personnel by Enthalpy Analytical, Inc.

Analysis

The samples were analyzed for methane, ethane, propane, butane, pentane, hexane, benzene, propylene, total volatile organic compounds as propylene and others as Cx compounds using the general analytical procedures in EPA Method 18, Measurement of Gaseous Organic Compound Emissions by Gas Chromatography (40 CFR Part 60, Appendix A).

All samples and standards were introduced directly to the column using an automated multi-port Valco gas sampling valve equipped with a stainless steel loop. The C_1-C_6 n-alkanes, benzene, and propylene were referenced to certified gas phase standards.

The n-alkane retention times are used to generate retention time windows for other hydrocarbons, which are reported 'as' the nearest n-alkane. For example, the areas for all peaks between 3.714 and 5.209 minutes (except the n-pentane peak) are referenced to the calibrated n-pentane response. The sum of the results is labeled 'C5 as pentane'.

Total VOC as propylene results were determined by summing the peak areas for all peaks in each injection and calculating the average area, then multiplying that average area by the calibrated propylene response factor from the initial calibration. For sample ***U2-C1-Primary Can1648*** the propylene value from the undiluted analysis was combined with the 'as propylene' value from the second canister pressurization to get the TVOC as propylene value.

Upon receipt, the canister pressures were measured and recorded. The canisters were then pressurized and a dilution ratio was calculated for each canister (see the Canister Pressurization page in the Results section of this report).

ENTHALPY
ANALYTICAL

Enthalpy Analytical Narrative Summary
(continued)

Analysis (continued)	The canister ***U2-C1-Primary Can1648*** was pressurized a second time, and then reanalyzed for propylene. There was an error in the second pressurization or the laboratory dilution performed after this pressurization which resulted in a low propylene value for sample ***U2-C1-Primary Can1648***. This second revised report shows the e-flagged propylene result from the undiluted analysis performed prior to the second pressurization which is more in line with the other samples.
	The Agilent Technologies Model 7890A, Gas Chromatograph "Edith" (S/N CN10722006) was equipped with a Flame Ionization Detector for these analyses.
Chromatographic Conditions	The acquisition methods, AQ_EDITHP274_HRVOC_SHORT.M, AQ_EDITHP274_HRVOC.M, AQ_EDITHP503_HRVOC.M and AQ_EDITHP274_HRVOC_XLONG.M are included in the Raw Data section of this report.
Calibration	The calibration curves are included in the Raw Data section of this report. The data analysis method is referenced in the Analysis Method column on the Detailed Results page.
	The first page of the curve contains all method specific parameters (i.e., curve type, origin, weight, etc.) used to quantify the samples. The calibration curve section also includes a table with the Retention Time (RetTime), Level (Lvl), Amount (corresponding units), Area, Response Factor (Amt/Area) and the analyte Name. The calibration table is used to identify (by retention time) and quantify each target compound.
QC Notes	The analysis of the laboratory zero air blank contained no target compounds at concentrations greater than the detection limit.
Reporting Notes	These analytical results are reported on a wet basis. The user of this report should determine the percent moisture in the sample and correct the reported value to ppmvd as appropriate.
	The results presented in this report are representative of the samples as provided to the laboratory.

