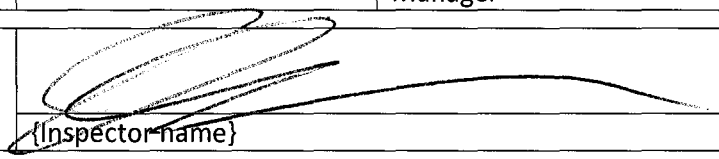
EPA United States Environmental Protection Agency

Region 6 Compliance Assurance and Enforcement Division

INSPECTION REPORT

Inspection Date(s):	10/24/2017		
Media:	Air		
Regulatory Program(s)	NESHAP NSPS Title V Clean Air Act		
Company Name:	**Deltech Corporation**		
Facility Name:	**Deltech Corporation – Baton Rouge Facility**		
Facility Physical Location:	11911 Scenic Highway		
(city, state, zip code)	Baton Rouge, LA, 70807		
Mailing address:	11911 Scenic Highway		
(city, state, zip code)	Baton Rouge, LA, 70807		
County/Parish:	East Baton Rouge Parish		
Facility Contact:	Doug Griffin	Operations Manager	
	dgriffin@deltechcorp.com		
FRS Number:	110000450002		
Identification/Permit Number:	AI 238		
Media Number:	AFS 2203300006		
NAICS:	325110		
SIC:	2869		

Personnel participating in inspection:			
Justin Chen	EPA 6EN-AT	Environmental Engineer	214-665-2273
James Haynes	EPA 6EN-AT	Physical Scientist	214-665-6569
James Leathers	EPA 6EN-AT	Environmental Engineer	214-665-8545
Prince Nfodzo	EPA 6EN-AA	Environmental Engineer	214-665-7491
Bradley Gauthier	LDEQ	Environmental Scientist	225-219-3340
Doug Griffin	Deltech Corporation	Operations Manager	225-358-3171
Karen Brignac	PPM Consultants	Environmental Compliance Manager	225-293-7270

EPA Lead Inspector Signature/Date		12/13/17
	{Inspector name}	Date
Supervisor Signature/Date	Margaret Osborne	12/13/17
	{Supervisor name}	Date

Section I – INTRODUCTION

PURPOSE OF THE INSPECTION

Four United States Environmental Protection Agency (US EPA) Region 6 Air Enforcement inspectors ("the inspection team" or "the team") arrived at the Deltech Corporation – Baton Rouge Facility (Deltech) at 8:10 AM on October 24, 2017 for an announced inspection. The team was led by Justin Chen, Environmental Engineer, and also included James Haynes, Environmental Scientist, James Leathers, Environmental Engineer, and Prince Nfodzo, Environmental Engineer. We met with Doug Griffin, P.E. (Operations Manager) and Karen Brignac (Environmental Compliance Manager, PPM Consultants) at the Opening Conference. Prince Nfodzo presented his credentials to Deltech staff and I informed them that this was an EPA inspection to determine compliance with the facility's Title V Air Permit and the Clean Air Act. The scope of the inspection is a partial compliance evaluation (PCE) that includes an evaluation of compliance with the facility's Title V operating permit and Louisiana State Implementation Plan (SIP) regulations, specifically focusing on flaring operations. This inspection was prompted by the National Enforcement Initiative: Cutting Hazardous Air Pollutants and its associated Enforcement Alert concerning Flaring Efficiency Violations. The inspection was conducted in coordination with the Louisiana Department of Environmental Quality (LDEQ), and Bradley Gauthier (Environmental Scientist) of LDEQ attended the inspection. The sign-in sheet is in Appendix 2.

FACILITY DESCRIPTION

Deltech Corporation owns and operates the Baton Rouge Facility in Baton Rouge, Louisiana and was originally built in the 1950s to produce both styrene and polystyrene. The facility operates 8760 hours per year producing specialty monomers, including styrene, methyl styrenes, divinyl benzene, ethylvinyl benzene, diisopropenyl benzene, and tertiary butyl styrene. Processes include alkylation, dehydrogenation, purification, and production. Deltech also stores and distributes styrene monomer as a terminal operation. The only flare at the facility, a non-assist flare, began operation in 1975 according to Deltech staff, is permitted as GQ-001, and controls emissions from dehydrogenation reactors DH1, DH4, DH5, and DH303 (Specialty Chemical Process (SCP) dehydrogenation reactor).

Section II - OBSERVATIONS

At the opening conference, Deltech Facility staff provided documents requested in Appendix 3 and the inspection team reviewed the documents. Karen Brignac explained that the facility typically produces specialty monomers with product changes approximately every 2-3 months and there is an increased usage of the flare at beginning and end of these production campaigns due to startup and shutdown. Karen Brignac explained that at the moment of inspection, only the DH1 and DH303 SCP dehydrogenation units were venting to the flare. Based upon Karen Brignac's explanation as well as the Title V permit, DH1 and DH303 continuously vent to the flare, while DH4 and DH5 only vent to the flare during startup and shutdown. Karen Brignac said that that during styrene production there is a process

vent subject to 40 CFR 63 Subpart FFFF (National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing) group 1 requirements, but there is no flaring potential. I was told and observed that the flare's flame detection was done using a remote UV sensor that is connected to an analog strip recorder (Appendix 1, Photo No. 2). The results of the strip recorder are transcribed to a digital sheet to document any deviations.

During the tour of the facility, we observed two internal floating roof (IFR) tanks. Facility staff stated that these IFR tanks were meant for benzene chemical storage in the production of pure styrene; however, they were currently storing light byproduct (tank 808) and toluene (tank 811). Facility staff stated that the SCP unit was producing divinyl benzene at the time of the inspection. When the inspection team reached the flare (Appendix 1, Photo No. 1), facility staff stated that there was no sweep gas or supplemental gas injected into the flare and that the only control on the flare was a manual valve. The units are routed to the flare with the manual valve.

At the departure conference, Karen Brignac stated that estimation of the flare's operating data as presented in the Flare Vents Worksheet (Appendix 4) were based upon the process knowledge from a former engineering employee who retired several years ago. She also stated that the tables and calculations of the Flare Vents Worksheet (Appendix 4) were based upon a steady state understanding of the plant. In addition to this worksheet, Karen Brignac stated that a performance test on the flare had been conducted in 2011 by Metco Environmental. I requested this document and it was sent to me after I returned to the EPA Region 6 office.

Also at the departure conference, I asked Doug Griffin how long a startup or a shutdown for DH4 or DH5 typically took. He stated that those actions typically take between 4 to 6 hours each, for which the flare would be operating to control emissions from those operations. I was also told that each product change, which forces a shutdown/startup cycle, is on its own schedule and there is typically no overlap.

At the departure conference, I requested follow up information for how the Flare Vents Worksheet (Appendix 4) was developed, and I also requested the flare performance test report that Karen Brignac had informed me about at the opening conferenceI received signed Confidentiality Notices from Deltech management for Confidential Business Information (CBI) provided by the facility, and copies of photographs taken at the facility were given to Deltech management at the departure conference. The photos taken are located in Appendix 1.

Section III – AREAS OF CONCERN

I observed no areas of concern (AOCs) at the time of the inspection, but I noted an AOC subsequent to the onsite inspection that flare operational data provided at the time of inspection did not match other data provided in follow up documentation. These discrepancies are detailed in Section IV.

Section IV – FOLLOW UP

The following information was received by EPA after exiting the Facility on October 24, 2017:

- Metco Environmental's 2011 Source Emissions Survey of Deltech Corporation Baton Rouge Louisiana East (Metco Flare Performance Test; Appendix 5)
- Flare Vents Worksheet Explanation (Appendix 6)

After reviewing the Metco Flare Performance Test and comparing it with the Flare Vents Worksheet (Appendix 4), which was provided during the inspection, I noted the differences found between the two documents with regards to flare operational values.

Document	**Flare Gas Net Heating Value (MJ/scm)**	**Actual Exit Velocity (m/sec)**
Allowable Requirements: 40 CFR § 63.11 (b)	*≥ 7.45*	*≤37.2/≤293*
Metco Flare Performance Test (2011)	Average Value Measured: 10.234	Average Value Measured: 1.81
Flare Vents Worksheet	Minimum Heat Release Calculated: 53.524	Maximum Flare Exit Velocity Calculated: 3.73

According to the Metco Flare Performance Test, the flare was operated under the condition that only the SCP was being routed to the flare at the time of testing. According to the Flare Vents Worksheet Explanation, the Flare Vents Worksheet engineering calculations do include DH1, DH4, DH5, and DH303 SCP being routed to the flare, however, the minimum heat release calculation only includes SCP vent gas and pilot gas being routed to the flare. The flare gas net heating values from both documents should be comparable, but the Flare Vents Worksheet value is over five times greater than what was found in the Metco Flare Performance Test. This is possibly due to differences in chemical compositions used to characterize the vent gas being sent to the flare.

Section V – LIST OF APPENDICES

Appendix 1 – Photo Log – 2 photos taken 10/24/17
Appendix 2 – Opening conference sign-in sheet
Appendix 3 – Documents Request
Appendix 4 – Flare Vents Worksheet

Appendix 5 – Metco Environmental's 2011 Source Emissions Survey of Deltech Corporation Baton Rouge Louisiana East

Appendix 6 – Flare Vents Worksheet Explanation

Appendix 1

Photograph Log

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 1

Location: Deltech Corporation – Baton Rouge Facility		
City: Baton Rouge	County/Parish: East Baton Rouge	State: LA

Photo File Name:	DSCN0195.JPG
Date of Photo:	10/24/2017
Time of Photo:	10:18AM
Photographer:	Justin Chen
Description:	Non-assisted Flare

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Photograph Log

Photo No. 2

Location: Deltech Corporation – Baton Rouge Facility		
City: Baton Rouge	County/Parish: East Baton Rouge	State: LA

Photo File Name:	DSCN0196.JPG
Date of Photo:	10/24/2017
Time of Photo:	10:33AM
Photographer:	Justin Chen
Description:	Control Room Flare Flame Presence Scroll

Appendix 2

Opening Conference Sign-In Sheet

Meeting with Deltech Corp

Purpose of meeting: CAA Inspection

Date: 10/24/17

	Name	Title	Representing	e-Mail	Phone
1	Justin Chen	Env. Engineer	EPA R6	chen.justin@epa.gov	
2	Karen [illegible]	Env. Compl. Mgr	[illegible] Consultants	[illegible]	225-293-2210
3	Doug Griffin	Operations Mgr	Deltech	dgriffin@deltechcorp.com	225 358 3171
4	Margaret Granier	Process engineer intern	Deltech	mgranier@deltechcorp.com	225 358 3170
5	Prince Nfodzo	Env. Engineer	US EPA R6	nfodzo.prince@epa.gov	214 665 7491
6	Bradley Gauthier	Env. Scientist	LDEQ	Bradley.Gauthier@LA.GOV	225-219-3340
7	James Haynes	Physical Scientist	US EPA R6	haynes.james@epa.gov	214-665-8546
8	James Leathers	Env. Engineer	US EPA R6	leathers.james@epa.gov	214-665-6569
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Appendix 3
Documents Request

Deltech Corp – Baton Rouge Facility
Baton Rouge, Louisiana
E.P.A. 6EN-AT Records/Documents Request

GENERAL PROCEDURE

During the focused Clean Air Act compliance investigation at Deltech Corp – Baton Rouge Facility (Deltech) in Baton Rouge, Louisiana, inspectors will be reviewing records kept for your facility. In order to expedite this portion of the investigation, EPA is providing you advanced notification of the records that will likely be reviewed on-site. For most documents, EPA will review the records on-site and request copies, as needed. In certain cases, document copies will be requested for later review by EPA.

In preparation for this focused multimedia compliance investigation, EPA has divided this record and document request into two sections. The first section consists of documents that EPA would like available and copies prepared (only as noted) on October 24, 2017. The second section consists of general and media specific documents that will most likely be reviewed by EPA inspectors during the inspection. Other documents may also be requested that are not listed. During the investigation, EPA will work with Deltech to develop a schedule to review these documents.

PART 1 - Please have these documents available on October 24, 2017

1. Descriptions for all process areas including the following information:
    a. Process flow diagrams (4 copies) with attached written descriptions
    b. Material balances
    c. Pollution control equipment
    d. Raw materials used and annual usage
    e. Products made
2. Site map of the facility (4 copies)
3. Facility organizational chart (including overall responsibilities and environmental department) (1 copy)
4. Monthly production for each type of product manufactured from 2014 to present (1 copy)

Clean Air Act (CAA)

5. Most recent Title V operating permit (1 copy)
6. Identification of emission sources subject to MACT requirements
7. Provide the following information for flares at the facility:
    a. Date of installation
    b. Manufacturer and model number
    c. Purpose (*e.g.*, emergency only, routine, intermittent process waste gas)

d. General design type (*e.g.*, ground or elevated, multi-tip or single tip, assisted or non-assisted; if assisted, indicate whether flare is steam, air, or pressure assisted)

    i. Minimum assist steam (in lb/hr) or assist air (in scf/hr) rate at all locations on each flare, and means of control of steam or air (*e.g.*, valve, bypass orifice);

e. Please describe how the amount of waste gas, purge gas, sweep gas, supplemental gas, assist steam, and assist air is measured or monitored

f. Please provide a diagram that shows the locations of each:

    i. Measurement or monitoring point for pressure, flow, net heating value, molecular weight, and constituent concentration

    ii. Injection point for purge gas, sweep gas, and supplemental gas

8. All stack test/performance test reports for the flare(s) describing methods used, test data, calculations, test results and process information. Include all test data from tests done by the company, consultants or regulatory agencies.

9. For all continuous monitoring systems (i.e. COMS, CEMS, etc.), provide a description of monitoring data for each monitored parameter used to demonstrate continuous compliance with any applicable emission standard or permit requirement.

Part 2 – Documents to be provided post inspection

General

1. Enforcement Actions/Notices of Violations (NOVs)
2. Consent Decrees/Orders/Agreements and related correspondences

Clean Air Act

3. For periods when waste gas is sent to the flare(s), please provide the following information for each flare in searchable and editable electronic format (*e.g.*, spreadsheet):

    a. The hourly average net heating value, in British Thermal Units per standard cubic foot (BTU/scf), of the vent gas for the period beginning 3 years prior to the date of receipt of this request.

    b. The hourly average concentration of each constituent of the vent gas for the period beginning 3 years prior to the date of receipt of this request.

    c. The hourly average mass flow rate, in lb/hr, of the vent gas for the period beginning 3 years prior to the date of receipt of this request.

    d. The hourly average rate at which assist steam and/or assist air was added to the flare, in lb/hr for steam, or scf/hr for air, at all locations on each flare (i.e., the sum of seal, upper, lower, winterizing, etc.) for the period beginning 3 years prior to the date of receipt of this request.

If the hourly averages for any or all of the subsections above are measured, but data is not available, provide an explanation for each time period missing hourly data (*e.g.*, flare not in service, instrumentation malfunction, etc.).

If the requested data is not measured or otherwise monitored, use the best means available to calculate/estimate the hourly averages. Provide a narrative explanation and example calculations describing how you arrived at your response. Such methods of calculation/estimation include, but are not limited to, the use of calculations from an online, intermittent, or continuous gas chromatograph (whether at the flare or upstream of the flare), estimating flow from pressure measurements or from valve position data, periodic samples/analysis of gas flowing to the flare, and/or process knowledge.

If the requested data was not measured or cannot be calculated or estimated (*e.g.*, lack of equipment, equipment malfunction, and/or maintenance at a flare), provide an explanation of why no data is available and why the data cannot be calculated or estimated.)

4. For each flare (if applicable), provide the hourly average Steam-to-Vent Gas Ratio (lb Steam/lb Vent Gas) for the period beginning 3 years prior to the date of receipt of this request. If the rate at which steam added is not measured, use the best means available to estimate it. Provide a narrative explanation, including considerations for seasonal variations and minimum flow, with example calculations describing how you arrived at your response. All steam (including minimum or bypass steam) should be included in ratio calculation.

5. For each flare, describe how the pilot flame is monitored and how the monitoring data is recorded. Provide the monitoring data for the flare pilot flame for the period beginning 3 years prior to the date of receipt of this request.

6. For each flare, provide copies of documents in your possession, custody, or control pertaining to operating procedures, monitoring procedures, and flare performance testing.

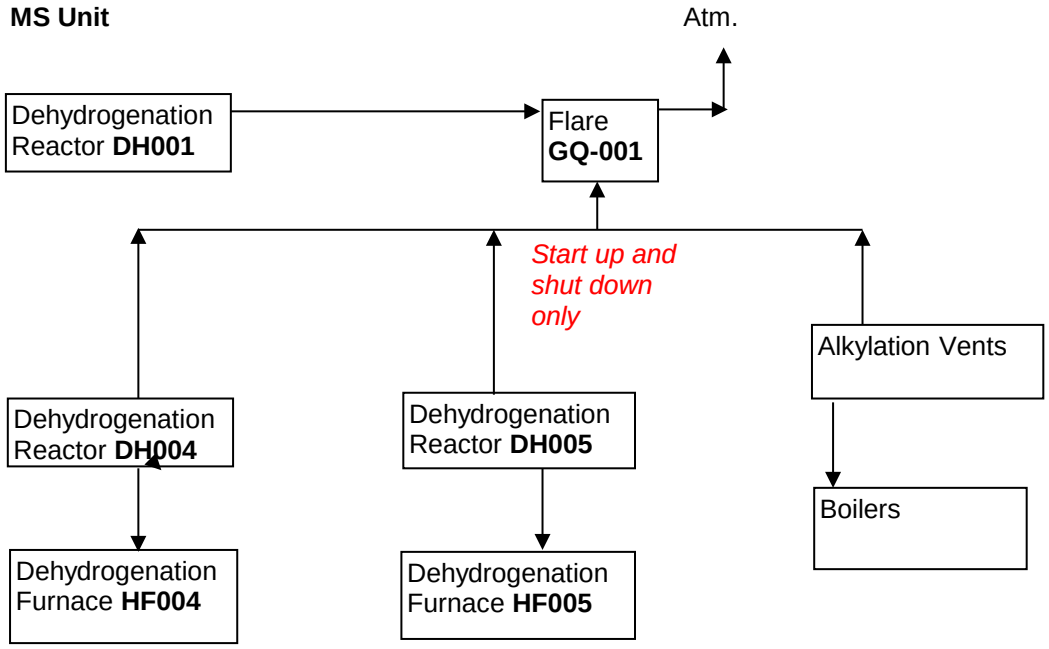
7. For each flare, state whether the flare is configured to receive gases/vapors from one or more pressure relief device(s), which is a safety device used to prevent pressures from exceeding the maximum allowable working pressure of the process equipment.