ENTHALPY
ANALYTICAL

Enthalpy Analytical

Company: METCO Environmental

Job No.: 0816-140 EPA Method 18-Type Canister Analysis

Client No.: 16-323

Summary Table

Sample Name Compound	U2-C1-Primary Can1648 Sample Conc (ppm)	U2-C2-Primary Can1649 Sample Conc (ppm)	U2-C3-Primary Can1341 Sample Conc (ppm)	U2-C4-Primary Can1111 Sample Conc (ppm)
Methane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
Ethane	32.1 J	32.1 J	29.0 J	28.1 J
C2 as Ethane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
Propane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
C3 as Propane	4.26 ND	3.69 ND	3.82 ND	3.64 ND
Butane	1,283	1,366	1,229	1,172
C4 as Butane	68.0	103	99.6	82.0
Pentane	4.39 ND	3.80 ND	3.94 ND	3.75 ND
C5 as Pentane	4.39 ND	3.80 ND	3.94 ND	3.75 ND
Hexane	4.31 ND	3.73 ND	3.86 ND	3.68 ND
C6 as Hexane	4.31 ND	3.73 ND	3.86 ND	3.68 ND
Benzene	1.69 ND	1.46 ND	1.51 ND	1.44 ND
Propylene	1,024,204 E	982,847	966,078	925,240
TVOC as Propylene	1,029,366	986,695	969,689	928,799

QUESTION 3

SUMMARY OF RESULTS

Model 3 Thermal Combustor Outlet Stack

Design Rate: 90-100% Emission Parameter	Condition-Run Number I-1	Condition-Run Number I-2	Condition-Run Number I-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.19	0.12	0.23	0.18	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.05	0.05	0.07	0.06	≤ 10
Excess Air @ Sampling Point - %	382.9	396.8	636.3	472.0	≥ 150
Total Hydrocarbons Destruction Efficiency - %	>99.99	>99.99	>99.99	>99.99	≥ 95

Design Rate: 70-100-70% Emission Parameter	Condition-Run Number II-2	Condition-Run Number II-4	Condition-Run Number II-5	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.54	2.76	1.45	1.58	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.06	0.07	0.06	0.06	≤ 10
Excess Air @ Sampling Point - %	812.8	1,260.7	540.6	871.4	≥ 150
Total Hydrocarbons Destruction Efficiency - %	>99.99	>99.99	>99.99	>99.99	≥ 95

Design Rate: 30-70-30% Emission Parameter	Condition-Run Number III-1	Condition-Run Number III-2	Condition-Run Number III-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.07	1.49	---	0.78	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	0.04	0.12	---	0.08	≤ 10
Excess Air @ Sampling Point - %	361.6	703.8	---	532.7	≥ 150
Total Hydrocarbons Destruction Efficiency - %	>99.99	>99.99	---	>99.99	≥ 95

Design Rate: 0-30-0% Emission Parameter	Condition-Run Number IV-1	Condition-Run Number IV-2	Condition-Run Number IV-3	Average	Allowable
Carbon Monoxide Emissions – ppmvd[1]	0.53	0.74	0.63	0.63	≤ 10
Total Hydrocarbons Emissions as Propane – ppmvw[1]	< 0.01	0.08	0.11	< 0.07	≤ 10
Excess Air @ Sampling Point - %	185.8	239.5	211.8	212.4	≥ 150
Total Hydrocarbons Destruction Efficiency - %	>99.99	>99.99	>99.99	>99.99	≥ 95

[1] Corrected to 3% carbon dioxide.
Note: Run Numbers 1 and 3 at Condition II were aborted due to plant operational problems.
The EPA Method 3C bag sample results for Run 3 at Condition III were not considered a representative sample . Therefore the carbon monoxide and total hydrocarbon concentrations could not be corrected to 3% CO2, and the total hydrocarbon lbs/hr destruction efficiency could not be calculated for Run 3.

SUMMARY OF RESULTS

Model 3 Thermal Combustor

Condition-Run Number	Inlet Duct Average Total Hydrocarbons Concentration as Propylene (lbs/hr)	Outlet Stack Average Total Hydrocarbons Emissions as Propylene (lbs/hr)	Destruction Efficiency (%)
I-1 (90-100%)	217.55	< 0.001	> 99.99
I-2 (90-100%)	217.55	< 0.001	> 99.99
I-3 (90-100%)	217.55	< 0.001	> 99.99
Average	217.55	< 0.001	> 99.99
II-2 (70-100-70%)	190.40	< 0.001	> 99.99
II-4 (70-100-70%)	190.40	< 0.001	> 99.99
II-5 (70-100-70%)	190.40	< 0.001	> 99.99
Average	190.40	< 0.001	> 99.99
III-1 (30-70-30%)	115.89	< 0.001	> 99.99
III-2 (30-70-30%)	115.89	< 0.001	> 99.99
III-3 (30-70-30%)	115.89	------	> 99.99
Average	115.89	< 0.001	> 99.99
IV-1 (0-30-0%)	40.71	< 0.001	> 99.99
IV-2 (0-30-0%)	40.71	< 0.001	> 99.99
IV-3 (0-30-0%)	40.71	< 0.001	> 99.99
Average	40.71	< 0.001	> 99.99