Appendix 4

Flare Vents Worksheet

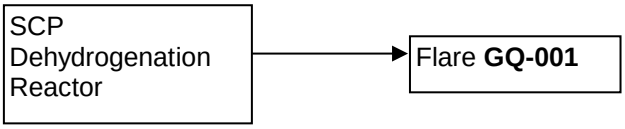
Vent Flows

MS Unit



Vent Flows

SCP Unit



FLARE Vents

Component	Formula	Molecular Weight	Heat of Combustion LHV Mbtu/LB	Dehydro Off-Gas Dry lbs/Hr	Dehydro Heat release MMBtu/Hr	Alkylation Off-Gas Max Lbs/Hr	Alkylation Heat Release MMBTU/hr	SCP Dehydro Off-Gas Lbs/Hr	SCP Heat Release MMBtu/Hr	Combined Off-Gas to Flare Lbs/HR	Total Heat Release (MMBtu.Hr)
Hydrogen	H_2	2.016	51.39	197.04	10.126	15.65	0.804	28.275	1.453	240.965	12.383
Methane	CH_4	16.042	23.43	70.56	1.666	2.1	0.05	10.725	0.253	83.385	1.954
Ethane	C_2H_6	30.068	20.27	Trace		69.2	1.414	Trace		69.2	1.403
Ethylene	C_2H_4	28.052	19.93	8.2	0.166	146.58	2.971	1.4625	0.03	156.2425	3.114
Propane	C_3H_8	44.094	19.68	Trace		10.75	0.214	Trace		10.75	0.212
Propylene				Trace		13.67	0.269	Trace		13.67	
Butyls	C_4H_{10}	58.12	19.64	Trace							
Benzene	C_6H_6	78.108	17.43	23.8	0.415	0.01	0	0.975	0.017	24.785	0.432
Toluene	C_7H_8	92.134	17.58	7.32	0.129	0.01	0	0.78	0.014	8.11	0.143
Ethylbenzene/Xylene	C_8H_{10}	106.16	17.74	8.08	0.143			0.3	0.005	8.38	0.149
Styrene	C_8H_8	104.144	17.57	5.44	0.096			0.285	0.005	5.725	0.101
Ethyltoluene	C_9H_{12}	120.186	17.82					0.2925	0.005	0.2925	0.005
Methylstyrene	C_9H_{10}	118.17	17.69					0.2925	0.005	0.2925	0.005
Diethylbenzene	$C_{10}H_{14}$	134.212	17.95								
Carbon Monoxide	CO	28	4.35	3.29	0.014			1.0725	0.005	4.3625	0.019
Carbon Dioxide	CO_2	44		170.98				53.04		224.02	
Nitrogen	N_2	28		Trace		4.55	5.722	Trace		224.02	
Subtotal			282.47	494.71	12.755	262.52		97.5	**1.792**	854.73	
Water	H_2O	18									
Natural Gas	CH_4	16.042	23.61	16.89	0.399					16.89	**0.399**
Total		1065.548	306.08	511.6						**871.62**	**20.317**

Maximum Vent Gas Flow Volume Calculation

Pounds All Vent Gas/Hr / Pounds/cubic ft @ STP	871.62 Lbs/Hr / 0.075 Lbs/Ft^3	=	***MAX - All Vents*** **11621.6 SCF/Hr**	***STP =*** 60°F, 14.7 psia
SCP Vent Flow Pounds SCPVent Gas/Hr / Pounds/cubic ft @ STP	97.5 Lbs/Hr / 0.075 Lbs/Ft^3	=	***SCP*** **1300 SCF/Hr**	
NG Pilot Pounds Natural Gas/Hr / Pounds/cubic ft @ STP	16.89 Lbs/Hr / 0.075 Lbs/Ft^3	=	***NG Pilot*** **225.2 SCF/Hr**	

Heat Release Calculation

Maximum - All vents to Flare

MMBtu/Hr / SCF/Hr: 20.317 MMBtu/Hr / 11621.6 SCF/Hr X1000000 = ***Max Heating Value*** **1748.21 Btu/SCF**

Minimum - SCP and Pilot Gas Only (normal operation)

MMBtu/Hr / SCF/Hr: (1.792 MMBtu/Hr + 0.399 MMBtu/Hr) / 1525.2 SCF/Hr X1000000 = ***Min Heating Value*** **1436.53 Btu/SCF**

Maximum Vent Gas Flow Volume Adjusted for Actual Temerature and Pressure

Use Charles' Law for Temperature Adjustment

Initial Volume / Initial Temp = Final Volume / Final Temp

Initial Volume is **11621.6 SCF/Hr**
Initial Temp is **60°F**
Final Temp is **90°F**

90 °F / 60 °F × 11621.6 SCF/Hr = ***Final Volume adjusted for Temp*** **17432.4 SCF/Hr**

Use Boyle's Law for Pressure Adjustment

Initial Pressure / Final Pressure = Final Volume / Initial Volume

Initial Volume is **17432.4 SCF/Hr** (Use temp adjusted)
Initial Pressure is **14.7 psia**
Final pressure is **16.7 psia** (use 2 psig)

14.7 psia / 16.7 psia × 17432.4 SCF/Hr = ***Final Volume adjusted for temp and pressure*** **15344.69 SCF/Hr**

Maximum Flare Exit Velocity Calculation

Flare Tip Area

8 inch flare tip: 8 inches / 12 inches/ft = 0.6667 ft

Radius = 0.333 ft
π = 3.141596

Area = **πr^2 =** 0.3483684 Sq Ft

Velocity Ft/s = CFM / 60(Area ft²)

15344.69 SCF/Hr / 60 Min/Hr = 255.7448 CFM

255.7448 CFM / 60 (0.349 Ft²) = ***Flare Exit Velocity*** **12.235362 Ft/Sec**

Appendix 5
Metco Environmental's 2011 Source Emissions Survey of Deltech Corporation Baton Rouge Louisiana East

METCO
ENVIRONMENTAL

LELAP Certificate #02034

SOURCE EMISSIONS SURVEY
OF
DELTECH CORPORATION
BATON ROUGE, LOUISIANA
EAST BATON ROUGE PARISH
FACILITY CONTACT: ROSS BROOM
CONTACT PHONE: (225) 358-3130
SCP DEHYDROGENATION REACTOR
VENT FLARE (EQT 0083)
LDEQ PERMIT 0840-00006-V5
AGENCY INTEREST NO. 248

JANUARY 2011

TESTING COMPANY: METCO ENVIRONMENTAL
6655 COMPLEX DRIVE
BATON ROUGE, LOUISIANA 70809
FILE NUMBER 09-240

" I certify that I have personally checked and am familiar with the information submitted herein, and 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

METCO
ENVIRONMENTAL

File Number 09-240

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SOURCE EMISSIONS SURVEY
DELTECH CORPORATION
BATON ROUGE, LOUISIANA
EAST BATON ROUGE PARISH
FACILITY CONTACT: ROSS BROOM
CONTACT PHONE: (225) 358-3130
SCP DEHYDROGENATION REACTOR
VENT FLARE (EQT 0083)
LDEQ PERMIT 0840-00006-V5
AGENCY INTEREST NO. 248
FILE NUMBER 09-240

INTRODUCTION

METCO Environmental, 6655 Complex Drive, Baton Rouge, Louisiana, conducted a source emissions survey of Deltech Corporation, located at 11911 Scenic Highway, Baton Rouge, Louisiana, on January 20, 2011. The purpose of these tests was to determine the flare exit velocity, flare gas heating value, and visible emissions at the SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083), in order to comply with 40 CFR §63.11(b) as required by 40 CFR §63.987(b)(3). The results demonstrated that the unit was in compliance with 40 CFR §63.11(b).

The sampling was performed by the following METCO personnel: Daniel Moore – Project Supervisor and Jason Pilgrim.

The sampling followed the procedures set forth in the Code of Federal Regulations, Title 40, Chapter I, Part 60, Appendix A, Methods 1, 2, 18, and 22.

SUMMARY OF RESULTS

SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083)

Average Flare Gas Net Heating Value (MJ/scm*)	Average Actual Exit Velocity (fps)	Average Actual Exit Velocity (m/sec)	Accumulated Visible Emissions (min:sec)	Allowable Requirements 40 CFR, Part 63, Section 63.11 (b) Flare Gas Heating Value (MJ/scm*)	Allowable Requirements 40 CFR, Part 63, Section 63.11 (b) Exit Velocity (m/sec)	Allowable Requirements 40 CFR, Part 63, Section 63.11 (b) Accumulated Visible Emissions (min:sec)
10.234	5.94	1.81	00:00	≥ 7.45	≤ 37.2/≤ 293	≤ 5:00

* Wet basis.

Note: The flare is non-assisted.

(ft/sec) 0.3048 m/ft = m/sec

As per 63.11(b)(6)(i)(A), the maximum permitted velocity (m/sec) is calculated by the following equation:

V_{max} = (81.23%vwH_2 – 6.0%vH_2) x 3.9 m/sec/volume-percent hydrogen

V_{max} = 293 m/sec

METCO ENVIRONMENTAL

SUMMARY OF RESULTS

SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083)

Run Number	1	2	3
Date	01/20/11	01/20/11	01/20/11
Time	1120-1220	1225-1325	1335-1435
Flare Gas Flow Rate - ACFM	122	127	130
Flare Gas Flow Rate - DSCFM[1]	121	123	127
% Water Vapor - % Vol.[2]	1.87	2.39	2.31
Flare Gas Temperature - °F	62	69	68
Flare Gas Pressure - "Hg	29.75	29.75	29.75
Flare Gas Molecular Weight - lb/lb mole	8.32	8.40	8.53
Flare Tip Area - in^2	50	50	50
Actual Exit Velocity - fps	5.81	5.90	6.10

[1] 29.92 "Hg, 68°F (760 mm Hg, 20°C)
[2] Assumed moisture at saturation.

SUMMARY OF RESULTS

SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083)

		Run Number 1			Run Number 2			Run Number 3		
Component	Net Heat of Combustion (Kcal/g-mole)	(ppmvd)	(ppmvw)	Net Heat Heating Value (MJ/scm*)	(ppmvd)	(ppmvw)	Net Heat Heating Value (MJ/scm*)	(ppmvd)	(ppmvw)	Net Heat Heating Value (MJ/scm*)
Methane	191.68	19,900	19,528	0.651	19,800	19,327	0.645	19,800	19,343	0.645
Ethane	341.21	11,600	11,383	0.676	11,500	11,225	0.666	11,600	11,332	0.673
Propane	488.04	400	393	0.033	400	390	0.033	400	391	0.033
Butanes	634.70	100	98	0.011	100	98	0.011	100	98	0.011
Pentanes	781.42	30	29	0.004	30	29	0.004	30	29	0.004
Hexanes	928.40	4,000	3,925	0.634	4,100	4,002	0.646	4,500	4,396	0.710
Hydrogen	57.93	832,400	816,834	8.234	831,500	811,627	8.181	827,600	808,482	8.149
Nitrogen	----	21,400	21,000	0.000	22,200	21,669	0.000	24,200	23,641	0.000
Oxygen	----	600	589	0.000	800	781	0.000	1,500	1,465	0.000
Carbon Monoxide	67.64	1,400	1,374	0.016	1,400	1,367	0.016	1,400	1,368	0.016
Carbon Dioxide	----	108,000	105,980	0.000	108,200	105,614	0.000	108,800	106,287	0.000
Total	----	----	----	**10.259**	----	----	**10.202**	----	----	**10.241**
Btu/scf*	----	----	----	**275**	----	----	**273**	----	----	**274**
Moisture - %Vol.		1.87			2.39			2.31		

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

DISCUSSION OF RESULTS

The three tests for flow rate, flare gas composition, and flare gas heating value appeared to be valid representations of the actual emissions during the tests. All leak checks performed on the pitot tubes and the canister sampling system showed no leaks before or after each test.

The calculated concentrations (MJ/scm) of heating value for the three tests showed a range of -0.3 percent to +0.2 percent variation from the mean value.

DESCRIPTION OF PROCESS

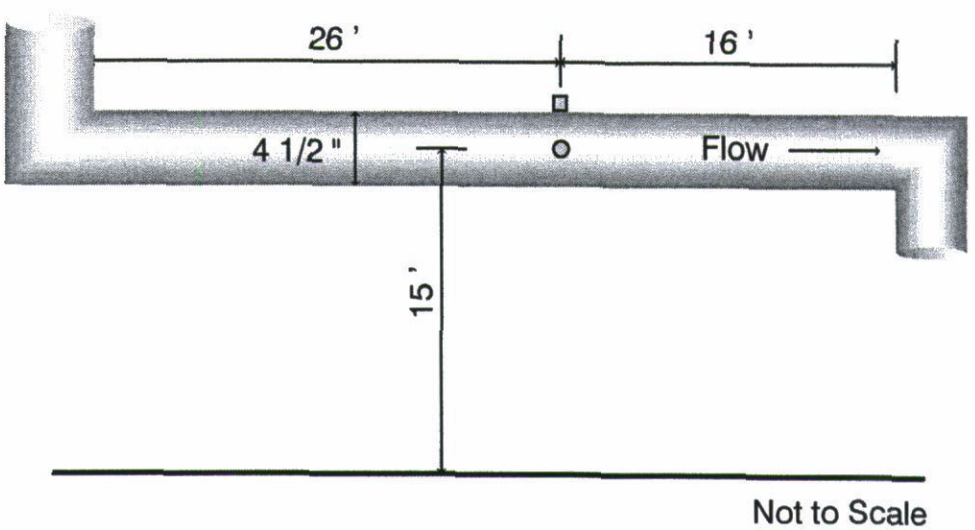
The dehydrogenation reactor in the Specialty Chemicals Plant (SCP) produces divinylbenzene by removing hydrogen from diethylbenzene in the presence of a catalyst and steam. The vent from the reactor, containing hydrogen and small amounts of organic chemicals is vented to the flare. This stream is a Group 1 process vent under 40 CFR 63 Subpart FFFF (MON).

DESCRIPTION OF SAMPLING LOCATION

The sampling location on the SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083) is approximately 15 feet above the ground. The sampling ports are located 26 feet (69.33 diameters) downstream from a bend in the flare line and 16 feet (42.67 diameters) upstream from a bend in the flare line.

SAMPLING LOCATION

SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083)



Not to Scale

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, 18, and 22.

A velocity traverse was made at each of the two ports on flare line, 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. Four traverse points were sampled from each of the two ports for a total of eight traverse points.

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.

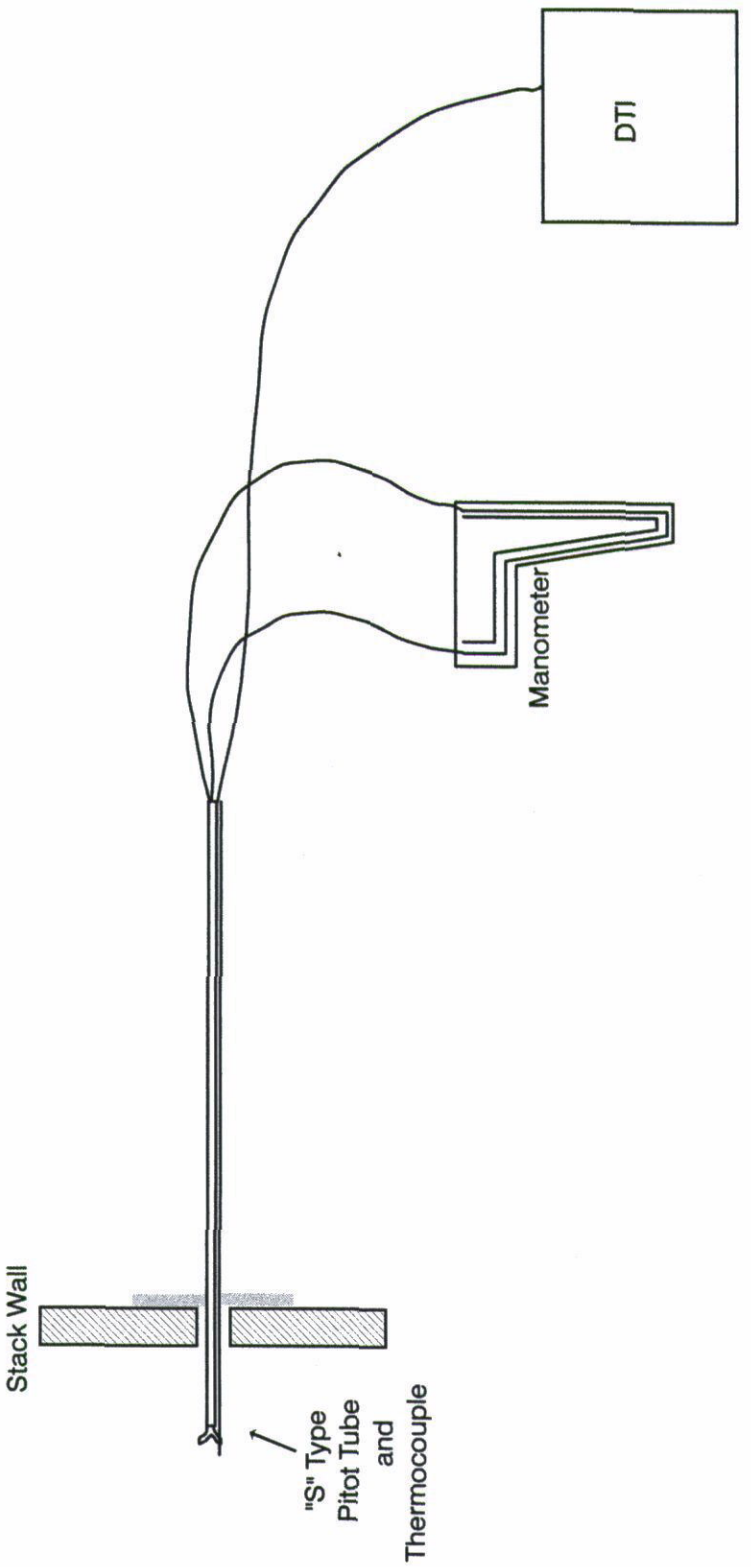
The heating value and gas composition samples were collected over a 60-minute period according to EPA Method 18. The sample gas was drawn out of the source using a stainless steel probe and into an evacuated stainless steel canister. The samples were analyzed by GC/FID and GC/TCD.

The molecular weight of the flare line gas was calculated based on the GC analysis of the canister samples.

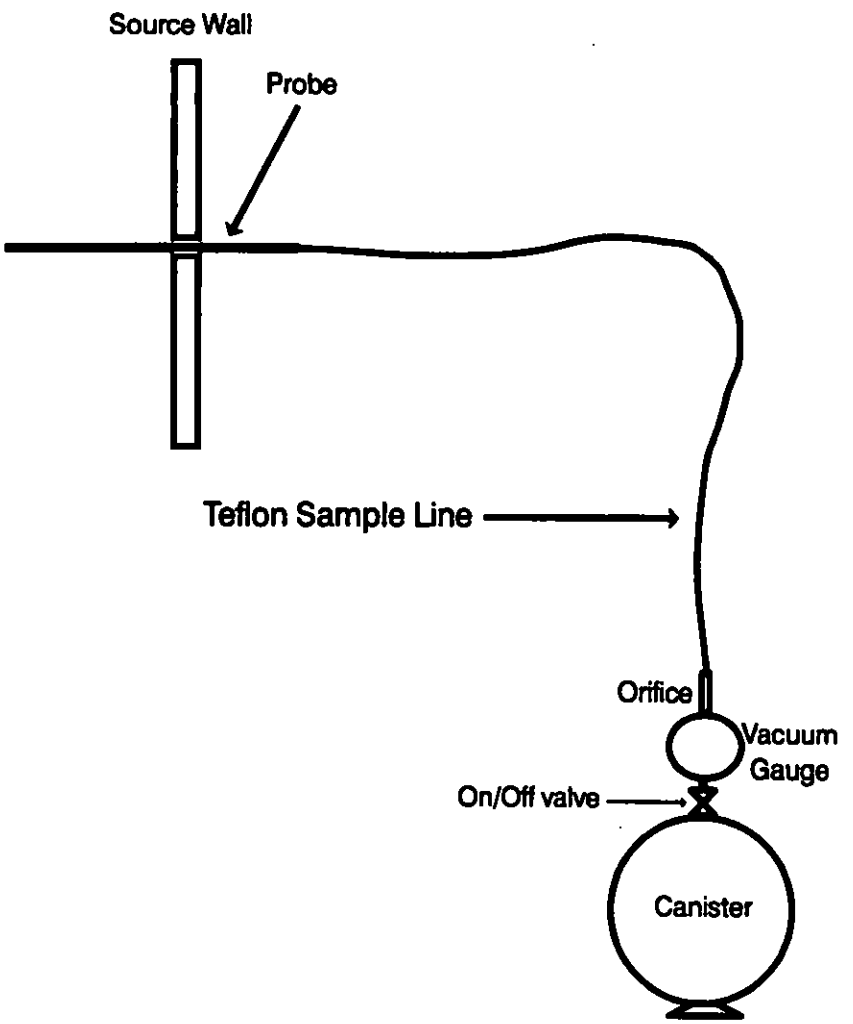
The moisture content of the flare gas was assumed at saturation.

The visible emissions were determined according to EPA Method 22. One test was performed on the flare. The test consisted of eight 15-minute observation periods.

Schematic Diagram of EPA Method 2 for Flow Rate



Canister Sampling Train



DESCRIPTION OF TESTS

Personnel from METCO Environmental arrived at the plant at 9:15 a.m. on Thursday, January 20, 2011. After meeting with plant personnel and attending a brief safety orientation, the equipment was moved onto the SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083). The equipment was prepared for testing. The first set of tests for flare gas exit velocity and flare gas heating value began at 11:20 a.m. Testing continued until completion of the third set of tests at 2:35 p.m. The test for visible emissions began at 11:20 a.m. and was completed at 1:55 p.m.

The equipment was moved off of the sampling location and loaded into the sampling van. The samples were recovered and transported to Enthalpy Analytical's laboratory in Durham, North Carolina, for analysis. The data was transported to METCO Environmental's laboratory in Dallas, Texas, for further evaluation.

Field operations at Deltech Corporation, SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083), located in Baton Rouge, Louisiana, were completed at 3:30 p.m. on Thursday, January 20, 2011.

APPENDICES

A. Location of Sampling Points
B. Source Emissions Calculations
C. Calibration Data
D. Field Testing Data
E. Analytical Data
F. Visible Emissions Data
G. Chain of Custody
H. Resumes of Test Personnel

METCO ENVIRONMENTAL

APPENDIX A

Location of Sampling Points
SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083)

The sampling ports are located 26 feet (69.33 diameters) downstream from a bend in the flare line and 16 feet (42.67 diameters) upstream from a bend in the flare line. The locations of the sampling points were calculated as follows:

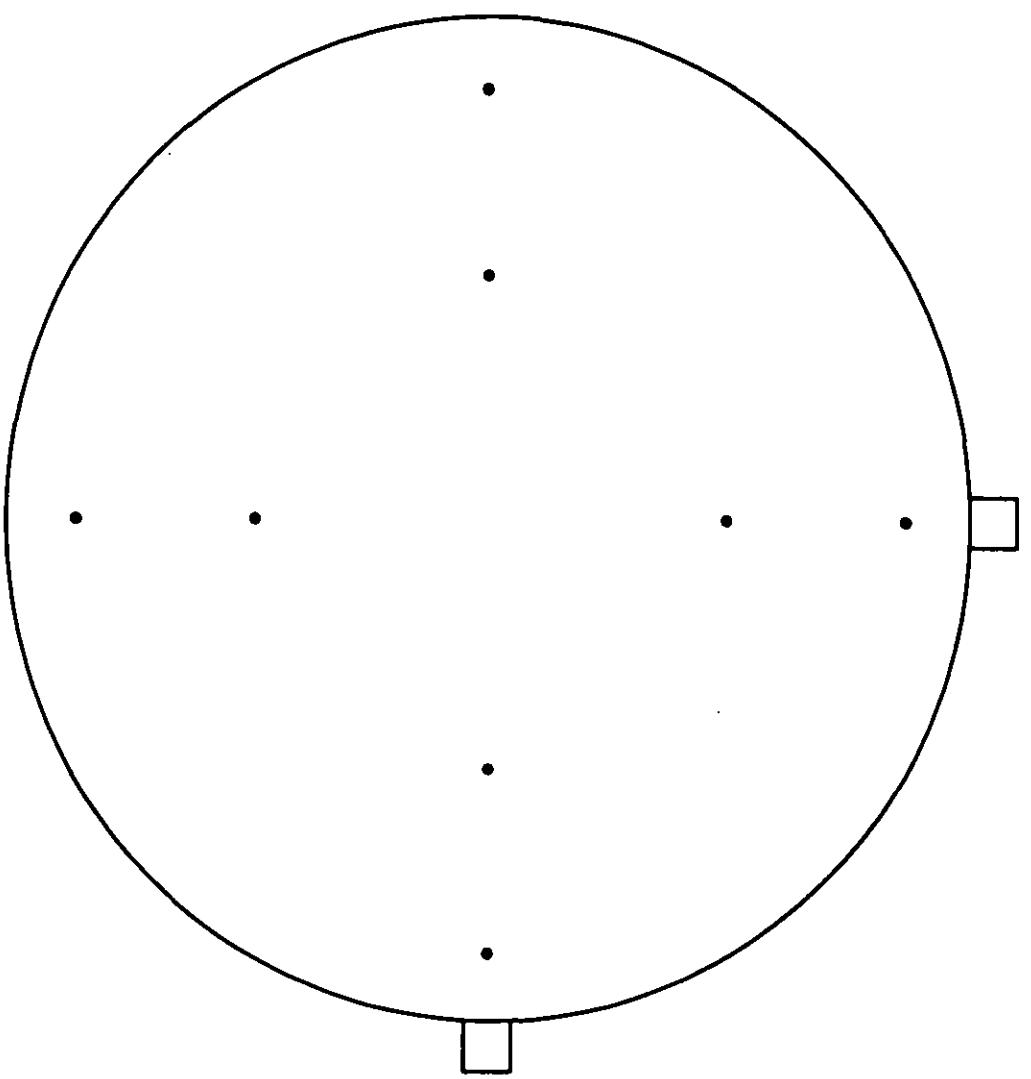
Port and Wall Thickness = 24 1/2 inches
Inside Flare Diameter = 4 1/2 inches

Point Number	Percent of Diameter From Wall	Distance From Wall
1	6.7	1/2 "
2	25.0	1 1/8 "
3	75.0	3 3/8 "
4	93.3	4 "

APPENDIX A

Location of Sampling Points

SCP Dehydrogenation Reactor Vent Flare Line (EQT 0083)



APPENDIX B

Nomenclature and Equations
for
Calculation of Source Emissions

NOMENCLATURE FOR EXAMPLE CALCULATIONS

Symbol	English Units	Metric Units	Description
A_s	$in.^2$	m^2	Stack Area
C_p			Pitot Tube Calibration Factor
D_n	in.	m	Sampling Nozzle Diameter
%EA			Percent Excess Air at 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_f	mg	mg	Particulate - probe, cyclone, and filter
M_{water}	18 lb/lb-mole		Molecular Weight of water
m_t	mg	mg	Particulate - total
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

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

Symbol	English Units	Metric Units	Description
P_s	"Hg Absolute	mm Hg	Stack Pressure
ΔP	"H_2O	mm H_2O	Velocity Head of stack gas
P_{std}	29.92 "Hg	760 mm Hg	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
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

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

Symbol	English Units	Metric Units	Description
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

Standard Conditions: 29.92 "Hg, 68°F (760 mm Hg, 20°C)

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

EXAMPLE CALCULATIONS

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

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

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

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

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

$$Vw_{gas} = \frac{(V_w - gms\ SO_2\ **)\ \rho_{water}\ R\ T_{std}}{P_{std}\ M_{water}\ 453.6}$$

$$Vw_{gas} = 0.0472\ (V_w - gms\ SO_2\ **) = scf$$

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

3. *Percent moisture in stack gas.*

$$\%M = \frac{Vw_{gas}}{Vm_{std} + Vw_{gas}} \times 100 = \%$$

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

** gms 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.*

$$M_d = \frac{100 - \%M}{100}$$

5. *Average molecular weight of dry stack gas.*

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

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

6. *Molecular weight of stack gas.*

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

7. *Percent excess air at sampling point.*

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

8. *Stack Pressure.*

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

$$P_s = "Hg\ Abs. \times 25.4 = mm\ Hg$$

9. *Stack velocity at stack conditions.*

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

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

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

10. *Dry stack gas volume at standard conditions.* *

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

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

$$Q_s = DSCFM \times 1.6990 = dscm/hr$$

11. *Actual stack gas volume at stack conditions.*

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

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

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

EXAMPLE CALCULATIONS

MJ/scm = ppmvw x Kcal/g mole x K

MJ/scm = Net heating value of sample component

ppmvw = concentration of sample component in ppm on a wet basis

Kcal/g mole = Net heat of combustion of sample component

K = constant 1.740 x 10^{-7} (1/ppm) (g mole/scm) (MJ/Kcal)

For Example: Run Number 1 (Methane)

MJ/scm = 19,528 ppmvw x 191.68 Kcal/g mole x 1.740 x 10^{-7} (1/ppm) (g mole/scm) (MJ/Kcal)*

*Methane = 0.651 MJ/scm**

** 29.92 "Hg, 68°F (760 mm Hg, 20°C)*

EXAMPLE CALCULATIONS

$$\text{Exit Velocity for flare (ft/sec)} = \frac{Q_s \times 144\ in^2 \times 1\ min.}{\text{Exit Area } (in^2) \times 60\ sec.}$$

Q_s = DSCFM* of flare

* 29.92 "Hg, 68°F (760 mm Hg, 20°C)

APPENDIX C

Calibration Data

Equipment	Calibration Factor	Calibration Date
Pitot Tube #PG-71	0.806	01/18/11
Digital Temperature Indicator #43-1		11/23/10
Barometer #43-1		07/09/10

METCO ENVIRONMENTAL

Pitot Tube Calibration

Date: 01-18-10 11 DM

Time: 1900

Pitot No: PS-71

T_s: 72°

Pitot Dimensions: 10 'x 3/8 "

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	0.22	0.22	0.469	0.33	0.574	0.808	0.34	0.583	0.796
20	40	0.34	0.34	0.583	0.51	0.714	0.808	0.51	0.714	0.808
28	50	0.54	0.54	0.735	0.82	0.906	0.803	0.82	0.906	0.803
35	60	0.80	0.80	0.894	1.20	1.095	0.808	1.20	1.095	0.808
41	70	1.00	1.00	1.000	1.50	1.225	0.808	1.50	1.225	0.808
50	80	1.30	1.30	1.140	2.00	1.414	0.798	2.00	1.414	0.798
62	90	1.60	1.60	1.265	2.40	1.549	0.808	2.40	1.549	0.808
28*	**50***	0.54	0.54	0.735	0.82	0.906	0.803	0.82	0.906	0.803
28*	**50***	0.54	0.54	0.735	0.82	0.906	0.803	0.82	0.906	0.803
Average							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 0.806

variation + 0.25 % variation - 0.99%

Normal low side calibration factor 0.805

variation + 0.37 % variation - 1.12 %

Calibrator: David Moore

Office: Baton Rouge, LA

QA/QC Check

Completeness ✓ Legibility ✓ Accuracy ___ Specifications ✓ Reasonableness ___

Checked by: [signature]

METCO ENVIRONMENTAL

Digital Temperature Indicator No. 43-1

Calibration Data

Date: 11-23-10

Reference Thermometer No. BR-04-2

Media	Time	Reference Thermometer (°F)	DTI (°F)
Ambient Air	1317	77°	79°
Ice Bath	1321	38°	38°
Boiling Water	1342	212°	212°
Oven	1355	250°	248°
Oven	1405	300°	299°
Oven	1415	350°	35°
Oven	1425	375°	373°

Meter Adjusted? YES _____ NO ✓

Calibrator Dustin Reid

Office: Baton Rouge

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

Checked by: [signature]

METCO ENVIRONMENTAL

BAROMETER CALIBRATION

Baton Rouge Office Only

Barometer No. 431

Date: 7/9/10

Time: 0934

Barometric Pressure@ **Baton Rouge Airport**@ 70 ft.=		30.03
	-	0.070
Absolute Pressure @ **Baton Rouge Airport**	=	29.96
	+	0.044
Absolute Pressure @**METCO Baton Rouge**@ 26 ft	=	30.00
Barometer Reading	=	29.75
Variation	=	0.25

Barometer Adjusted? Yes ✓ No ____

Calibrator S. Morris

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

Checked by: [signature]

APPENDIX D

Field Testing Data

METCO ENVIRONMENTAL

Job Number 09-240 | Flow Field Data | Ambient Temp. °F 58°

Job Name Deltech Corp. | Assumed Moisture % Saturation Curve

Run Number 1 | Read and record at the start of each test point. | Probe Length 3

Unit D2 - Hydroperoxation Reactor Vent Flow | C Factor — to reference.

Date 1-20-11 | Purge to: — | Initial Leak @ — "Hg = — cfm

Operator Moore / Pilgrim | Purge time: — | Final Leak @ — "Hg = — cfm

Sample box No. — Meter Box No. 43-1 ✓ | Pitot Leak Check Initial ✓ Final ✓ | Pitot Tips Damaged During Test? Yes (No)

Low Flow Manometer ΔP_s 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 Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
A 4	1113		0.06				61						
3	1114		0.06				61						
2	1115		0.02				61						
1	1116		0.01				62						
B 4	1118		0.06				61						
3	1119		0.06				62						
2	1120		0.02				62						
1	1121		0.01				63						
A 4	1200		0.06				61						
3	1201		0.06				61						
2	1202		0.02				61						
1	1203		0.01				61						
B 4	1206		0.06				62						
3	1207		0.06				62						
2	1208		0.02				62						
1	1209		0.01				62						

Pitot Tube Calibration Factor C_p 0.806 ✓ | Pitot Tube No. PD-11 ✓ | Barometer No. 43-1 ✓ | Probe Tip No. —

Volume Collected V_m — ft^3 | Baro. Press. P_b 27.76 ✓ "Hg | Total Volume of Leak Checks After Start: — ft^3

Water Collected V_w — ml | Probe Tip Dia. D_n — in. | V_m = Dry Gas Meter Calibration Factor — X —

Time of Test T_t 60 ✓ min. | % CO_2 ~~0.0~~ | % CO ~~0.0~~ | Area Stack A_s 16 ✓ in^2

Stack Pressure P_s -0.10 ✓ "H_2O | % O_2 ~~20.1~~ | % N_2 ~~79.6~~ ~~79.9~~ | {Dry Gas Meter Reading ___ ft^3 – (T_t ___ min. X Leak Rate ___ cfm)]

QA/QC Check
Completeness ✓ Legibility ✓ Accuracy ✓ Specifications ✓ Reasonableness ✓ Checked by: _____

Version 2
1 February 2008

D-2

09-240

Impinger Box No. ____________

Impinger 1	Final Weight	______
	Initial Weight	______
	Increase	
Impinger 2	Final Weight	______
	Initial Weight	______
	Increase	
Impinger 3	Final Weight	______
	Initial Weight	______
	Increase	
Impinger 4	Final Weight	______
	Initial Weight	______
	Increase	
Impinger 5	Final Weight	______
	Initial Weight	______
	Increase	
Impinger 6	Final Weight	______
	Initial Weight	______
	Increase	
Impinger 7	Final Weight	______
	Initial Weight	______
	Increase	

V_w =

g SO_2 = ______

V_w =

Water Weight Gain

Impinger 1	______
Impinger 2	______
Impinger 3	______
Impinger 4	______
Impinger 5	______
Impinger 6	______
Impinger 7	______
Total	— = V_w

P_b =	29.76 ✓	$\%CO_2$ =	~~0.0~~
V_m =	—	$\%O_2$ =	~~20.1~~
V_w =	—	%CO =	~~0.0~~
P_m =	—	$\%N_2$ =	~~79.9~~
Avg ΔP =	0.038 ✓	A_s =	16 ✓
		D_n =	—
Avg$\sqrt{\Delta P}$ =	0.183 ✓	T_t =	60 ✓
C_p =	0.806 ✓		
P_s =	-0.10 ✓ "H_2O	29.75 ✓	"Hg
T_m =	— °F	—	°R
T_s =	62 ✓ °F	522 ✓	°R

Moisture Content: %M = 1.87* ✓ M_d = 0.9813 ✓ MW_d = ~~28.809~~ 8.131 ** MW = ~~28.60~~ 8.32 ✓

*Assumed at saturation **Based on GC analysis of bag.

$$Vm_{std} = 17.65\ Vm \left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65\ x \left[\frac{\quad + \frac{\quad}{13.6}}{\quad + 460}\right] = \text{— sft}^3 \quad \text{— scfm}$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x ______ = — sft³

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = $\frac{\quad}{\quad + \quad}$ x 100 = — %

V_s = 5123.8 x 0.806 ✓ $\sqrt{\frac{522 ✓}{29.75 ✓ x \text{ ~~28.60~~ } 8.32}}$ x 0.183 ✓ = ~~592~~ 1098 ✓ fpm

ACFM: ~~65~~ 122 ✓

SCFM: 121 ✓

%I = $\frac{1{,}039 \text{ x } \quad \text{ x } \quad}{\text{x } \quad \text{ x } \quad \text{ x } \quad \text{ x}(\quad)^2}$ = — %

%EA: —

METCO ENVIRONMENTAL

Job Number 09-240 ✓ — Flow — Field Data — Ambient Temp. °F 54°

Job Name Dalltech Corp. ✓ — Assumed Moisture % Moisture Curve

Run Number 2 ✓ — Read and record at the start of each test point. — Probe Length 3

Unit Dehydrogenation Tester ✓ Unit — C Factor — to reference.

Date 1-20-11 ✓ — Purge to: — — Initial Leak @ — "Hg = — cfm

Operator Moon / Pilgrim ✓ — Purge time: — — Final Leak @ — "Hg = — cfm

Sample box No. — Meter Box No. 43-1 ✓ — Pitot Leak Check Initial ✓ Final ✓ — Pitot Tips Damaged During Test? Yes (No)

Low Flow Manometer — ΔP_s — 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 Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
A 4			0.07				70						
3			0.07				70						
2			0.02				70						
1			0.01				69						
B 4			0.05				67						
3			0.06				68						
2			0.03				68						
1			0.01				69						
A 4			0.07				69						
3			0.06				69						
2			0.06				70						
1			0.01				70						
B 4			0.06				70						
3			0.02				69						
2			0.02				69						
1			0.02				69						

Pitot Tube Calibration Factor C_p 0.806 ✓ — Pitot Tube No. BA-71 ✓ — Barometer No. 43-1 ✓ — Probe Tip No. —

Volume Collected V_m — ft^3 — Baro. Press. P_b 29.76 ✓ "Hg — Total Volume of Leak Checks After Start: — ft^3

Water Collected V_w — ml — Probe Tip Dia. D_n — in. — V_m = Dry Gas Meter Calibration Factor — X —

Time of Test T_t 60 ✓ min. — % CO_2 0.0 — % CO 0.0 — Area Stack A_s 16 ✓ in^2

Stack Pressure P_s -0.10 ✓ "H_2O — % O_2 20.1 — % N_2 79.9 — {Dry Gas Meter Reading — ft^3 – (T_t — min. X Leak Rate — cfm)}

QA/QC Check

Completeness ____ Legibility ____ Accuracy ____ Specifications ____ Reasonableness ____ Checked by: ____

Version 2
1 February 2008

D-4

09-240

Impinger Box No. _____

Water Weight Gain

Impinger 1	Final Weight			Impinger 1 _____
	Initial Weight			
	Increase			Impinger 2 _____
Impinger 2	Final Weight			Impinger 3 _____
	Initial Weight			
	Increase			Impinger 4 _____
			V_w =	
Impinger 3	Final Weight		g SO_2 =	Impinger 5 _____
	Initial Weight		V_w =	
	Increase			Impinger 6 _____
Impinger 4	Final Weight			Impinger 7 _____
	Initial Weight			
	Increase			Total _____ = V_w

Impinger 5	Final Weight		P_b =	29.76 ✓	$\%CO_2$ =	~~0.0~~
	Initial Weight		V_m =	—	$\%O_2$ =	~~20.1~~
	Increase		V_w =	—	%CO =	~~0.0~~
			P_m =	—	$\%N_2$ =	~~79.9~~
Impinger 6	Final Weight		Avg ΔP =	0.040 ✓	A_n =	16 ✓
	Initial Weight				D_n =	—
	Increase		Avg $\sqrt{\Delta P}$ =	~~0.198~~ 0.190 ✓	T_t =	60 ✓
			C_p =	0.806 ✓		
Impinger 7	Final Weight		P_s =	-0.10 ✓ "H_2O	29.73 ✓	"Hg
	Initial Weight		T_m =	— °F	—	°R
	Increase		T_s =	69 ✓ °F	529 ✓	°R

Moisture Content: %M = 2.39* ✓ M_d = 0.9761 ✓ MW_d = ~~28.84~~ 8.170 ** MW = ~~28.54~~ 8.40 ✓

*Assumed moisture at saturation. **Based on GC analysis of bag.

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65\ x\left[\frac{+\frac{}{13.6}}{+460}\right] = \_\_\_\ sft^3 = \_\_\_\ scfm$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x _____ = _____ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = _____ x 100 = _____ %

$$V_s = 5123.8 \times \frac{0.806}{\sqrt{\frac{529}{\text{~~28.54~~ 8.40} \times 29.75}}} \times \frac{\text{~~0.198~~ 0.190} \checkmark}{} = 1142 \checkmark = 645 \text{ fpm}$$

ACFM: 127 ✓

SCFM: 123 ✓

%I = 1,039 x _____ / (x x x x( )²) = _____ %

%EA: —

METCO ENVIRONMENTAL

Job Number 09-240 ✓ | Flow Field Data | Ambient Temp. °F 59°
Job Name Dietrich Corp. ✓ | Assumed Moisture % Sat Curve
Run Number 3 | Read and record at the start of each test point. | Probe Length 3
Unit Dehydrogenation Reactor ✓ Vent | C Factor – to reference.
Date 1-20-11 ✓ | Purge to: – | Initial Leak @ – "Hg = – cfm
Operator Moore / Pilgrim ✓ | Purge time: – | Final Leak @ – "Hg = – cfm
Sample box No. – Meter Box No. 43-1 ✓ | Pitot Leak Check Initial ✓ Final ✓ | Pitot Tips Damaged During Test? Yes (No)

Low Flow Monometer ΔP_s 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 Gauge	Stack Temp °F	Probe Temp °F	Oven Temp °F	Effluent Temp °F	Dry Gas Temp °F Inlet	Dry Gas Temp °F Outlet	Remarks
A 4			0.07				67						
3			0.06				68						
2			0.02				68						
1			0.01				68						
B 4			0.06				66						
3			0.06				67						
2			0.09				68						
1			0.02				68						
A 4			0.07				68						
3			0.06				68						
2			0.02				69						
1			0.02				69						
B 4			0.06				69						
3			0.06				69						
2			0.02				68						
1			0.02				69						

Pitot Tube Calibration Factor C_p 0.806 ✓
Volume Collected V_m – ft^3
Water Collected V_w – ml
Time of Test T_t 60 ✓ min.
Stack Pressure P_s -0.10 ✓ "H_2O

Pitot Tube No. PD-71 ✓
Baro. Press. P_b 29.76 ✓ "Hg
Probe Tip Dia. D_n – in.
% CO_2 ~~0.0~~ % CO ~~0.0~~
% O_2 ~~20.9~~ % N_2 ~~79.1~~

Barometer No. 43-1 ✓ Probe Tip No. –
Total Volume of Leak Checks After Start: – ft^3
V_m = Dry Gas Meter Calibration Factor – X –
Area Stack A_s 16 ✓ in^2
{Dry Gas Meter Reading – ft^3 – (T_t – min. X Leak Rate – cfm)}

QA/QC Check
Completeness / Legibility / Accuracy / Specifications / Reasonableness / Checked by:

Version 2
1 February 2008

D-6

09-240

Impinger Box No. _____

Water Weight Gain

Impinger 1	Final Weight			Impinger 1	
	Initial Weight				
	Increase			Impinger 2	
Impinger 2	Final Weight			Impinger 3	
	Initial Weight				
	Increase			Impinger 4	
			V_w =		
Impinger 3	Final Weight		g SO_2 =	Impinger 5	
	Initial Weight		V_w =		
	Increase			Impinger 6	
Impinger 4	Final Weight			Impinger 7	
	Initial Weight				
	Increase			Total	= V_w

Impinger 5	Final Weight		P_b = 29.76 ✓	%CO_2 = ~~0.0~~		
	Initial Weight		V_m = ~	%O_2 = ~~20.1~~		
	Increase		V_w = ~	%CO = ~~0.0~~		
			P_m = ~	%N_2 = ~~79.9~~		
Impinger 6	Final Weight		Avg ΔP = ~~0.85~~ 0.042 ✓ TR 2/7/11	A_n = 16 ✓		
	Initial Weight			D_n = ~		
	Increase		Avg $\sqrt{\Delta P}$ = 0.197 ✓	T_t = 60 ✓		
			C_p = 0.806 ✓			
Impinger 7	Final Weight		P_s = -0.10 ✓ "H_2O	29.75 ✓	"Hg	
	Initial Weight		T_m = ~ °F	~	°R	
	Increase		T_s = 68 ✓ °F	528 ✓	°R	

Moisture Content: %M = 2.3 *✓ M_d = 0.9769 ✓ MW_d = ~~28.904~~ 8,305 ** MW = ~~28.55~~ 8.53

*Assumed at saturation. ** Based on GC analysis of bag.

$$Vm_{std} = 17.65\ Vm\left[\frac{P_b + \frac{P_m}{13.6}}{T_m + 460}\right] = 17.65\ x\left[\frac{+\frac{}{13.6}}{+460}\right] = \_\_\_\_\ sft^3 = \_\_\_\_\ scfm$$