Notes: Only one canister sample was collected over the duration of the testing condition.

Run Numbers 1 and 3 at Condition II were aborted due to plant operational problems.

The EPA Method 3C bag sample results for Run 3 at Condition III were not considered a representative sample . Therefore the total hydrocarbon lb/hr destruction efficiency could not be calculated for Run 3.

SUMMARY OF RESULTS

Model 3 Thermal Combustor Outlet Stack

Design Rate: 30-70-30%

Condition-Run Number	III-1	III-2	III-3	Average
Date	09/23/16	09/23/16	09/23/16	----
Time	0850-0956	1015-1121	1140-1246	----
Stack Flow Rate – ACFM	2,582	2,546	---	2,564
Stack Flow Rate – DSCFM[1]	557	549	---	553
% Water Vapor - % Volume	8.85	8.81	8.23	8.63
% Carbon Dioxide - % Vol.[2]	4.6	2.3	---	3.5
% Oxygen - % Vol.[2]	16.4	18.4	---	17.4
% Nitrogen - % Vol.[2]	79.0	79.3	---	79.2
% Methane - % Vol.	< 0.0310	< 0.0310	---	< 0.0310
Molecular Weight – lb/lb-mole	28.38	29.10	---	28.74
% Excess Air @ Sampling Point	361.6	703.8	---	532.7
Stack Temperature -°F	1,788	1,790	1,817	1,798
Stack Pressure - "Hg	30.02	30.02	30.00	30.01

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Method 3C analytical results are normalized to 100%

Note: The EPA Method 3C bag sample results for Run 3 at Condition III were not considered a representative sample. Therefore the stack flow rates and the excess air could not be calculated for Run 3.

SUMMARY OF RESULTS

Model 3 Thermal Combustor Outlet Stack

Design Rate: 30-70-30%

Condition-Run Number	III-1	III-2	III-3	Average
Date	09/23/16	09/23/16	09/23/16	----
Time	0850-0956	1015-1121	1140-1246	----
Stack Flow Rate – DSCFM[1]	557	549	---	553
% Carbon Dioxide - % Vol.	4.6	2.3	---	3.5
% Water Vapor - % Volume	8.85	8.81	8.23	8.63
Carbon Monoxide Emissions - ppmvd	0.10	1.14	1.12	0.79
Carbon Monoxide Emissions - ppmvd[2]	0.07	1.49	---	0.78
Carbon Monoxide Emissions - lbs/hr	< 0.001	0.003	---	< 0.002
Total Hydrocarbons Emissions as Propane - ppmvw	0.06	0.09	0.11	0.09
Total Hydrocarbons Emissions as Propane - ppmvw[2]	0.04	0.12	---	0.08
Total Hydrocarbons Emissions as Propane - ppmvd	0.07	0.10	0.12	0.10
Total Hydrocarbons Emissions as Propylene - lbs/hr	< 0.001	< 0.001	---	< 0.001

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Corrected to 3% carbon dioxide

Note: The EPA Method 3C bag sample results for Run 3 at Condition III were not considered a representative sample . Therefore the carbon monoxide and total hydrocarbon concentrations could not be corrected to 3% CO2, and the carbon monoxide and total hydrocarbon lbs/hr could not be calculated for Run 3.