Vw_{gas} = 0.0472 x Vw = 0.0472 x _____ = _____ sft^3

% Moisture = $\frac{Vw_{gas}}{Vm_{std} + Vw_{gas}}$ x 100 = _____ x 100 = _____ %

V_s = 5123.8 x 0.806 $\sqrt{\frac{528\ ✓}{~~28.55~~\ 8.53 \times 29.75}}$ x 0.197 = ~~641~~ 1173 ✓ 2/14/11 fpm

ACFM: 130 ✓

SCFM: 127 ✓

%I = $\frac{1{,}039 \times \quad \times}{\times \quad \times \quad \times \quad \times(\quad)^2}$ = _____ %

%EA: _____

Job Number 09-240 | Rotometer/Orifice # 0111-58 | Probe Length 3 ft

Job Name Deltech Corporation | Operator Moore | Sample Point Mid

Run Number 1 | Ambient Temp. 55 °F | Purged Sample System Yes

Date 1-20-11 | Barometer Number 73-2 | Baro. Pressure P_b 29.76 "Hg

Canister Number 1385 | Initial Leak @ _____ "Hg = 0.000 Δ "Hg | Final Leak @ _____ "Hg = 0.000 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS
		Temp	
1120	—	30.00"	63°
1125	—	27.50"	62.8°
1130	—	27.00"	63.5°
1135	—	25.50"	67.5°
1140	—	25.00"	70.0°
1145	—	24.50"	71.9°
1150	—	24.00"	71.1°
1155	—	23.00"	70.3°
1200	—	22.50"	69.7°
1205	—	21.00"	68.7°
1210	—	20.00"	70.9°
1215	—	19.50"	71.7°
1220	—	19.00"	71.7°

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 09-240 | Rotometer/Orifice # _____ | Probe Length 3 ft

Job Name Duluth Cargo | Operator Moore | Sample Point Mid

Run Number 2 | Ambient Temp. 54 °F | Purged Sample System Yes

Date 1-20-11 | Barometer Number 43-2 | Baro. Pressure P_b 29.76 "Hg

Canister Number 1038 | Initial Leak @ _____ "Hg = 0.000 Δ "Hg | Final Leak @ _____ "Hg = 0.000 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	Temp. REMARKS
1225	—	30.00"	70°
1230	—	29.50"	69.9°
1235	—	28.00"	69.6°
1240	—	27.50"	72.4°
1245	—	26.00"	73.0°
1250	—	25.00"	73.1°
1255	—	24.00"	74.7°
1300	—	23.00"	73.6°
1305	—	22.00"	71.9°
1310	—	21.00"	72.6°
1315	—	20.00"	71.7°
1320	—	18.00"	69.3°
1325	—	16.50"	69.0°

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-9

09-240

Job Number 09-240 | Rotometer/Orifice # _____ | Probe Length 3 ft

Job Name Deltech | Operator Moore | Sample Point Mid

Run Number 3 | Ambient Temp. 57 °F | Purged Sample System Yes

Date 1-21-10 | Barometer Number 43-1 | Baro. Pressure P_b 29.70 "Hg

Canister Number 1604 | Initial Leak @ _____ "Hg = 0.000 Δ "Hg | Final Leak @ _____ "Hg = 0.000 Δ "Hg

CANISTER FIELD DATA

CLOCK TIME	ROTOMETER READING	CANISTER PRESSUE "Hg	REMARKS Temp
1335	—	30.00"	76°
1340	—	29.00"	76.4°
1345	—	27.50"	72.9°
1350	—	26.00"	71.4°
1355	—	25.50"	71°
1400	—	25.00"	71.1°
1405	—	23.00"	74.3°
1410	—	22.50"	72.9
1415	—	20.00"	72.5
1420	—	19.00"	69.9
1425	—	17.50"	69.2
1430	—	16.00"	68.1
1435			

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 ✓

Moisture Saturation Table

Temp. (°F)		Saturation* (%)
32	=	0.60
33	=	0.63
34	=	0.65
35	=	0.68
36	=	0.71
37	=	0.74
38	=	0.77
39	=	0.80
40	=	0.83
41	=	0.86
42	=	0.89
43	=	0.93
44	=	0.97
45	=	1.00
46	=	1.04
47	=	1.08
48	=	1.12
49	=	1.17
50	=	1.21
51	=	1.26
52	=	1.30
53	=	1.35
54	=	1.40
55	=	1.46
56	=	1.51
57	=	1.57
58	=	1.62
59	=	1.68
60	=	1.74
61	=	1.81
62	=	1.87
63	=	1.94
64	=	2.01
65	=	2.08
66	=	2.15
67	=	2.23
68	=	2.31
69	=	2.39
70	=	2.47
71	=	2.56
72	=	2.64
73	=	2.73
74	=	2.83
75	=	2.92
76	=	3.02
77	=	3.13
78	=	3.23
79	=	3.34

Temp. (°F)		Saturation* (%)
80	=	3.45
81	=	3.56
82	=	3.68
83	=	3.80
84	=	3.93
85	=	4.06
86	=	4.19
87	=	4.32
88	=	4.46
89	=	4.61
90	=	4.75
91	=	4.90
92	=	5.06
93	=	5.22
94	=	5.38
95	=	5.55
96	=	5.72
97	=	5.90
98	=	6.08
99	=	6.27
100	=	6.46
101	=	6.66
102	=	6.86
103	=	7.07
104	=	7.28
105	=	7.50
106	=	7.72
107	=	7.95
108	=	8.19
109	=	8.43
110	=	8.68
111	=	8.93
112	=	9.19
113	=	9.46
114	=	9.73
115	=	10.01
116	=	10.30
117	=	10.60
118	=	10.90
119	=	11.21
120	=	11.52
121	=	11.85
122	=	12.18
123	=	12.52
124	=	12.87
125	=	13.22
126	=	13.59
127	=	13.96
128	=	14.34
129	=	14.73

Temp. (°F)		Saturation* (%)
130	=	15.13
131	=	15.54
132	=	15.96
133	=	16.39
134	=	16.82
135	=	17.27
136	=	17.73
137	=	18.20
138	=	18.68
139	=	19.17
140	=	19.67
141	=	20.18
142	=	20.70
143	=	21.23
144	=	21.78
145	=	22.34
146	=	22.91
147	=	23.49
148	=	24.08
149	=	24.69
150	=	25.31
151	=	25.94
152	=	26.59
153	=	27.25
154	=	27.92
155	=	28.61
156	=	29.31
157	=	30.03
158	=	30.76
159	=	31.51
160	=	32.27
161	=	33.05
162	=	33.84
163	=	34.65
164	=	35.48
165	=	36.32
166	=	37.18
167	=	38.05
168	=	38.95
169	=	39.86
170	=	40.79
171	=	41.73
172	=	42.70
173	=	43.68
174	=	44.69
175	=	45.71
176	=	46.75
177	=	47.81
178	=	48.89
179	=	50.00

Temp. (°F)		Saturation* (%)
180	=	51.12
181	=	52.26
182	=	53.43
183	=	54.62
184	=	55.83
185	=	57.06
186	=	58.31
187	=	59.59
188	=	60.89
189	=	62.21
190	=	63.56
191	=	64.93
192	=	66.33
193	=	67.75
194	=	69.20
195	=	70.67
196	=	72.17
197	=	73.70
198	=	75.25
199	=	76.83
200	=	78.44
201	=	80.07
202	=	81.73
203	=	83.43
204	=	85.15
205	=	86.90
206	=	88.68
207	=	90.49
208	=	92.33
209	=	94.20
210	=	96.10
211	=	98.04
212	=	100.00

* At 29.92 "Hg (760 mm Hg)

APPENDIX E

Analytical Data

SUMMARY OF RESULTS

SCP Dehydrogenation Reactor Vent Flare

Compound	Molecular Weight (g/g-mole)	Run Number 1 (% Vol.)	Run Number 2 (% Vol.)	Run Number 3 (% Vol.)
Oxygen	32.00	0.06	0.08	0.15
Hydrogen	2.02	83.24	83.15	82.76
Nitrogen	28.01	2.14	2.22	2.42
Carbon Dioxide	44.01	10.80	10.82	10.88
Carbon Monoxide	28.01	0.14	0.14	0.14
Methane	16.04	1.99	1.98	1.98
Ethane	30.07	1.16	1.15	1.16
Propane	44.10	0.04	0.04	0.04
Butanes	58.12	0.01	0.01	0.01
Pentanes	72.15	0.003	0.003	0.003
Hexanes	86.18	0.40	0.41	0.45
Total - %		99.98	100.00	99.99
Molecular Weight		**8.131**	**8.170**	**8.305**

Note: Results were normalized.

METCO Environmental

3226 Commander Drive
Carrollton, TX 75006

Deltech Corporation
Baton Rouge, LA

Project # 09-240

Analytical Report
(0111-58)

EPA Method 18 Type

Methane, Ethane, Propane, Butane, Pentane, Hexane,
and Other Compounds as Cx

ASTM D1946-90

Hydrogen, Oxygen, Nitrogen, Carbon monoxide,
Methane, and Carbon dioxide

Enthalpy Analytical, Inc.
Phone: (919) 850 - 4392 / Fax: (919) 850 - 9012 / www.enthalpy.com
2202 Ellis Road Durham, NC 27703 - 5518

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 176 pages.

Michael Steven Schapira

QA Review Performed by: Michael Steven Schapira

Report Issued: 2/8/11

Summary of Results

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

Compound	Sample ID / Sample Concentration (%)		
	Run 1 Can 1385	***Run 2 Can 1038***	***Run 3 Can 1604***
Hydrogen	78.6	78.4	77.6
Oxygen	0.0594 J	0.0792 J	0.140 J
Nitrogen	2.02	2.09	2.27
Carbon monoxide	0.133 J	0.131 J	0.130 J
Methane	1.88	1.87	1.86
Carbon dioxide	10.2	10.2	10.2

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

Compound	Sample ID / Sample Concentration (ppm)		
	Run 1 Can 1385	***Run 2 Can 1038***	***Run 3 Can 1604***
Ethane	1,241	1,232	1,232
C2 as Ethane	9,711	9,598	9,691
Propane	10.7	10.6	10.6
C3 as Propane	388	386	388
Butane	2.50 J	2.53 J	2.51 J
C4 as Butane	56.5	56.3	56.9
Pentane	0.867 J	0.870 J	0.856 J
C5 as Pentane	31.7	33.5	32.5
Hexane	0.428 ND	0.432 ND	0.428 ND
C6 as Hexane	3,839	3,887	4,183

Results

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.160 (%)
LOQ 8.00 (%)
Compound Hydrogen

Lower Curve Limit 8.00 (%)
Upper Curve Limit 100 (%)

Sample ID	Lab ID # 1	Lab ID # 2	Analysis Method	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (%)	Conc # 2 (%)	% Diff Conc	Avg Conc (%)	DF	Tank Dilution	Sample Conc (%)	Qual
Run 1 Can 1385	003F2501.D	003F2502.D	GC115P80_HI_H2_0111-58.M	0.82	0.82	0.0	47.4	47.3	0.2	47.4	1	1.660	78.6	
Run 2 Can 1038	004F2601.D	004F2602.D	GC115P80_HI_H2_0111-58.M	0.82	0.82	0.1	46.8	46.9	0.1	46.8	1	1.675	78.4	
Run 3 Can 1604	006F2701.D	006F2702.D	GC115P80_HI_H2_0111-58.M	0.82	0.82	0.0	46.9	46.7	0.3	46.8	1	1.660	77.6	
He Blank	001F1501.D	001F1502.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	0.160	0.160	0.0	0.160	1	1	0.160	ND

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.0182 (%)
LOQ 0.182 (%)
Compound Oxygen

Lower Curve Limit 0.182 (%)
Upper Curve Limit 99.8 (%)

Sample ID	Lab ID # 1	Lab ID # 2	Analysis Method	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (%)	Conc # 2 (%)	% Diff Conc	Avg Conc (%)	DF	Tank Dilution	Sample Conc (%)	Qual
Run 1 Can 1385	003F2501.D	003F2502.D	GC115P80_HI_H2_0111-58.M	3.57	3.57	0.0	0.0364	0.0352	1.5	0.0358	1	1.660	0.0594	J
Run 2 Can 1038	004F2601.D	004F2602.D	GC115P80_HI_H2_0111-58.M	3.56	3.57	0.2	0.0479	0.0466	1.3	0.0472	1	1.675	0.0792	J
Run 3 Can 1604	006F2701.D	006F2702.D	GC115P80_HI_H2_0111-58.M	3.56	3.56	0.1	0.0846	0.0839	0.4	0.0842	1	1.660	0.140	J
He Blank	001F1501.D	001F1502.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	0.0182	0.0182	0.0	0.0182	1	1	0.0182	ND

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.0200 (%)
LOQ 0.200 (%)
Compound Nitrogen

Lower Curve Limit 0.200 (%)
Upper Curve Limit 100 (%)

Sample ID	Lab ID # 1	Lab ID # 2	Analysis Method	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (%)	Conc # 2 (%)	% Diff Conc	Avg Conc (%)	DF	Tank Dilution	Sample Conc (%)	Qual
Run 1 Can 1385	003F2501.D	003F2502.D	GC115P80_HI_H2_0111-58.M	4.05	4.06	0.0	1.22	1.21	0.3	1.22	1	1.660	2.02	
Run 2 Can 1038	004F2601.D	004F2602.D	GC115P80_HI_H2_0111-58.M	4.05	4.05	0.0	1.25	1.25	0.3	1.25	1	1.675	2.09	
Run 3 Can 1604	006F2701.D	006F2702.D	GC115P80_HI_H2_0111-58.M	4.05	4.05	0.0	1.38	1.36	0.6	1.37	1	1.660	2.27	
He Blank	001F1501.D	001F1502.D	GC115P80_HI_H2_0111-58.M	4.07	4.07	0.0	0.0255	0.0249	1.2	0.0252	1	1	0.0252	J

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.0200 (%)
LOQ 0.200 (%)
Compound Carbon monoxide

Lower Curve Limit 0.200 (%)
Upper Curve Limit 99.0 (%)

Sample ID	Lab ID # 1	Lab ID # 2	Analysis Method	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (%)	Conc # 2 (%)	% Diff Conc	Avg Conc (%)	DF	Tank Dilution	Sample Conc (%)	Qual
Run 1 Can 1385	003F2501.D	003F2502.D	GC115P80_HI_H2_0111-58.M	5.29	5.29	0.0	0.0808	0.0794	0.7	0.0800	1	1.660	0.133	J
Run 2 Can 1038	004F2601.D	004F2602.D	GC115P80_HI_H2_0111-58.M	5.29	5.29	0.0	0.0772	0.0788	1.0	0.0780	1	1.675	0.131	J
Run 3 Can 1604	006F2701.D	006F2702.D	GC115P80_HI_H2_0111-58.M	5.29	5.29	0.0	0.0790	0.0782	0.5	0.0786	1	1.660	0.130	J
He Blank	001F1501.D	001F1502.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	0.0200	0.0200	0.0	0.0200	1	1	0.0200	ND

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.0160 (%)
LOQ 0.160 (%)
Compound Methane

Lower Curve Limit 0.160 (%)
Upper Curve Limit 99.0 (%)

Sample ID	Lab ID # 1	Lab ID # 2	Analysis Method	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (%)	Conc # 2 (%)	% Diff Conc	Avg Conc (%)	DF	Tank Dilution	Sample Conc (%)	Qual
Run 1 Can 1385	003F2501.D	003F2502.D	GC115P80_HI_H2_0111-58.M	7.57	7.57	0.0	1.13	1.13	0.1	1.13	1	1.660	1.88	
Run 2 Can 1038	004F2601.D	004F2602.D	GC115P80_HI_H2_0111-58.M	7.57	7.57	0.0	1.12	1.11	0.9	1.11	1	1.675	1.87	
Run 3 Can 1604	006F2701.D	006F2702.D	GC115P80_HI_H2_0111-58.M	7.57	7.57	0.0	1.13	1.11	0.6	1.12	1	1.660	1.86	
He Blank	001F1501.D	001F1502.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	0.0160	0.0160	0.0	0.0160	1	1	0.0160	ND

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.0182 (%)
LOQ 0.182 (%)
Compound Carbon dioxide

Lower Curve Limit 0.182 (%)
Upper Curve Limit 99.8 (%)

Sample ID	Lab ID # 1	Lab ID # 2	Analysis Method	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (%)	Conc # 2 (%)	% Diff Conc	Avg Conc (%)	DF	Tank Dilution	Sample Conc (%)	Qual
Run 1 Can 1385	003F2501.D	003F2502.D	GC115P80_HI_H2_0111-58.M	9.35	9.34	0.1	6.18	6.17	0.1	6.17	1	1.660	10.2	
Run 2 Can 1038	004F2601.D	004F2602.D	GC115P80_HI_H2_0111-58.M	9.34	9.34	0.0	6.14	6.09	0.4	6.11	1	1.675	10.2	
Run 3 Can 1604	006F2701.D	006F2702.D	GC115P80_HI_H2_0111-58.M	9.34	9.34	0.0	6.17	6.10	0.6	6.13	1	1.660	10.2	
He Blank	001F1501.D	001F1502.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	0.0182	0.0182	0.0	0.0182	1	1	0.0182	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.250 (ppm)
LOQ 2.50 (ppm)
Compound Ethane

Lower Curve Limit 2.50 (ppm)
Upper Curve Limit 50,200 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	1.46	1.45	1.46	0.1	755	740	749	1.0	748	1	1.660	1,241	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	1.46	1.46	1.46	0.1	732	738	736	0.5	736	1	1.675	1,232	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	1.46	1.46	1.46	0.0	742	744	740	0.2	742	1	1.660	1,232	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	NA	NA		NA	0.250	0.250		0.0	0.250	1	1	0.250	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.250 (ppm)
LOQ 2.50 (ppm)
Compound C2 as Ethane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	5,903	5,792	5,857	1.0	5,851	1	1.660	9,711	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	5,701	5,751	5,735	0.5	5,729	1	1.675	9,598	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	5,839	5,852	5,826	0.2	5,839	1	1.660	9,691	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	0.250	0.250		0.0	0.250	1	1	0.250	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.250 (ppm)
LOQ 2.50 (ppm)
Compound Propane

Lower Curve Limit 2.50 (ppm)
Upper Curve Limit 50,000 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	2.29	2.29	2.29	0.0	6.55	6.33	6.53	2.1	6.47	1	1.660	10.7	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	2.29	2.29	2.29	0.0	6.26	6.35	6.43	1.3	6.35	1	1.675	10.6	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	2.29	2.29	2.29	0.0	6.40	6.46	6.37	0.8	6.41	1	1.660	10.6	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	NA	NA		NA	0.250	0.250		0.0	0.250	1	1	0.250	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.250 (ppm)
LOQ 2.50 (ppm)
Compound C3 as Propane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	236	231	234	1.0	234	1	1.660	388	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	229	231	231	0.5	231	1	1.675	386	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	234	234	233	0.2	234	1	1.660	388	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	0.250	0.250		0.0	0.250	1	1	0.250	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.250 (ppm)
LOQ 2.50 (ppm)
Compound Butane

Lower Curve Limit 2.50 (ppm)
Upper Curve Limit 10,200 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	4.94	4.95	4.95	0.1	1.50	1.50	1.51	0.3	1.51	1	1.660	2.50	J
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	4.95	4.95	4.95	0.1	1.50	1.49	1.54	1.9	1.51	1	1.675	2.53	J
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	4.95	4.95	4.95	0.0	1.53	1.49	1.52	1.7	1.51	1	1.660	2.51	J
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	NA	NA		NA	0.250	0.250		0.0	0.250	1	1	0.250	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.250 (ppm)
LOQ 2.50 (ppm)
Compound C4 as Butane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	34.4	33.7	34.1	1.1	34.1	1	1.660	56.5	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	33.5	33.6	33.7	0.3	33.6	1	1.675	56.3	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	34.4	34.2	34.2	0.3	34.3	1	1.660	56.9	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	0.250	0.250		0.0	0.250	1	1	0.250	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.247 (ppm)
LOQ 2.47 (ppm)
Compound Pentane

Lower Curve Limit 2.47 (ppm)
Upper Curve Limit 2,004 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	6.43	6.43	6.43	0.0	0.500	0.531	0.537	4.4	0.523	1	1.660	0.867	J
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	6.43	6.43	6.43	0.0	0.514	0.525	0.519	1.1	0.519	1	1.675	0.870	J
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	6.43	6.43	6.43	0.0	0.514	0.524	0.510	1.8	0.516	1	1.660	0.856	J
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	NA	NA		NA	0.247	0.247		0.0	0.247	1	1	0.247	ND

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09-240

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.247 (ppm)
LOQ 2.47 (ppm)
Compound C5 as Pentane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	19.2	19.1	19.1	0.4	19.1	1	1.660	31.7	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	19.9	20.0	20.0	0.5	20.0	1	1.675	33.5	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	19.6	19.6	19.6	0.1	19.6	1	1.660	32.5	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	0.247	0.247		0.0	0.247	1	1	0.247	ND

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.258 (ppm)
LOQ 2.58 (ppm)
Compound Hexane

Lower Curve Limit 2.58 (ppm)
Upper Curve Limit 998 (ppm)

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Ret Time (min)	Ret Time (min)	Ret Time (min)	% Diff Ret	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	NA	0.258	0.258	0.258	0.0	0.258	1	1.660	0.428	ND
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	NA	0.258	0.258	0.258	0.0	0.258	1	1.675	0.432	ND
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	NA	NA	NA	NA	0.258	0.258	0.258	0.0	0.258	1	1.660	0.428	ND
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	NA	NA		NA	0.258	0.258		0.0	0.258	1	1	0.258	ND

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09-240

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Tanks
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

MDL 0.258 (ppm)
LOQ 2.58 (ppm)
Compound C6 as Hexane

Sample ID	Lab ID # 1	Lab ID # 2	Lab ID # 3	Analysis Method	Conc # 1 (ppm)	Conc # 2 (ppm)	Conc # 3 (ppm)	% Diff Conc	Avg Conc (ppm)	DF	Tank Dilution	Sample Conc (ppm)	Qual
Run 1 Can 1385	019B0803.D	019B0901.D	019B0902.D	GC115P80_HI_H2_0111-58.M	2,330	2,291	2,318	1.0	2,313	1	1.660	3,839	
Run 2 Can 1038	020B1001.D	020B1002.D	020B1003.D	GC115P80_HI_H2_0111-58.M	2,301	2,339	2,321	0.8	2,320	1	1.675	3,887	
Run 3 Can 1604	022B1101.D	022B1102.D	022B1103.D	GC115P80_HI_H2_0111-58.M	2,519	2,525	2,517	0.2	2,520	1	1.660	4,183	
He Blank	017B1501.D	017B1502.D		GC115P80_HI_H2_0111-58.M	0.258	0.258		0.0	0.258	1	1	0.258	ND

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09-240

Company	METCO Environmental
Analyst	CJT
Parameters	Tank Dilutions
# Samples	3

Client #	09-240
Job #	0111-58
PO #	Verbal
Report Date	2/4/2011

					Pre-sample			Post-sample			Final		
Sample ID	Tank ID	Tank Dilution	Canister Size	Sample Vol (L) at STP	Temp Field (F)	P_{bar} Field (mmHg)	Gauge Field (mmHg)	Temp Lab/Field (F)	P_{bar} Lab/Field (mmHg)	Gauge Lab/Field (mmHg)	Temp Lab (F)	P_{bar} Lab (mmHg)	Gauge Lab (mmHg)
Run 1	1385	1.660	6.0	6.02	68.0	760	-760	70.0	757	7.9	70.0	757	513
Run 2	1038	1.675	6.0	6.02	68.0	760	-760	70.0	757	7.8	70.0	757	525
Run 3	1604	1.660	6.0	6.04	68.0	760	-760	70.0	757	11.1	70.0	757	518

The tank dilution factors are calculated using the following formula:

$$\frac{\frac{GaugeLab + PbarLab}{TempLab + 460}}{\frac{GaugeLab\ /\ Field + PbarLab\ /\ Field}{TempLab\ /\ Field + 460} - \frac{GaugeField + PbarField}{TempField + 460}}$$

Narrative Summary

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	CJT
Parameters	ASTM D1946-90
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	verbal
Report Date	February 4, 2011

Custody

Heather Tarjeft received the samples on 1/25/11 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 6-port Valco gas sampling valve equipped with a stainless steel loop. All target analytes were referenced to certified gas phase standards.

Upon receipt, the tank pressures were measured and recorded. The tanks were then pressurized and a dilution ratio was calculated for each tank (see Tank Dilution Sheet).

The Agilent Technologies Model 6890N, Gas Chromatograph ("Betty" S/N US10430048) was equipped with a Thermal Conductivity Detector and a Restek Shin Carbon ST, 2 m x 1 mm column (S/N C19538-13).

Calibration

The calibration curves are located in the back of this report and referenced in the Analysis Method column on the Detailed Results page.

For each calibration curve used, 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 methods GC115P025.M and GC115P80.M are included in the Calibration Curve Chromatograms section of this report.

Enthalpy Analytical Narrative Summary
(continued)

QC Notes

Nitrogen was identified below the LOQ in the analysis of the helium blank; none of the other target analytes were identified above the MDL.

All sample preparation and analytical holding times specified in the method were met.

Reporting Notes

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

Enthalpy Analytical Narrative Summary

Company	METCO Environmental
Analyst	CJT
Parameters	EPA Method 18 Type
# Samples	3 Runs

Client #	09-240
Job #	0111-58
PO #	verbal
Report Date	February 4, 2011

Custody

Heather Tarjeft received the samples on 1/25/11 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, and other compounds as Cx 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 6-port Valco gas sampling valve equipped with a stainless steel loop. All n-alkane target analytes were referenced to certified gas phase standards.

The retention time for each n-alkane is used to generate retention time windows for other Cx as compounds. For example, the areas for all peaks between 5.70 and 6.95 minutes (except for n-pentane) are summed, the total referenced to the calibrated n-pentane response, and the result labeled "C_5 as Pentane".

Upon receipt, the tank pressures were measured and recorded. The tanks were then pressurized and a dilution ratio was calculated for each tank (see Tank Dilution Sheet).

The Agilent Technologies Model 6890N, Gas Chromatograph ("Betty" S/N US10430048) was equipped with a Flame Ionization Detector and a Restek Rtx-1 30m x 0.32mm x 4.0um column (S/N 945433).

Calibration

The calibration curve are located in the back of this report and 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 Narrative Summary
(continued)

Chromatographic Conditions

The acquisition methods GC115P025.M and GC115P80.M are included in the Calibration Curve Chromatograms section of this report.

QC Notes

No target analyte was identified above the MDL in the analyses of the helium blank.

All sample preparation and analytical holding times specified in the method were met.

Reporting Notes

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

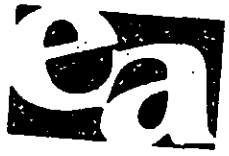
Due to the high concentrations of methane present in the samples, the methane results were reported from the ASTM D1946-90 analysis rather than the Method 18 type analysis.

Enthalpy Analytical, Inc. is accredited to perform this method for compliance purposes by the National Environmental Laboratory Accreditation Conference (NELAC) through the Louisiana Environmental Laboratory Accreditation Program (LELAP), certificate number 04010.

General Reporting Notes

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

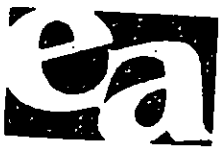
- The acronym ***MDL*** represents the Minimum Detection Limit. Below this value the laboratory cannot determine the presence of the analyte of interest reliably.
- The acronym ***LOQ*** represents the Limit of Quantification. Below this value the laboratory cannot quantitate the analyte of interest 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*** following a value indicates an analytical result between the MDL and the LOQ. A J flag indicates that the laboratory can positively identify the analyte of interest as present, but the value should be considered an estimate.
- The letter ***E*** following a value 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. This shows 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 an 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).
- 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 extra spikes are prepared. The extras (randomly chosen) 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.



General Reporting Notes
(continued)

- **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. 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.

Sample Custody



METCO
Environmental

CHAIN OF CUSTODY RECORD

Page 1 of 1

Job No.: 09-240
Job Name: Deltech Corporation
Location: Baton Rouge, LA
Unit: De-hydrogenation Reactor Vent Flow

Project Manager: Lewis Adams
Project Supervisor: David Moore

Method: 18

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	SAMPLE ANALYSIS REQUIRED: PART	HCL	CL2	SO2	SO3	Bill Cntct		Recovered by	REMARKS (Specific Compounds/Methods)
Run 1 Canister	1-20-11	1220	1											
Run 2 Canister	1-20-11	1325	1								✓		David Moore	Can 1385
Run 3 Canister	1-20-11	1445	1								✓		D. Moore	Can 1038
											✓		D. Moore	Can 1604

Samples Received for Transport/Shipment by: David Moore — Date: 1-20-11 — Time: 16:00
Samples Received for Transport/Shipment by: — Date: — Time:
Samples Received for Transport/Shipment by: — Date: — Time:
Samples Shipped Via: — Date: — Time:
Samples Received at Laboratory by: Heather Meyer — Date: 1/25/11 — Time: 9:42AM HLT 1/25/11 9:42AM
Samples Analyzed by: — Date: — Time:
Samples Analyzed by: — Date: — Time:
Data Checked by: — Date: — Time:

Temp = Ambient

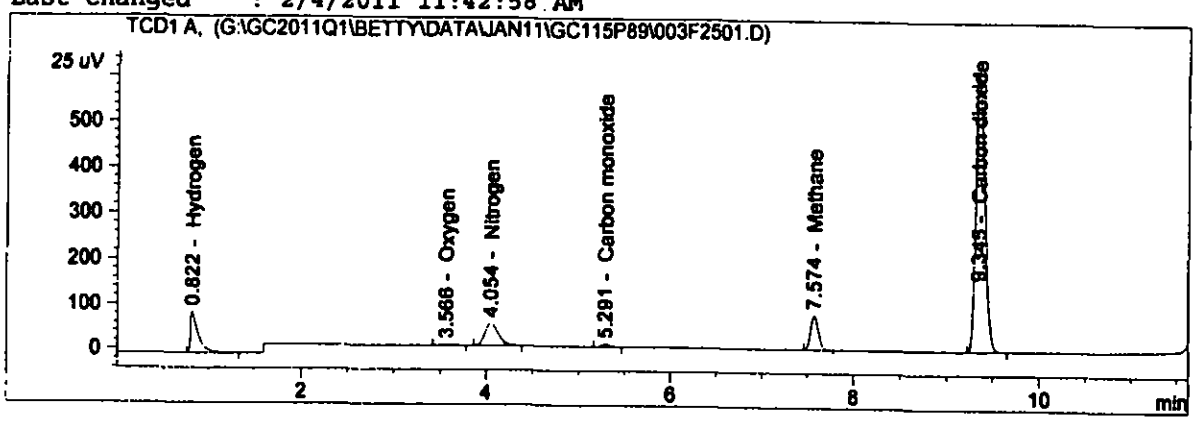
E-34

VERSION 2
10 MARCH 2003

Sample Chromatograms

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\003F2501.D
Sample Name: Run 1 Can 1385 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 15:40:30
Seq. Line : 25
Location : Vial 3
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 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
0.822	BB	537.89722	8.82112e-2	47.44854		Hydrogen
3.566	BB	14.69640	2.47362e-3	3.63532e-2		Oxygen
4.054	BB	510.43228	2.39122e-3	1.22056		Nitrogen
5.291	BB	37.38500	2.15682e-3	8.06327e-2		Carbon monoxide
7.574	BB	454.51202	2.49688e-3	1.13486		Methane
9.345	BB	4193.89551	1.47341e-3	6.17934		Carbon dioxide
Totals :				56.10028		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\003F2502.D
Sample Name: Run 1 Can 1385 0111-58

```
Acq. Operator    : cjt                              Seq. Line :  25
Acq. Instrument  : Betty                             Location : Vial 3
Injection Date   : 29-Jan-11, 16:02:54                    Inj :   2
                                                   Inj Volume : External
Acq. Method      : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed     : 1/24/2011 3:39:42 PM
Analysis Method  : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed     : 2/4/2011 11:42:58 AM
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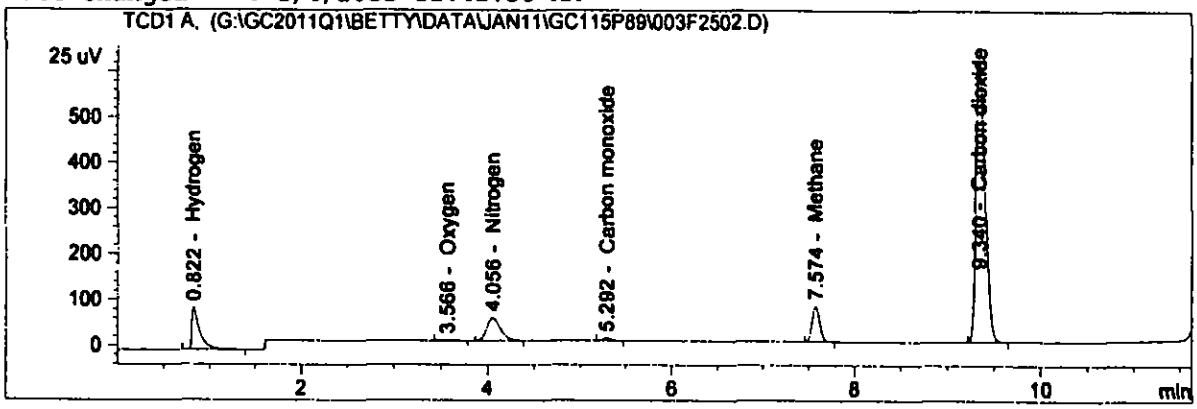

External Standard Report

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Sorted By             :      Signal
Calib. Data Modified  :      2/4/2011 11:42:33 AM
Multiplier:                   :      1.0000
Dilution:                     :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: TCD1 A,

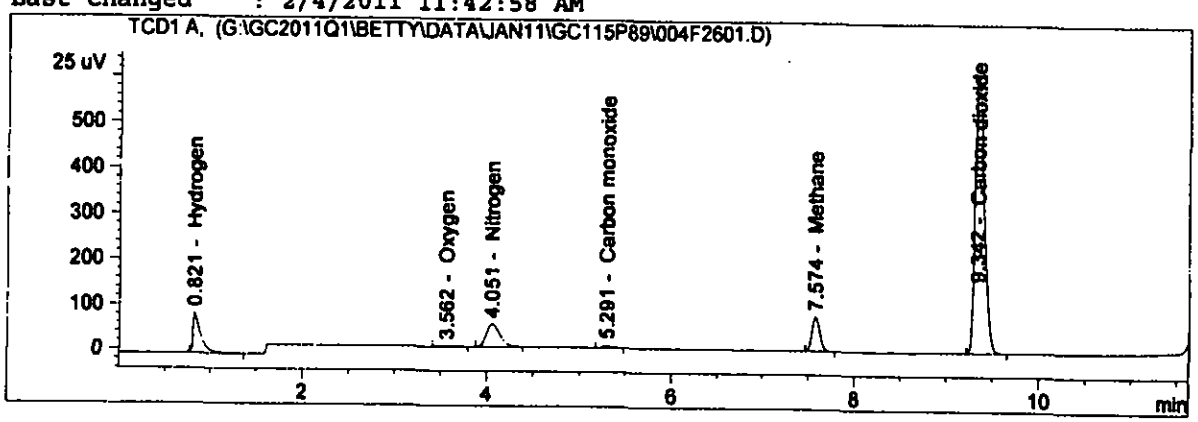
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.822	VB	536.02264	8.82209e-2	47.28838		Hydrogen
3.566	BB	14.24804	2.47362e-3	3.52442e-2		Oxygen
4.056	BB	507.02515	2.39072e-3	1.21215		Nitrogen
5.292	BB	36.83500	2.15682e-3	7.94464e-2		Carbon monoxide
7.574	BB	453.28931	2.49683e-3	1.13179		Methane
9.340	BB	4186.60254	1.47341e-3	6.16858		Carbon dioxide
Totals :				55.91560		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
Totals :				0.00000		

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\004F2601.D
ample Name: Run 2 Can 1038 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 16:25:08
Seq. Line : 26
Location : Vial 4
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 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
0.821	BB	530.19635	8.82515e-2	46.79061		Hydrogen
3.562	BB	19.35365	2.47362e-3	4.78735e-2		Oxygen
4.051	BB	523.61212	2.39309e-3	1.25305		Nitrogen
5.291	BB	35.79376	2.15682e-3	7.72007e-2		Carbon monoxide
7.574	BB	450.47861	2.49671e-3	1.12471		Methane
9.342	BB	4164.77686	1.47340e-3	6.13639		Carbon dioxide

Totals : 55.42985

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\004F2602.D
Sample Name: Run 2 Can 1038 0111-58

```
Acq. Operator    : cjt                              Seq. Line :  26
Acq. Instrument  : Betty                             Location : Vial 4
Injection Date   : 29-Jan-11, 16:47:23                    Inj :  2
                                                   Inj Volume : External
Acq. Method      : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed     : 1/24/2011 3:39:42 PM
Analysis Method  : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed     : 2/4/2011 11:45:02 AM
                   (modified after loading)
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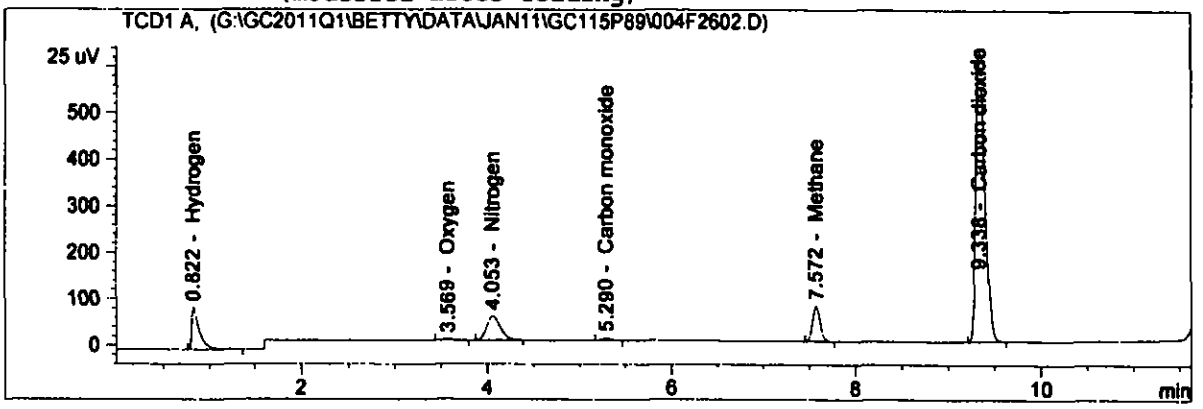

External Standard Report

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Sorted By             :      Signal
Calib. Data Modified  :      2/4/2011 11:45:01 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
0.822	BB	531.03766	8.82470e-2	46.86249		Hydrogen
3.569	BB	18.84942	2.47362e-3	4.66262e-2		Oxygen
4.053	BB	520.65533	2.39268e-3	1.24576		Nitrogen
5.290	BB	36.55016	2.15682e-3	7.88321e-2		Carbon monoxide
7.572	BB	442.69977	2.49636e-3	1.10514		Methane
9.338	BB	4130.69482	1.47339e-3	6.08612		Carbon dioxide

Totals : 55.42497

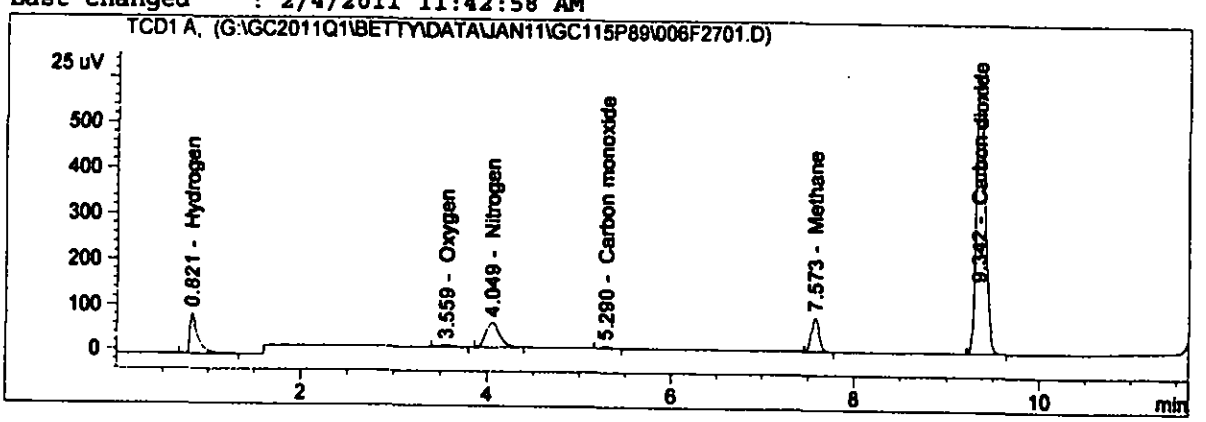
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 0.00000

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\006F2701.D
ample Name: Run 3 Can 1604 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 17:09:33
Seq. Line : 27
Location : Vial 6
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 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
0.821	BB	531.42389	8.82450e-2	46.89549		Hydrogen
3.559	BB	34.19097	2.47362e-3	8.45753e-2		Oxygen
4.049	BB	573.11676	2.39936e-3	1.37512		Nitrogen
5.290	BB	36.62743	2.15682e-3	7.89987e-2		Carbon monoxide
7.573	BB	451.19843	2.49674e-3	1.12652		Methane
9.342	BB	4186.19043	1.47341e-3	6.16798		Carbon dioxide

Totals : 55.72868

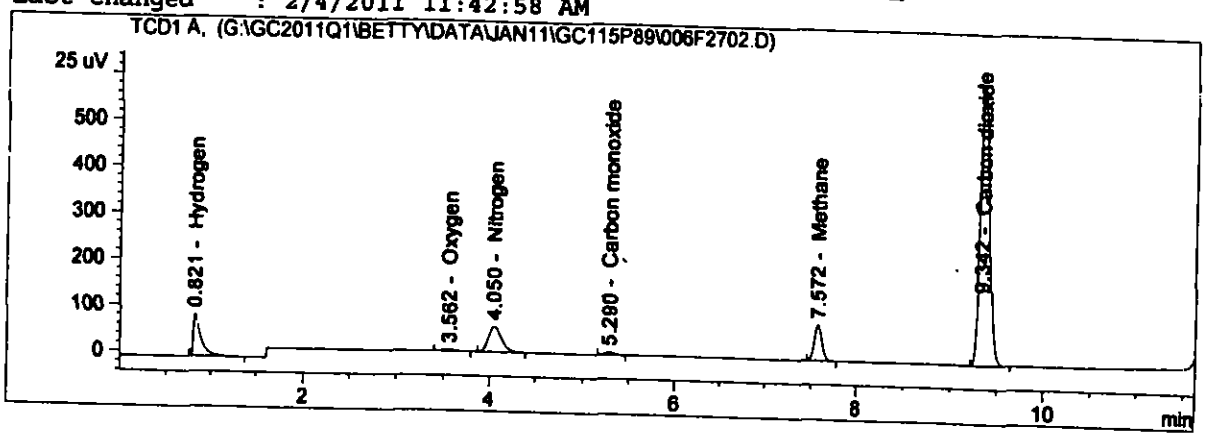
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\006P2702.D
Sample Name: Run 3 Can 1604 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 17:31:41
Seq. Line : 27
Location : Vial 6
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 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
0.821	BB	528.63843	8.82598e-2	46.65751		Hydrogen
3.562	BB	33.90696	2.47362e-3	8.38728e-2		Oxygen
4.050	BB	566.57306	2.39860e-3	1.35898		Nitrogen
5.290	BB	36.26171	2.15682e-3	7.82100e-2		Carbon monoxide
7.572	BB	445.99802	2.49651e-3	1.11344		Methane
9.342	BB	4137.09180	1.47339e-3	6.09555		Carbon dioxide