The three completed tests for carbon monoxide, total hydrocarbons, and fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration error check and the sampling system bias check performed on the reference method monitors prior to testing were valid. The indicative parameters calculated from the field data were in close agreement. The moisture percentages for the three completed tests were within 6.2 percent of the mean value. The measured flow rates (Q_s) for the tests were within 7.3 percent of the mean value.

The calculated emissions (pounds per hour) of carbon monoxide for the three completed tests showed a range of -75.0 percent to +50.0 percent variation from the mean value.

The calculated emissions (pounds per hour) of total hydrocarbons for the three tests showed no variation from the mean value.

Condition III - 30-70-30%

The bag sample results for Run Number 3 were not considered a representative sample. Therefore the carbon monoxide and total hydrocarbon concentrations could not be corrected to 3% CO2, and the carbon monoxide and total hydrocarbon lbs/hr could not be calculated for Run 3 and was excluded from all averages. *

The three tests for carbon monoxide, total hydrocarbons, and Run Numbers 1 and 2 for fixed gases appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the sampling train, the pitot tubes, the integrated bag sampling system, and the reference method monitors sampling systems showed no leaks before or after each test. The zero and calibration drift tests of the reference method monitors were stable with no variations greater than 3.0 percent. The calibration

METCO ENVIRONMENTAL

SOURCE EMISSION CALCULATIONS

JOB NUMBER: 16-323
JOB NAME: COMM ENGINEERING
LOCATION: LAFAYETTE, LOUISIANA
UNIT TESTED: MODEL 3 - CONDITION III

			RUN NUMBER		
SYMBOL	DESCRIPTION	UNITS	1	2	3
CO2		%	4.6	2.3	----
O2		%	16.4	18.4	----
CO		%	0.0	0.0	----
N2		%	79.0	79.3	----
%EA	EXCESS AIR @ SAMPLING POINT	%	361.6	703.8	----
MWd	MOLECULAR WEIGHT OF DRY STACK GAS	LB/LB-MOLE (g/g-MOLE)	29.39 (29.39)	29.10 (29.10)	----
MW	MOLECULAR WEIGHT OF STACK GAS	LB/LB-MOLE (g/g-MOLE)	28.38 (28.38)	28.13 (28.13)	----
Cp	PITOT TUBE CALIBRATION		0.807	0.807	0.807
DELTA P	VELOCITY HEAD OF STACK GAS	"H2O (mm H20)	0.003 (0.100)	0.003 (0.100)	0.003 (0.100)
DELTA P ^(1/2)		"H2O	0.054	0.053	0.051
Ts	STACK TEMPERATURE	DEG. F (DEG. C)	1,788 (976)	1,790 (977)	1,817 (992)
Ps	STACK PRESSURE	"Hg Abs. (mm Hg) "H20	30.02 (763.00) 0.20	30.02 (763.00) 0.20	30.00 (762.00) 0.20
Vs	STACK VELOCITY @ STACK CONDITIONS	FPM (m/SEC.)	363 (2)	358 (2)	----
As	STACK AREA	(SQ.INCHES) (SQ.METERS)	1,025 (1)	1,025 (1)	1,025 (1)
Qs	DRY STACK GAS VOLUME @ STANDARD CONDITIONS* WET STACK GAS VOLUME @ STANDARD CONDITIONS*	DSCFM (DSCM/HR) WSCFH	557 (946) 36,665	549 (933) 36,122	---- ---- ----
Qa	ACTUAL STACK GAS VOLUME @ STACK CONDITIONS	ACFM (m^3/HR)	2,582 (4,387)	2,546 (4,326)	---- ----

* 68 Deg.F, 29.92 "Hg (20 Deg.C, 760 mm Hg)

Note: The bag sample results for Run 3 were not considered a representative sample.

From:	Andrew Bienvenu
To:	Garwood, Gerri; Mia, Marcia
Cc:	Jason Huckaby; Bill Schneider
Subject:	RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer"s Performance Test Report (Part 2 of 2)
Date:	Thursday, March 16, 2017 5:58:47 PM
Attachments:	removed.txt METCO. 03.13.17. OOOO ASTM D1945-96 Discussion.pdf

Gerri,

As per our conversation with the lab on Tuesday, 3/14, please see attached for their formal response in regards to the EPA's questions in regards to ASTM 1945 and 1946.