Totals : 55.38757

Signal 2: FID2 B, not found

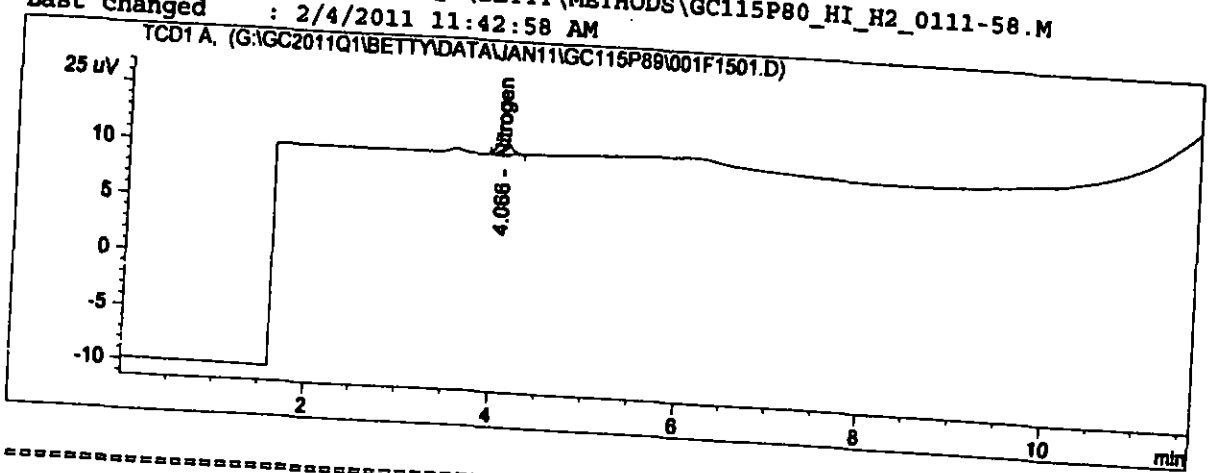
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\001F1501.D
Sample Name: He Blank

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 17:49:00
Seq. Line : 15
Location : Vial 1
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 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
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.066	BB	12.31748	2.07189e-3	2.55205e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 2.55205e-2

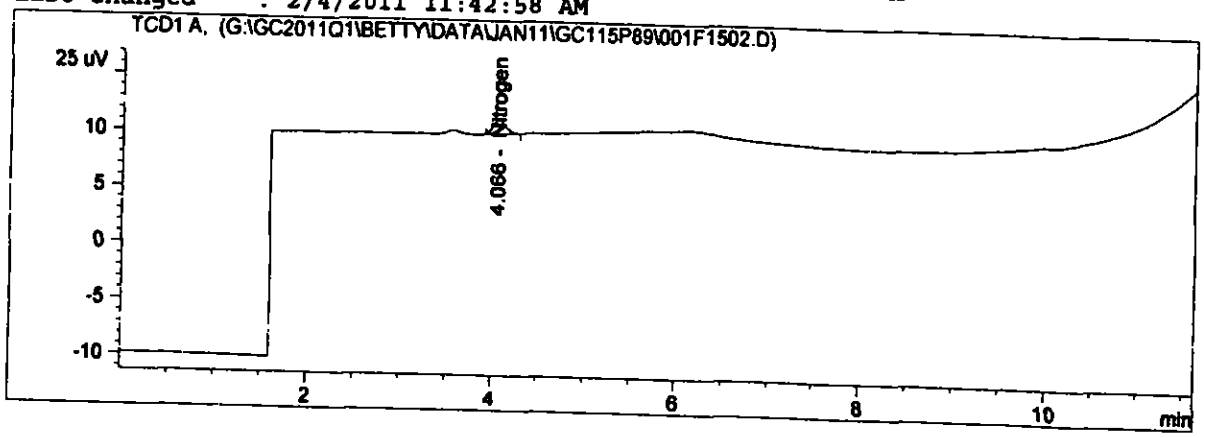
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\001F1502.D
Sample Name: He Blank

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 18:11:02
Seq. Line : 15
Location : Vial 1
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 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
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.066	BB	12.02264	2.07189e-3	2.49096e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 2.49096e-2

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

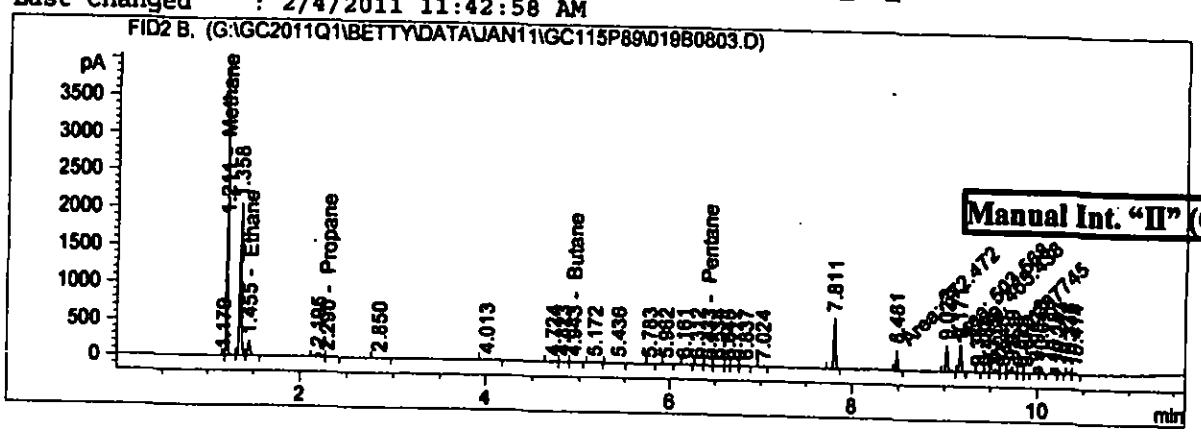
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\019B0803.D
Sample Name: Run 1 Can 1385 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 12:22:34

Seq. Line : 8
Location : Vial 19
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



Manual Int. "II" (CJT)

External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: PID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.211	PV	2952.47363	3.82064	1.12804e4		Methane
1.455	VB	340.80063	2.21402	754.53979		Ethane
2.290	VB	4.50388	1.45428	6.54991		Propane
4.943	VB	1.42749	1.05416	1.50480		Butane
6.433	BV	5.90390e-1	8.46109e-1	4.99534e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.20434e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\019B0803.D
Sample Name: Run 1 Can 1385 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2676.59595	5.903e3
as Propane	1.850	3.600	159.69410	235.6718
as Butane	3.600	5.700	31.17460	34.3601
as Pentane	5.700	6.950	21.71957	19.1924
as Hexane	6.950	11.600	3074.76271	2.330e3

Totals : 8522.4380

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2676.59595	5.903e3
as Propane	159.69410	235.6718
as Butane	31.17460	34.3601
as Pentane	21.71957	19.1924
as Hexane	3074.76271	2.330e3
Methane	2952.47363	1.128e4
Ethane	340.80063	754.5398
Propane	4.50388	6.5499
Butane	1.42749	1.5048
Pentane	5.90390e-1	0.4995
Hexane	0.00000	0.0000

Totals : 2.0566e4

Signal 2: TCD1 A, not found

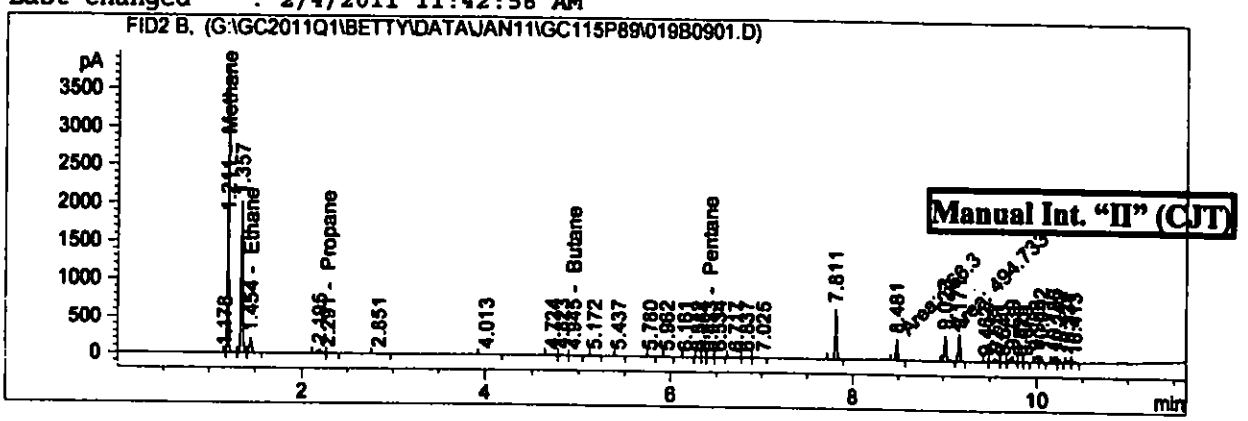
Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\019B0901.D
Sample Name: Run 1 Can 1385 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 12:44:13
Seq. Line : 9
Location : Vial 19
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.211	PV	2897.16382	3.82064	1.10690e4		Methane
1.454	VB	334.39191	2.21402	740.34955		Ethane
2.291	VB	4.35990	1.45297	6.33479		Propane
4.945	VB	1.42751	1.05416	1.50483		Butane
6.433	VV	6.28149e-1	8.46109e-1	5.31483e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.18178e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\019B0901.D
Sample Name: Run 1 Can 1385 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2626.04053	5.792e3
as Propane	1.850	3.600	156.78811	231.3832
as Butane	3.600	5.700	30.55615	33.6784
as Pentane	5.700	6.950	21.57610	19.0657
as Hexane	6.950	11.600	3023.30909	2.291e3

Totals : 8366.8505

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2626.04053	5.792e3
as Propane	156.78811	231.3832
as Butane	30.55615	33.6784
as Pentane	21.57610	19.0657
as Hexane	3023.30909	2.291e3
Methane	2897.16382	1.107e4
Ethane	334.39191	740.3495
Propane	4.35990	6.3348
Butane	1.42751	1.5048
Pentane	6.28149e-1	0.5315
Hexane	0.00000	0.0000

Totals : 2.0185e4

Signal 2: TCD1 A, not found

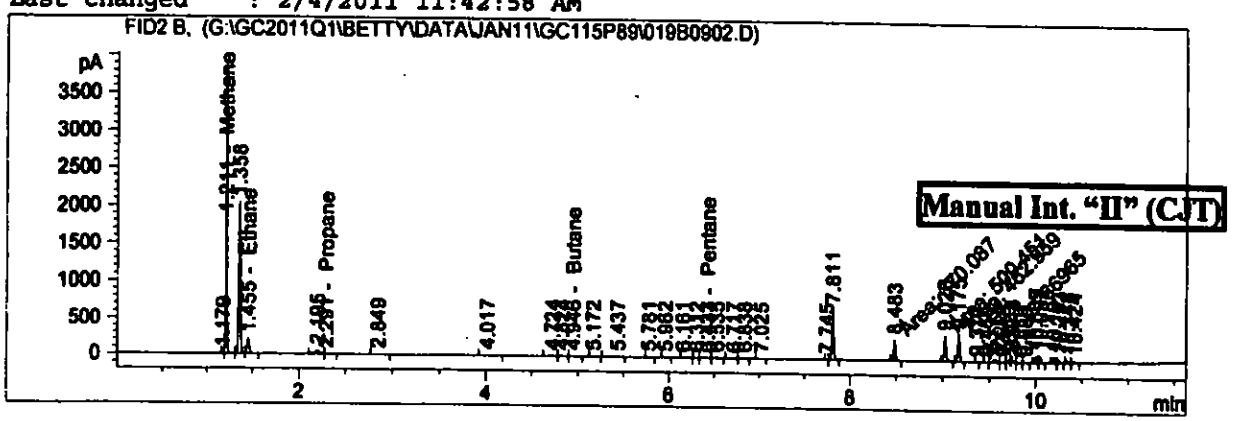
Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\019B0902.D
Sample Name: Run 1 Can 1385 0111-58

Acq. Operator	: cjt	Seq. Line	: 9
Acq. Instrument	: Betty	Location	: Vial 19
Injection Date	: 28-Jan-11, 13:05:55	Inj	: 2
		Inj Volume	: External
Acq. Method	: G:\GC2011Q1\BETTY\METHODS\GC115P80.M		
Last changed	: 1/24/2011 3:39:42 PM		
Analysis Method	: G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M		
Last changed	: 2/4/2011 11:42:58 AM		



External Standard Report

Sorted By	:	Signal
Calib. Data Modified	:	2/4/2011 11:42:33 AM
Multiplier:	:	1.0000
Dilution:	:	1.0000

Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.211	PV	2929.49512	3.82064	1.11926e4		Methane
1.455	VB	338.14801	2.21402	748.66634		Ethane
2.291	VB	4.49014	1.45416	6.52939		Propane
4.946	VB	1.43362	1.05416	1.51127		Butane
6.433	VV	6.34376e-1	8.46109e-1	5.36751e-1		Pentane
7.389		-	-	-		Hexane
Totals :				1.19498e4		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\019B0902.D
Sample Name: Run 1 Can 1385 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2655.81079	5.857e3
as Propane	1.850	3.600	158.50115	233.9112
as Butane	3.600	5.700	30.94939	34.1118
as Pentane	5.700	6.950	21.58945	19.0775
as Hexane	6.950	11.600	3059.20065	2.318e3

Totals : 8462.6798

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2655.81079	5.857e3
as Propane	158.50115	233.9112
as Butane	30.94939	34.1118
as Pentane	21.58945	19.0775
as Hexane	3059.20065	2.318e3
Methane	2929.49512	1.119e4
Ethane	338.14801	748.6663
Propane	4.49014	6.5294
Butane	1.43362	1.5113
Pentane	6.34376e-1	0.5368
Hexane	0.00000	0.0000

Totals : 2.0412e4

Signal 2: TCD1 A, not found

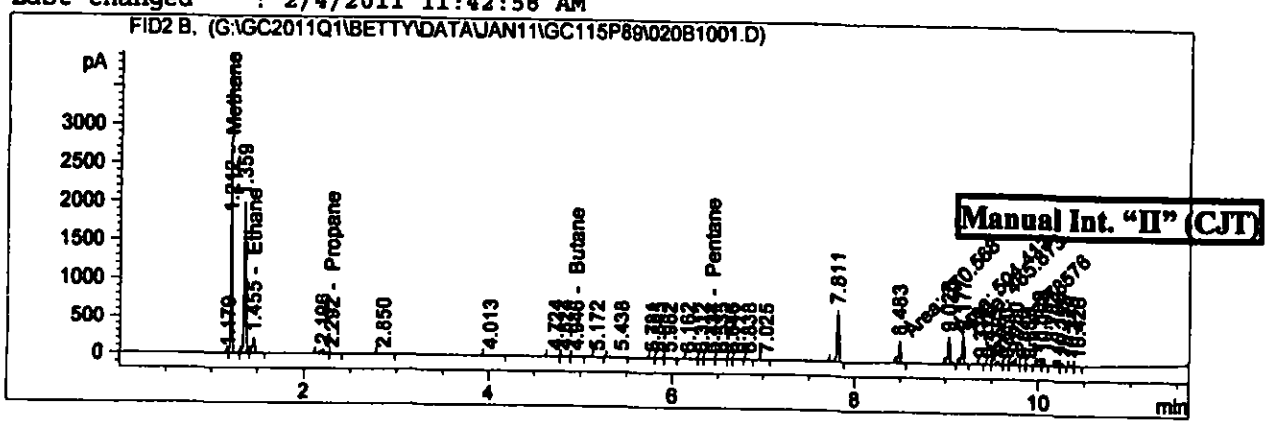
Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

*** End of Report ***

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\020B1001.D
ample Name: Run 2 Can 1038 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 13:27:35
Seq. Line : 10
Location : Vial 20
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PV	2867.57642	3.82064	1.09560e4		Methane
1.455	VB	330.62924	2.21402	732.01823		Ethane
2.292	VB	4.31163	1.45251	6.26268		Propane
4.946	VB	1.42660	1.05416	1.50387		Butane
6.434	VV	6.07120e-1	8.46109e-1	5.13689e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.16963e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\020B1001.D
Sample Name: Run 2 Can 1038 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2584.75317	5.701e3
as Propane	1.850	3.600	155.44249	229.3974
as Butane	3.600	5.700	30.39680	33.5028
as Pentane	5.700	6.950	22.49043	19.8736
as Hexane	6.950	11.600	3036.41659	2.301e3

Totals : 8284.3686

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2584.75317	5.701e3
as Propane	155.44249	229.3974
as Butane	30.39680	33.5028
as Pentane	22.49043	19.8736
as Hexane	3036.41659	2.301e3
Methane	2867.57642	1.096e4
Ethane	330.62924	732.0182
Propane	4.31163	6.2627
Butane	1.42660	1.5039
Pentane	6.07120e-1	0.5137
Hexane	0.00000	0.0000

Totals : 1.9981e4

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

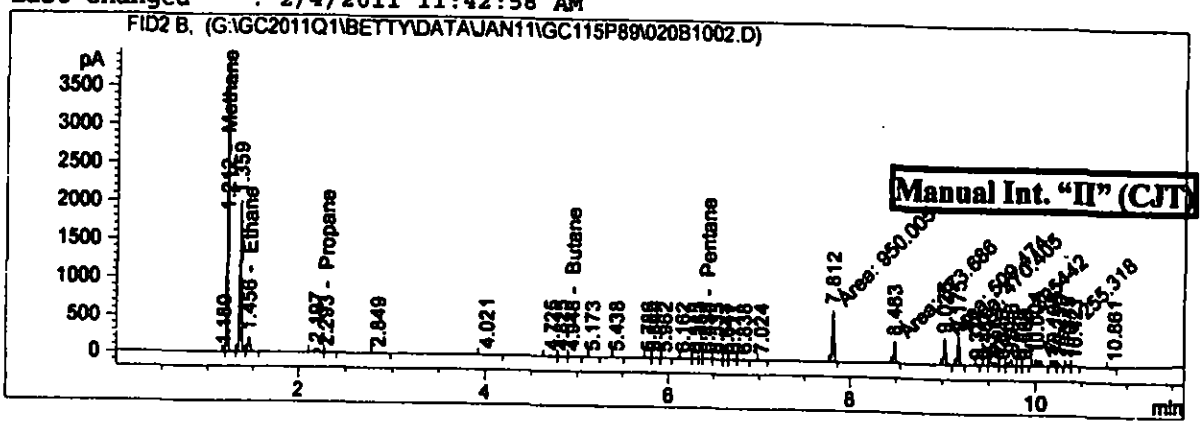
*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\020B1002.D
Sample Name: Run 2 Can 1038 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 13:49:13

Seq. Line : 10
Location : Vial 20
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PV	2892.81152	3.82064	1.10524e4		Methane
1.456	VB	333.54068	2.21402	738.46476		Ethane
2.293	VB	4.37237	1.45309	6.35343		Propane
4.948	VB	1.41200	1.05416	1.48848		Butane
6.434	VV	6.20567e-1	8.46109e-1	5.25067e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.17992e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\020B1002.D
Sample Name: Run 2 Can 1038 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2607.71436	5.751e3
as Propane	1.850	3.600	156.78751	231.3823
as Butane	3.600	5.700	30.48395	33.5988
as Pentane	5.700	6.950	22.65478	20.0188
as Hexane	6.950	11.600	3086.31557	2.339e3

Totals : 8375.0473

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2607.71436	5.751e3
as Propane	156.78751	231.3823
as Butane	30.48395	33.5988
as Pentane	22.65478	20.0188
as Hexane	3086.31557	2.339e3
Methane	2892.81152	1.105e4
Ethane	333.54068	738.4648
Propane	4.37237	6.3534
Butane	1.41200	1.4885
Pentane	6.20567e-1	0.5251
Hexane	0.00000	0.0000