Let us know if you need anything else.

Regards,
Andrew Bienvenu
COMM Engineering
PO Box 53463 | Lafayette, LA 70505
1319 W. Pinhook Road, Ste 401 | Lafayette, LA 70503
Office: 337.237.4373 ext 132
Fax: 337.234.1805

From: Andrew Bienvenu
Sent: Monday, March 13, 2017 5:28 PM
To: 'Garwood, Gerri'; Mia, Marcia
Cc: Jason Huckaby; Bill Schneider
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Gerri,

Are you available between 10am-11am CST (11am-12pm EST) on Tuesday, 3/14, for a conference call with COMM and the lab?

Please advise.

Thanks,
Andrew Bienvenu
COMM Engineering
PO Box 53463 | Lafayette, LA 70505
1319 W. Pinhook Road, Ste 401 | Lafayette, LA 70503
Office: 337.237.4373 ext 132

Fax: 337.234.1805

COMM ENGINEERING

From: Garwood, Gerri [mailto:Garwood.Gerri@epa.gov]
Sent: Thursday, March 09, 2017 4:35 PM
To: Andrew Bienvenu; Mia, Marcia
Cc: Jason Huckaby; Bill Schneider
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Hi Andrew,

I just looked at schedules, and it looks like Marcia is out all of next week. We can either do something the week after next, or I could do a call with the lab next week and relay the information to Marcia once she is back.

If you want to do next week, I am available on Tuesday from 10-1 or Wednesday 9-10 or 1:30-3. Thursday and Friday are pretty much open all day.

Sincerely,

Gerri G. Garwood, P.E.

U.S. Environmental Protection Agency
OAR/OAQPS/SPPD
Measurement Policy Group
Ph: 919-541-2406 Fax: 919-541-3207

From: Andrew Bienvenu [mailto:abienvenu@commengineering.com]
Sent: Thursday, March 09, 2017 4:05 PM
To: Mia, Marcia <Mia.Marcia@epa.gov>
Cc: Garwood, Gerri <Garwood.Gerri@epa.gov>; Jason Huckaby <Jason.Huckaby@erg.com>; Bill Schneider <bill@commengineering.com>
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Thank you Marcia.

What day and times are better for you for a call with the lab?

Regards,
Andrew Bienvenu
COMM Engineering

Office: 337.237.4373 ext 132

From: Mia, Marcia [mailto:Mia.Marcia@epa.gov]
Sent: Tuesday, March 07, 2017 2:18 PM
To: Andrew Bienvenu
Cc: Garwood, Gerri; Jason Huckaby; Bill Schneider
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Andrew,
We are still struggling to understand the ASTM "1945" vs "1946" method.

In Appendix C of your follow-up, the lab explains that they used ASTM 1945-03, but in the revised narrative (see page 27) they explain that ASTM 1946-90 was used and that it is "equivalent" to ASTM 1945-03.

The list of gases that ASTM 1946 targets is different from those of 1945. Specifically, Method 1946-03 doesn't target gases in the C3-C6 range (of which propylene would fall). 1945-03 also has more specifications that the GC column has to meet.

The lab indicates that their SOP for 1946 is equivalent to 1945.

We need to understand exactly what method the lab used, and if they used Method 1946-90, how they ensured it was equivalent to Method 1945-03.

We are happy to set up a call with between us, and include the testing lab, if that might move it along. Please let me know how you would like to proceed.

Marcia B Mia
Office of Compliance/Air Branch
2227A WJCS
U.S. Environmental Protection Agency
202-564-7042

From: Andrew Bienvenu [mailto:abienvenu@commengineering.com]
Sent: Thursday, March 02, 2017 3:50 PM
To: Mia, Marcia <Mia.Marcia@epa.gov>
Cc: Garwood, Gerri <Garwood.Gerri@epa.gov>; Jason Huckaby <Jason.Huckaby@erg.com>; Bill Schneider <bill@commengineering.com>
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Marcia,

Please confirm receipt of our responses submitted on Friday, 2/24/2017.

Based on your current schedule, when can we expect further feedback/confirmation from the EPA on the test from these 3 models?

Regards,

Andrew Bienvenu
COMM Engineering
PO Box 53463 | Lafayette, LA 70505
1319 W. Pinhook Road, Ste 401 | Lafayette, LA 70503
Office: 337.237.4373 ext 132
Fax: 337.234.1805

From: Andrew Bienvenu
Sent: Friday, February 24, 2017 12:39 PM
To: 'Mia, Marcia'
Cc: Garwood, Gerri; Jason Huckaby; Bill Schneider
Subject: RE: COMM Engineering (Model 4 Combustor) - OOOOa Manufacturer's Performance Test Report (Part 2 of 2)

Marcia,

Please see attached pdf file for the information requested below.

Please review this information and let us know if there is anything else you need from us.

Thank you,

Andrew Bienvenu
COMM Engineering
PO Box 53463 | Lafayette, LA 70505
1319 W. Pinhook Road, Ste 401 | Lafayette, LA 70503
Office: 337.237.4373 ext 132
Fax: 337.234.1805

From: Mia, Marcia [mailto:Mia.Marcia@epa.gov]
Sent: Wednesday, February 01, 2017 1:35 PM

ENTHALPY ANALYTICAL

ACCREDITED IN ACCORDANCE WITH nelac
TCEQ: T104704421-13-8 • VADEQ: 460155
NJDEP: NC008 • LDEQ: 04010

March 16, 2017

Mr. Mike Hutcherson
METCO Environmental
3226 Commander Dr.
Carrollton, TX 75006

Subject: OOOO Guidance and ASTM D1945-96 Discussion

Dear Mike,

Per our ongoing discussions and conference call with the EPA on March 15, 2017 I am submitting this letter to summarize analytical questions for a OOOO Test completed by METCO (16-323) and Enthalpy (0816-140). The question to be addressed concerns the methods used to analyze the Propylene canisters collected.

6L sampling canisters were used in the field to collect Propylene gas. Samples we collected by M ETCO and analyzed by Enthalpy Analytical for: inert gases (Carbon dioxide, Carbon monoxide, Hydrogen, Methane, Oxygen, Nitrogen) and Hydrocarbons (Methane, Ethane, Propane, Butane, Pentane, Hexane, Benzene, Propylene) . Inert gases were run by ASTM D1946-90, Hydrocarbons by modified EPA Method 18.

During regulatory review of the Enthalpy data it was found that the inert gases and Hydrocarbons should have been run by ASTM D1945-03. Enthalpy thoroughly reviewed ASTM D1945-03 and found that the method was almost identical to the Enthalpy approaches expect for two items:

- ASTM D1945-03 requires data to be adjusted to 100%. *We do not adjust data without empirical evidence to support the adjusting (i.e. black adjustments, spike & recovery adjustment). Adjust the data to 100% would allow the lab to normalize an "80% total gas" result to 100% and without a complete data package this adjustment would never be known. We feel it best to report data as acquired by the instrument.*
- ASTM D1945-03 requires +/1% reproducibility between duplicate injections – Enthalpy follows the traditional +/-5% reproducibility requirement. *Successive injection reproducibility of 1% is tremendously difficult to achieve with any analytical measurement.*

Ph: (919) 850-4392 / Fax: (919) 850-9012 / bryan.tyler@enthalpy.com
800-1 Capitola Drive / Durham, NC 27713

Please do not hesitate to contact me if you have any questions. Thank you for this opportunity to address specific questions pertaining to this OOOO test.

Sincerely,

Bryan D. Tyler
Director Business Development Marketing

S. Thorne Gregory
Technical Director