Totals : 2.0174e4

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

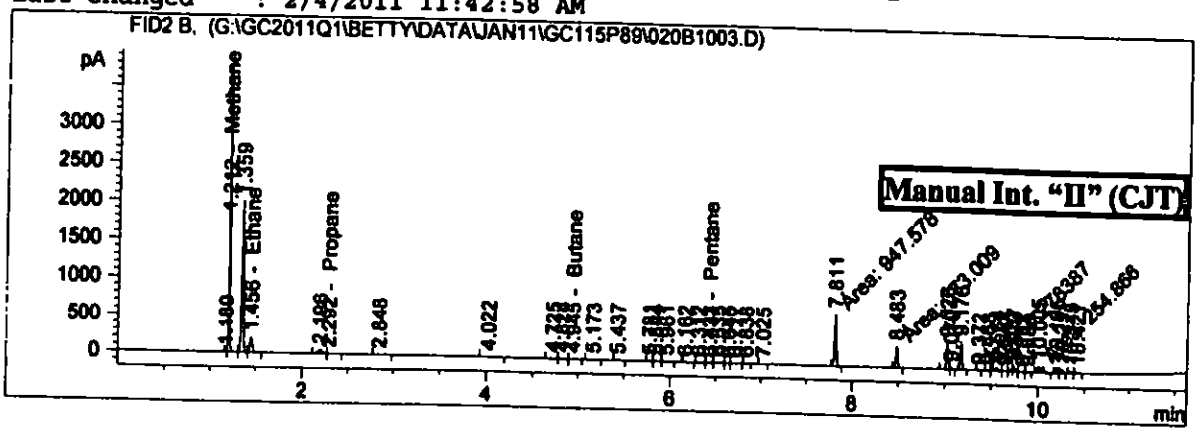
*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\020B1003.D
Sample Name: Run 2 Can 1038 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 14:10:55

Seq. Line : 10
Location : Vial 20
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PV	2884.48462	3.82064	1.10206e4		Methane
1.456	VB	332.57785	2.21402	736.33285		Ethane
2.292	VB	4.42286	1.45355	6.42887		Propane
4.945	VB	1.45997	1.05416	1.53905		Butane
6.433	BV	6.13582e-1	8.46109e-1	5.19157e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.17654e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\020B1003.D
Sample Name: Run 2 Can 1038 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2600.07471	5.735e3
as Propane	1.850	3.600	156.39902	230.8090
as Butane	3.600	5.700	30.59658	33.7230
as Pentane	5.700	6.950	22.66048	20.0239
as Hexane	6.950	11.600	3062.98035	2.321e3

Totals : 8340.0715

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2600.07471	5.735e3
as Propane	156.39902	230.8090
as Butane	30.59658	33.7230
as Pentane	22.66048	20.0239
as Hexane	3062.98035	2.321e3
Methane	2884.48462	1.102e4
Ethane	332.57785	736.3329
Propane	4.42286	6.4289
Butane	1.45997	1.5390
Pentane	6.13582e-1	0.5192
Hexane	0.00000	0.0000

Totals : 2.0105e4

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

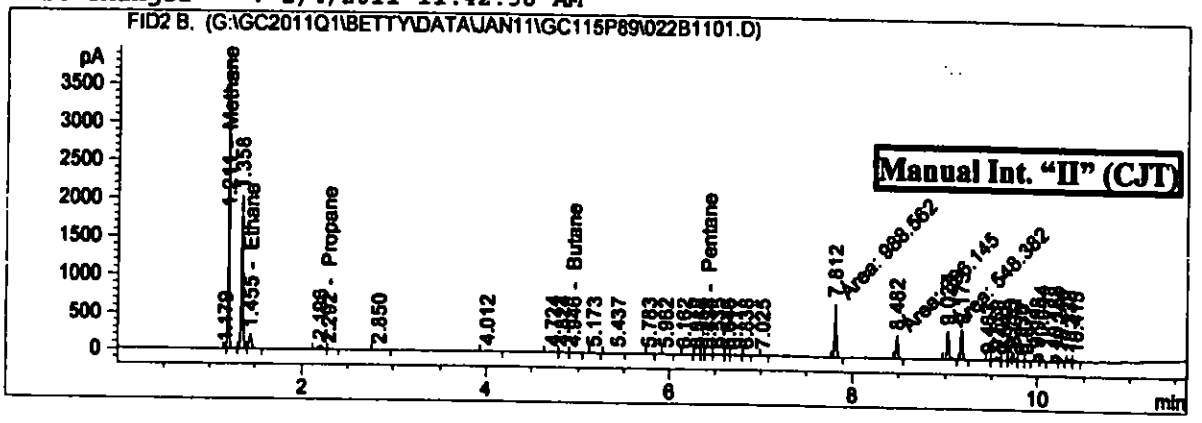
*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\022B1101.D
Sample Name: Run 3 Can 1604 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 14:32:41

Seq. Line : 11
Location : Vial 22
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.211	PV	2909.79126	3.82064	1.11173e4		Methane
1.455	VB	335.20474	2.21402	742.14933		Ethane
2.292	VB	4.40306	1.45337	6.39928		Propane
4.946	VB	1.45235	1.05416	1.53102		Butane
6.434	VV	6.06900e-1	8.46109e-1	5.13504e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.18679e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\022B1101.D
Sample Name: Run 3 Can 1604 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2647.29150	5.839e3
as Propane	1.850	3.600	158.29178	233.6023
as Butane	3.600	5.700	31.18578	34.3724
as Pentane	5.700	6.950	22.17039	19.5908
as Hexane	6.950	11.600	3324.48279	2.519e3

Totals : 8645.3724

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2647.29150	5.839e3
as Propane	158.29178	233.6023
as Butane	31.18578	34.3724
as Pentane	22.17039	19.5908
as Hexane	3324.48279	2.519e3
Methane	2909.79126	1.112e4
Ethane	335.20474	742.1493
Propane	4.40306	6.3993
Butane	1.45235	1.5310
Pentane	6.06900e-1	0.5135
Hexane	0.00000	0.0000

Totals : 2.0513e4

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

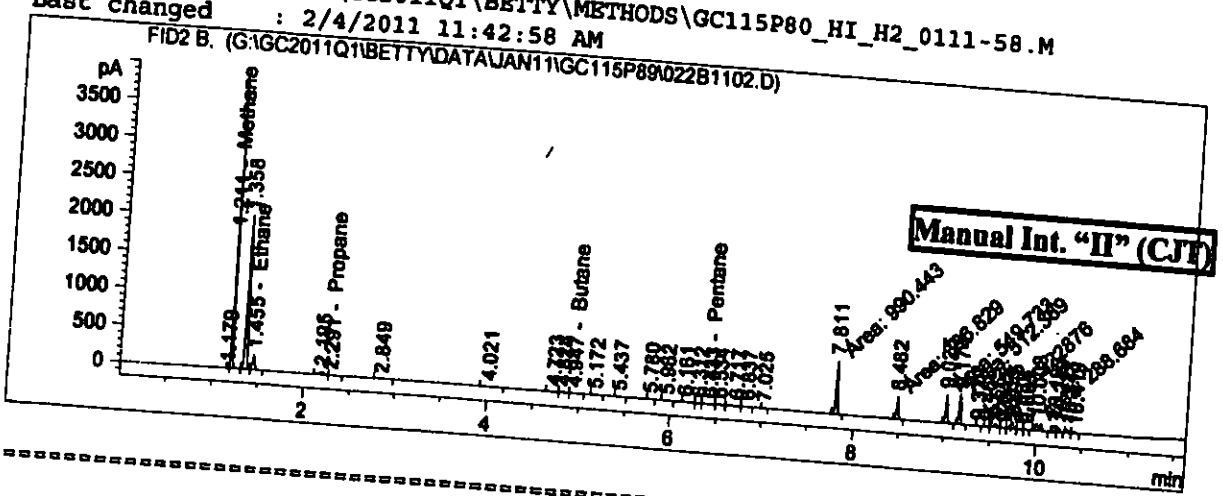
*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\022B1102.D
Sample Name: Run 3 Can 1604 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 14:54:30

Seq. Line : 11
Location : Vial 22
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.211	PV	2916.74121	3.82064	1.11438e4		Methane
1.455	VB	335.93887	2.21402	743.77485		Ethane
2.291	VB	4.44495	1.45376	6.46187		Propane
4.947	VB	1.40971	1.05416	1.48607		Butane
6.433	VV	6.19495e-1	8.46109e-1	5.24160e-1		Pentane
7.389		-	-	-		Hexane
Totals :				1.18961e4		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\022B1102.D
Sample Name: Run 3 Can 1604 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2653.52661	5.852e3
as Propane	1.850	3.600	158.64140	234.1182
as Butane	3.600	5.700	31.01234	34.1812
as Pentane	5.700	6.950	22.16218	19.5835
as Hexane	6.950	11.600	3331.96798	2.525e3

Totals : 8665.1136

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2653.52661	5.852e3
as Propane	158.64140	234.1182
as Butane	31.01234	34.1812
as Pentane	22.16218	19.5835
as Hexane	3331.96798	2.525e3
Methane	2916.74121	1.114e4
Ethane	335.93887	743.7749
Propane	4.44495	6.4619
Butane	1.40971	1.4861
Pentane	6.19495e-1	0.5242
Hexane	0.00000	0.0000

Totals : 2.0561e4

Signal 2: TCD1 A, not found

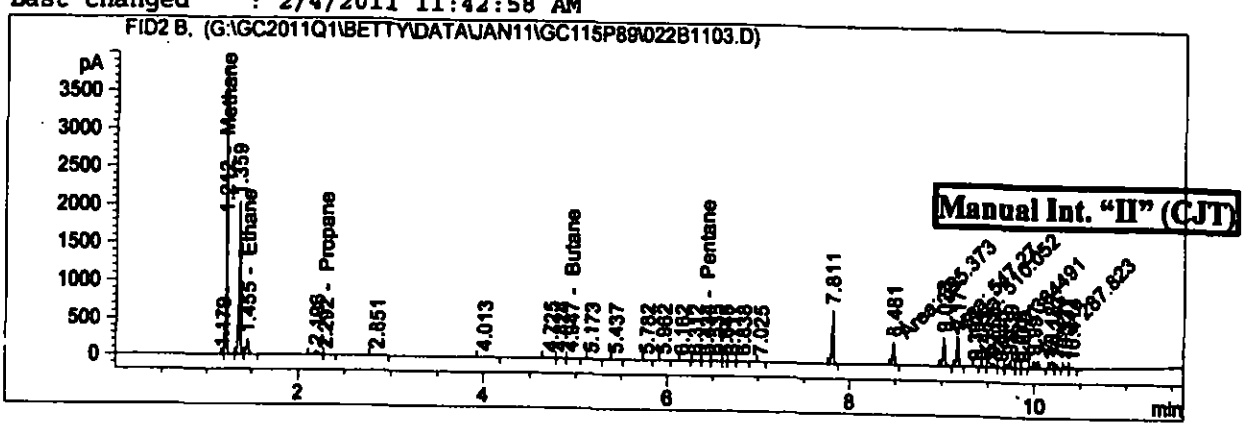
Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\022B1103.D
Sample Name: Run 3 Can 1604 0111-58

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 15:16:12
Seq. Line : 11
Location : Vial 22
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PV	2903.82349	3.82064	1.10945e4		Methane
1.455	VB	334.45349	2.21402	740.48591		Ethane
2.292	VB	4.38389	1.45319	6.37064		Propane
4.947	VB	1.44033	1.05416	1.51835		Butane
6.434	BV	6.02381e-1	8.46109e-1	5.09680e-1		Pentane
7.389		-	-	-		Hexane

Totals : 1.18434e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\022B1103.D
Sample Name: Run 3 Can 1604 0111-58

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,

Name	Start Time [min]	End Time [min]	Total Area [25 uV*s]	Amount [%]
as Ethane	1.260	1.850	2641.70557	5.826e3
as Propane	1.850	3.600	157.96605	233.1216
as Butane	3.600	5.700	31.07062	34.2454
as Pentane	5.700	6.950	22.13258	19.5574
as Hexane	6.950	11.600	3321.77436	2.517e3

Totals : 8630.3591

Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
as Ethane	2641.70557	5.826e3
as Propane	157.96605	233.1216
as Butane	31.07062	34.2454
as Pentane	22.13258	19.5574
as Hexane	3321.77436	2.517e3
Methane	2903.82349	1.109e4
Ethane	334.45349	740.4859
Propane	4.38389	6.3706
Butane	1.44033	1.5183
Pentane	6.02381e-1	0.5097
Hexane	0.00000	0.0000

Totals : 2.0474e4

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000

Totals : 0.0000

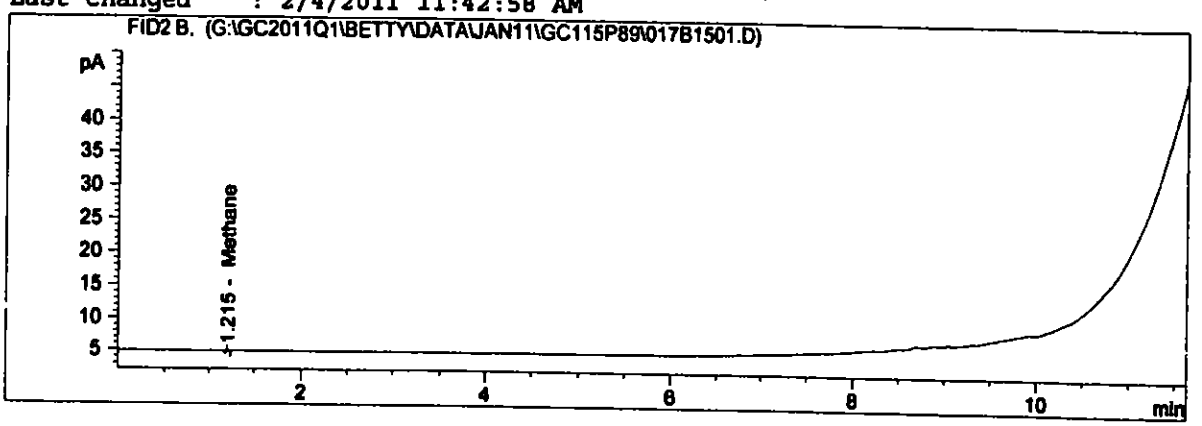
*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\017B1501.D
Sample Name: He Blank

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 17:49:00

Seq. Line : 15
Location : Vial 17
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.215	PB	8.41350e-2	3.66683	3.08509e-1		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 3.08509e-1

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\017B1501.D
Sample Name: He Blank

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,
Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
Methane	8.41350e-2	0.3085
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :		3.0851e-1

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000
Totals :		0.0000

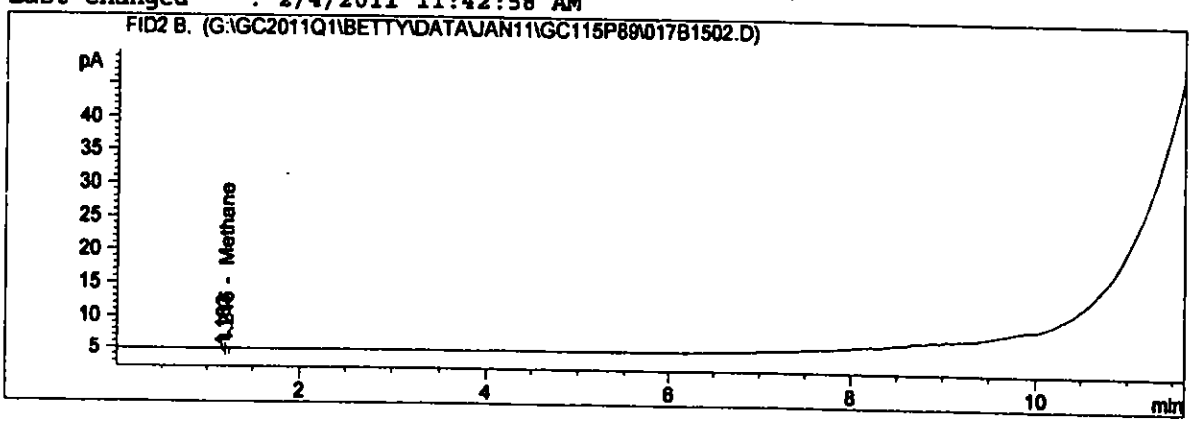
*** End of Report ***

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\017B1502.D
Sample Name: He Blank

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 18:11:02

Seq. Line : 15
Location : Vial 17
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.215	PB	4.27170e-2	3.66683	1.56636e-1		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Totals : 1.56636e-1

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\017B1502.D
Sample Name: He Blank

1 Warnings or Errors :

Warning : Calibrated compound(s) not found

Summed Peaks Report

Signal 1: FID2 B,
Signal 2: TCD1 A, not found

Final Summed Peaks Report

Signal 1: FID2 B,

Name	Total Area [25 uV*s]	Amount [%]
Methane	4.27170e-2	0.1566
Ethane	0.00000	0.0000
Propane	0.00000	0.0000
Butane	0.00000	0.0000
Pentane	0.00000	0.0000
Hexane	0.00000	0.0000
Totals :	1.5664e-1	

Signal 2: TCD1 A, not found

Name	Total Area [25 uV*s]	Amount [%]
Hydrogen	0.00000	0.0000
Oxygen	0.00000	0.0000
Nitrogen	0.00000	0.0000
Carbon monoxide	0.00000	0.0000
Methane	0.00000	0.0000
Carbon dioxide	0.00000	0.0000
Totals :		0.0000

*** End of Report ***

Calibration Curve Chromatograms

Method G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M

Calibration Table

Calib. Data Modified : 2/4/2011 11:42:33 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
0.838	1	3	8.00000	77.57706	1.03123e-1			Hydrogen
		51	20.00000	209.22308	9.55918e-2			
		52	40.00000	435.72873	9.18002e-2			
		53	100.00000	1209.68677	8.26660e-2			
1.221	2	21	2.49500	6.79355e-1	3.67260			Methane
		22	4.99000	1.34354	3.71406			
		23	9.98000	2.65646	3.75687			
		24	39.92000	10.04382	3.97458			
		25	99.80000	24.68223	4.04339			
		26	1002.00000	274.57436	3.64928			
		27	4008.00000	1073.51213	3.73354			
		28	1.00200e4	2661.17391	3.76526			
1.463	2	21	2.49750	1.14828	2.17500			Ethane
		22	4.99200	2.30904	2.16193			
		23	9.99000	4.60531	2.16924			
		24	39.96000	17.73947	2.25260			
		25	99.90000	43.42362	2.30059			
		26	999.00000	473.58295	2.10945			
		27	3996.00000	1849.40361	2.16070			
		28	9990.00000	4578.52897	2.18192			
		29	2.00800e4	8829.43229	2.27421			
		30	5.02000e4	2.21178e4	2.26967			
2.299	2	21	2.49500	1.75532	1.42139			Propane
		22	4.99000	3.53912	1.40996			
		23	9.98000	7.03044	1.41954			
		24	39.92000	27.04940	1.47582			
		25	99.80000	66.10462	1.50973			

Method G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref Grp	Name
		26	1002.00000	676.83240	1.48043		
		27	4008.00000	2641.78499	1.51716		
		28	1.00200e4	6537.58447	1.53268		
		29	2.00000e4	1.33569e4	1.49735		
		30	5.00000e4	3.34749e4	1.49366		
3.150	1	8	1.82000e-1	73.86340	2.46401e-3		Oxygen
		4	9.80000e-1	372.66600	2.62970e-3		
		5	4.90000	1895.79468	2.58467e-3		
		6	9.80000	3857.11670	2.54076e-3		
		9	99.80000	3.85815e4	2.58673e-3		
4.064	1	7	2.00000e-1	96.54302	2.07162e-3		Nitrogen
		1	1.00000	421.19687	2.37419e-3		
		2	5.00000	2034.64948	2.45743e-3		
		3	10.00000	4048.09033	2.47030e-3		
		9	100.00000	4.09458e4	2.44225e-3		
4.949	2	21	2.50000	2.33551	1.07043		Butane
		22	5.00000	4.70685	1.06228		
		23	10.00000	9.36084	1.06828		
		24	40.00000	35.93151	1.11323		
		25	100.00000	87.92505	1.13733		
		26	999.00000	925.66610	1.07922		
		27	3996.00000	3607.10563	1.10781		
		29	4080.00000	3603.68677	1.13217		
		28	9990.00000	8913.12370	1.12082		
		30	1.02000e4	9024.72168	1.13023		
5.258	1	7	2.00000e-1	92.42490	2.16392e-3		Carbon monoxide
		1	1.00000	470.54378	2.12520e-3		
		2	5.00000	2302.92566	2.17115e-3		
		3	10.00000	4570.86816	2.18777e-3		
		9	99.00000	4.56475e4	2.16879e-3		
6.483	2	21	2.47250	2.87491	8.60028e-1		Pentane
		22	4.94500	5.78764	8.54408e-1		
		23	9.89000	11.54544	8.56615e-1		
		24	39.56000	44.15979	8.95838e-1		
		25	98.90000	107.92964	9.16338e-1		
		29	801.60000	889.96724	9.00707e-1		
		30	2004.00000	2222.72542	9.01596e-1		
7.389	2	21	2.57500	3.46969	7.42140e-1		Hexane
		22	5.15000	6.96531	7.39379e-1		
		23	10.30000	13.96476	7.37571e-1		
		24	41.20000	53.01079	7.77200e-1		
		25	103.00000	129.42855	7.95806e-1		
		29	399.20000	529.44120	7.54003e-1		
		30	998.00000	1316.37195	7.58144e-1		
7.559	1	7	1.60000e-1	66.68196	2.39945e-3		Methane
		1	8.00000e-1	331.24899	2.41510e-3		
		2	4.00000	1600.45245	2.49929e-3		
		3	8.00000	3173.94128	2.52053e-3		
		9	99.00000	3.83102e4	2.58417e-3		
9.070	1	8	1.82000e-1	127.79887	1.42411e-3		Carbon dioxide
		4	9.80000e-1	674.36972	1.45321e-3		
		5	4.90000	3344.95581	1.46489e-3		
		6	9.80000	6683.89722	1.46621e-3		
		9	99.80000	6.65036e4	1.50067e-3		

More compound-specific settings:

Compound: Methane
  Time Window : From 1.141 min To 1.333 min

Compound: Oxygen
  Time Window : From 2.948 min To 3.567 min

Method G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M

Compound: Nitrogen
Time Window : From 3.567 min To 4.739 min

Compound: Carbon monoxide
Time Window : From 4.772 min To 5.712 min

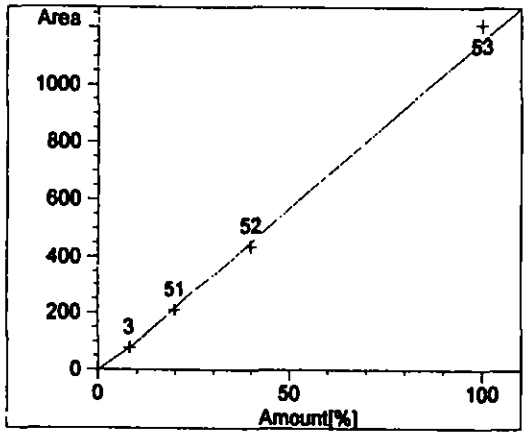
Compound: Methane
Time Window : From 7.163 min To 7.734 min

Compound: Carbon dioxide
Time Window : From 8.707 min To 9.408 min

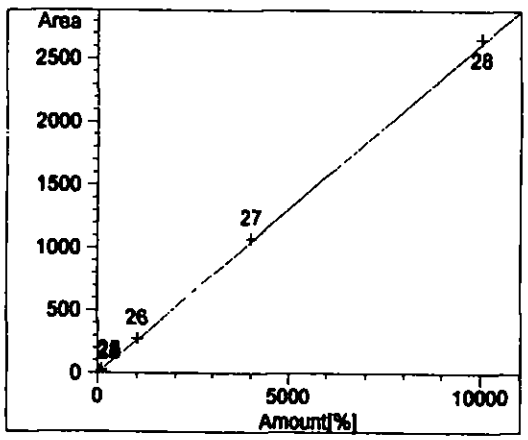
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.260	1.850	None	2.2055	1.0000	None
as Propane	1.850	3.600	None	1.4758	1.0000	None
as Butane	3.600	5.700	None	1.1022	1.0000	None
as Pentane	5.700	6.950	None	8.8365e-1	1.0000	None
as Hexane	6.950	11.600	None	7.5775e-1	1.0000	None

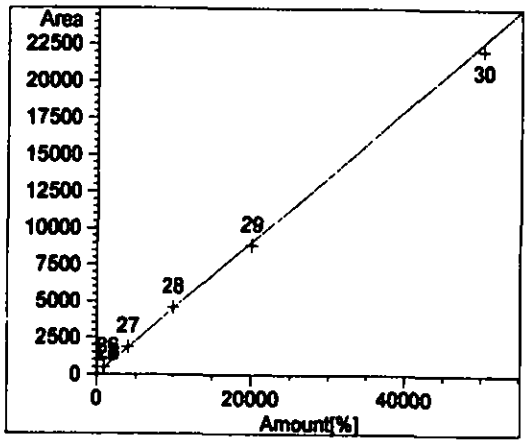
Calibration Curves



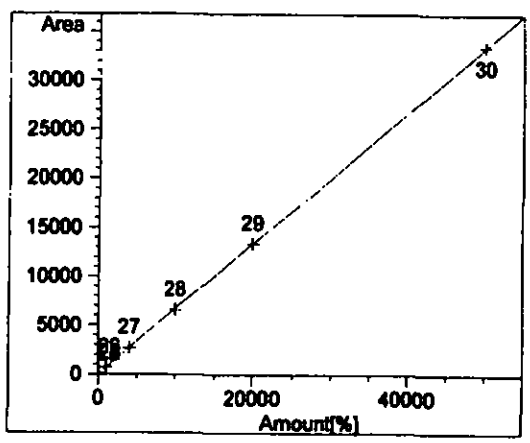
Hydrogen at exp. RT: 0.838
TCD1 A,
Correlation: 0.99862
Residual Std. Dev.: 41.79740
Formula: y = mx + b
m: 11.70486
b: -17.48129
x: Amount
y: Area
Calibration Level Weights:
Level 3 : 1
Level 51 : 0.16
Level 52 : 0.04
Level 53 : 0.0064



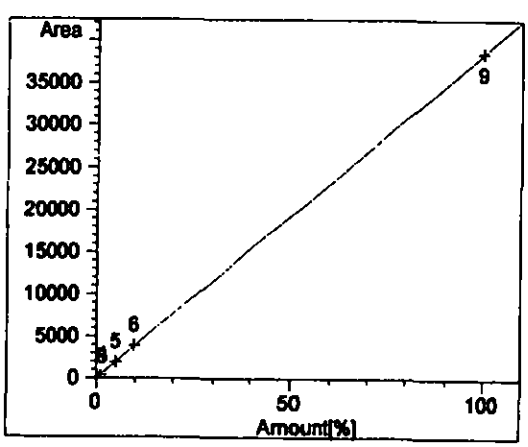
Methane at exp. RT: 1.221
FID2 B,
Correlation: 0.99927
Residual Std. Dev.: 19.32056
Formula: y = mx + b
m: 2.61733e-1
b: 2.73984e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.2002e-006
Level 27 : 3.87512e-007
Level 28 : 6.2002e-008



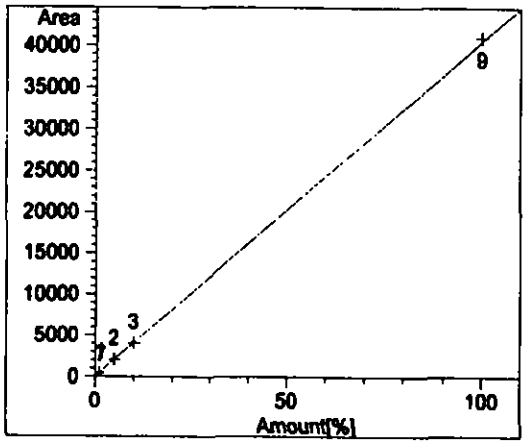
Ethane at exp. RT: 1.463
FID2 B,
Correlation: 0.99954
Residual Std. Dev.: 215.40200
Formula: y = mx + b
m: 4.51629e-1
b: 2.86341e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.250301
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.25e-006
Level 27 : 3.90625e-007
Level 28 : 6.25e-008
Level 29 : 1.54698e-008
Level 30 : 2.47516e-009



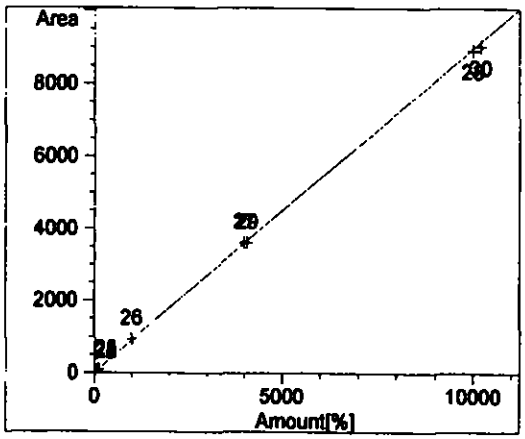
Propane at exp. RT: 2.299
FID2 B,
Correlation: 0.99977
Residual Std. Dev.: 62.46936
Formula: y = mx + b
m: 6.69307e-1
b: 1.19974e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.2002e-006
Level 27 : 3.87512e-007
Level 28 : 6.2002e-008
Level 29 : 1.55626e-008
Level 30 : 2.49001e-009



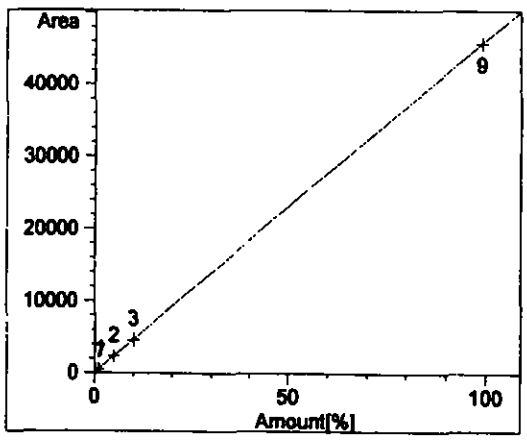
Oxygen at exp. RT: 3.150
TCD1 A,
Correlation: 0.99987
Residual Std. Dev.: 47.57254
Formula: y = mx + b
m: 386.12596
b: 3.30159
x: Amount
y: Area
Calibration Level Weights:
Level 8 : 1
Level 4 : 0.03449
Level 5 : 0.00138
Level 6 : 0.000345
Level 9 : 3.32569e-006



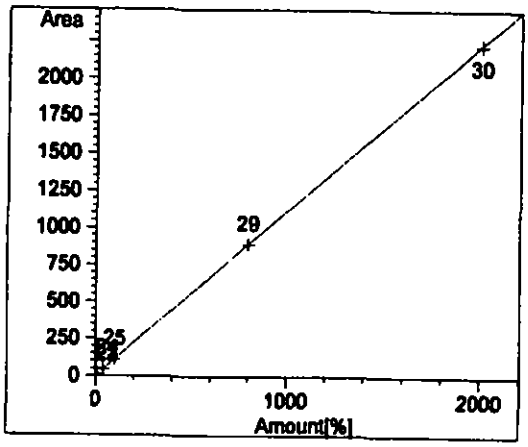
Nitrogen at exp. RT: 4.064
TCD1 A,
Correlation: 0.99998
Residual Std. Dev.: 216.30695
Formula: y = mx + b
m: 405.56551
b: 15.41704
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 4e-006



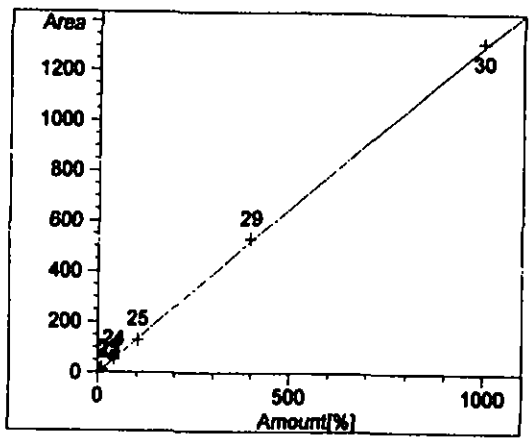
Butane at exp. RT: 4.949
FID2 B,
Correlation: 0.99976
Residual Std. Dev.: 60.52985
Formula: y = mx + b
m: 8.98671e-1
b: 1.24872e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.26252e-006
Level 27 : 3.91407e-007
Level 29 : 3.75457e-007
Level 28 : 6.26252e-008
Level 30 : 6.0073e-008



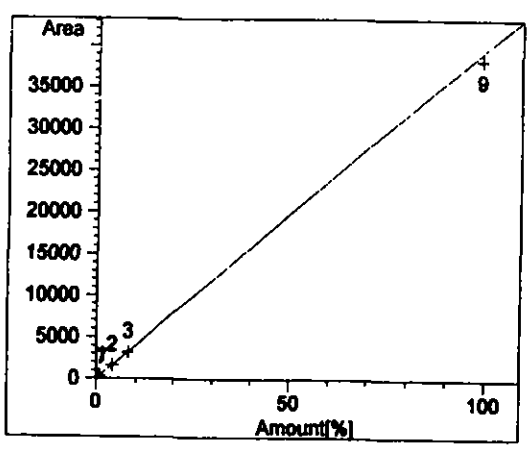
Carbon monoxide at exp. RT: 5.258
TCD1 A,
Correlation: 0.99993
Residual Std. Dev.: 51.04738
Formula: y = mx + b
m: 461.82579
b: 3.63989e-1
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 4.08122e-006



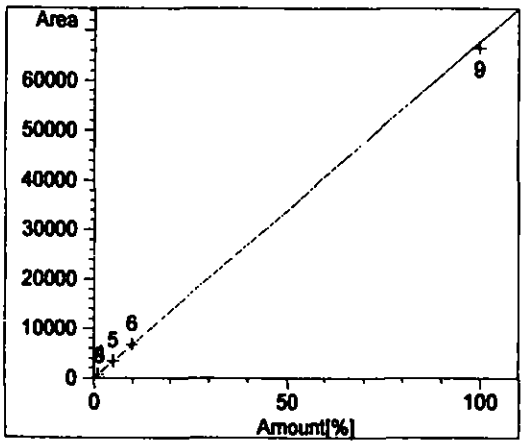
Pentane at exp. RT: 6.483
FID2 B,
Correlation: 0.99974
Residual Std. Dev.: 5.59918
Formula: y = mx + b
m: 1.11487
b: 1.65692e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 9.51387e-006
Level 30 : 1.52222e-006



Hexane at exp. RT: 7.389
FID2 B,
Correlation: 0.99963
Residual Std. Dev.: 7.42308
Formula: y = mx + b
m: 1.30539
b: 1.48584e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 0.000042
Level 30 : 6.65723e-006



Methane at exp. RT: 7.559
TCD1 A,
Correlation: 0.99975
Residual Std. Dev.: 599.44235
Formula: y = mx + b
m: 397.42242
b: 3.49247
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 2.61198e-006



Carbon dioxide at exp. RT: 9.070
TCD1 A,
Correlation: 0.99994
Residual Std. Dev.: 670.19494
Formula: y = mx + b
m: 677.94670
b: 4.63084
x: Amount
y: Area
Calibration Level Weights:
Level 8 : 1
Level 4 : 0.03449
Level 5 : 0.00138
Level 6 : 0.000345
Level 9 : 3.32569e-006

Method G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M

Calibration Table

Calib. Data Modified : Monday, January 31, 2011 3:47:16 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
0.838	1	3	8.00000	77.57706	1.03123e-1			Hydrogen
		51	20.00000	209.22308	9.55918e-2			
		52	40.00000	435.72873	9.18002e-2			
		53	100.00000	1209.68677	8.26660e-2			
1.221	2	21	2.49500	6.79355e-1	3.67260			Methane
		22	4.99000	1.34354	3.71406			
		23	9.98000	2.65646	3.75687			
		24	39.92000	10.04382	3.97458			
		25	99.80000	24.68223	4.04339			
		26	1002.00000	274.57436	3.64928			
		27	4008.00000	1073.51213	3.73354			
		28	1.00200e4	2661.17391	3.76526			
1.463	2	21	2.49750	1.14828	2.17500			Ethane
		22	4.99200	2.30904	2.16193			
		23	9.99000	4.60531	2.16924			
		24	39.96000	17.73947	2.25260			
		25	99.90000	43.42362	2.30059			
		26	999.00000	473.58295	2.10945			
		27	3996.00000	1849.40361	2.16070			
		28	9990.00000	4578.52897	2.18192			
		29	2.00800e4	8829.43229	2.27421			
		30	5.02000e4	2.21178e4	2.26967			
2.299	2	21	2.49500	1.75532	1.42139			Propane
		22	4.99000	3.53912	1.40996			
		23	9.98000	7.03044	1.41954			
		24	39.92000	27.04940	1.47582			
		25	99.80000	66.10462	1.50973			

Method G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
		26	1002.00000	676.83240	1.48043			
		27	4008.00000	2641.78499	1.51716			
		28	1.00200e4	6537.58447	1.53268			
		29	2.00000e4	1.33569e4	1.49735			
		30	5.00000e4	3.34749e4	1.49366			
3.150	1	8	1.82000e-1	73.86340	2.46401e-3			Oxygen
		4	9.80000e-1	372.66600	2.62970e-3			
		5	4.90000	1895.79468	2.58467e-3			
		6	9.80000	3857.11670	2.54076e-3			
		9	99.80000	3.85815e4	2.58673e-3			
4.064	1	7	2.00000e-1	96.54302	2.07162e-3			Nitrogen
		1	1.00000	421.19687	2.37419e-3			
		2	5.00000	2034.64948	2.45743e-3			
		3	10.00000	4048.09033	2.47030e-3			
		9	100.00000	4.09458e4	2.44225e-3			
4.949	2	21	2.50000	2.33551	1.07043			Butane
		22	5.00000	4.70685	1.06228			
		23	10.00000	9.36084	1.06828			
		24	40.00000	35.93151	1.11323			
		25	100.00000	87.92505	1.13733			
		26	999.00000	925.66610	1.07922			
		27	3996.00000	3607.10563	1.10781			
		29	4080.00000	3603.68677	1.13217			
		28	9990.00000	8913.12370	1.12082			
		30	1.02000e4	9024.72168	1.13023			
5.258	1	7	2.00000e-1	92.42490	2.16392e-3			Carbon monoxide
		1	1.00000	470.54378	2.12520e-3			
		2	5.00000	2302.92566	2.17115e-3			
		3	10.00000	4570.86816	2.18777e-3			
		9	99.00000	4.56475e4	2.16879e-3			
6.483	2	21	2.47250	2.87491	8.60028e-1			Pentane
		22	4.94500	5.78764	8.54408e-1			
		23	9.89000	11.54544	8.56615e-1			
		24	39.56000	44.15979	8.95838e-1			
		25	98.90000	107.92964	9.16338e-1			
		29	801.60000	889.96724	9.00707e-1			
		30	2004.00000	2222.72542	9.01596e-1			
7.389	2	21	2.57500	3.46969	7.42140e-1			Hexane
		22	5.15000	6.96531	7.39379e-1			
		23	10.30000	13.96476	7.37571e-1			
		24	41.20000	53.01079	7.77200e-1			
		25	103.00000	129.42855	7.95806e-1			
		29	399.20000	529.44120	7.54003e-1			
		30	998.00000	1316.37195	7.58144e-1			
7.559	1	7	1.60000e-1	66.68196	2.39945e-3			Methane
		1	8.00000e-1	331.24899	2.41510e-3			
		2	4.00000	1600.45245	2.49929e-3			
		3	8.00000	3173.94128	2.52053e-3			
		9	99.00000	3.83102e4	2.58417e-3			
8.071	2	21	2.42500	3.66508	6.61651e-1			Heptane
		22	4.85000	7.36073	6.58902e-1			
		23	9.70000	14.81784	6.54616e-1			
		24	38.80000	56.01848	6.92629e-1			
		25	97.00000	136.11146	7.12651e-1			
		29	200.16000	312.41323	6.40690e-1			
		30	500.40000	769.34119	6.50427e-1			
9.070	1	8	1.82000e-1	127.79887	1.42411e-3			Carbon dioxide
		4	9.80000e-1	674.36972	1.45321e-3			
		5	4.90000	3344.95581	1.46489e-3			
		6	9.80000	6683.89722	1.46621e-3			
		9	99.80000	6.65036e4	1.50067e-3			

More compound-specific settings:

Compound: Methane
Time Window : From 1.141 min To 1.333 min

Compound: Oxygen
Time Window : From 2.848 min To 3.567 min

Compound: Nitrogen
Time Window : From 3.567 min To 4.739 min

Compound: Carbon monoxide
Time Window : From 4.772 min To 5.712 min

Compound: Methane
Time Window : From 7.163 min To 7.734 min

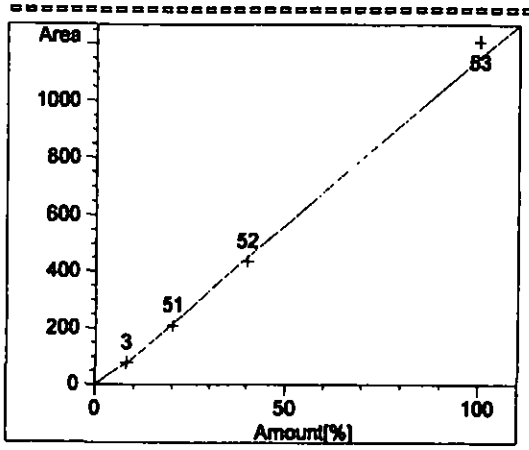
Compound: Heptane
Time Window : From 8.028 min To 8.138 min

Compound: Carbon dioxide
Time Window : From 8.707 min To 9.408 min

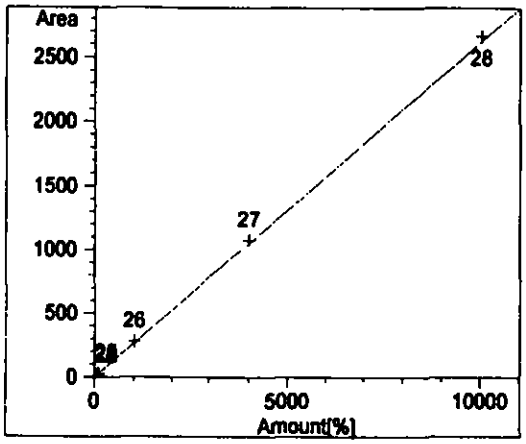
Peak Sum Table

Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.260	1.850	None	2.2055	1.0000	None
as Propane	1.850	3.600	None	1.4758	1.0000	None
as Butane	3.600	5.700	None	1.1022	1.0000	None
as Pentane	5.700	6.950	None	8.8365e-1	1.0000	None
as Hexane	6.950	7.750	None	7.5775e-1	1.0000	None
as Heptane	7.750	11.600	None	6.6737e-1	1.0000	None

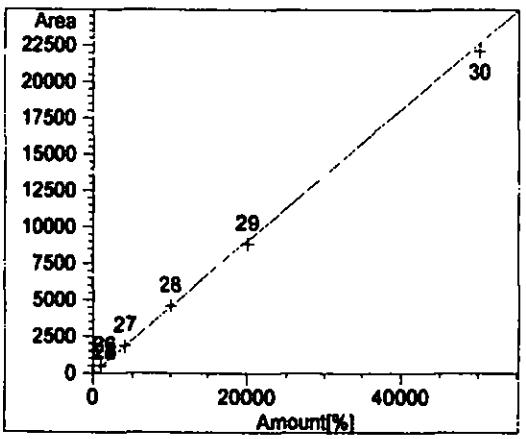
Calibration Curves



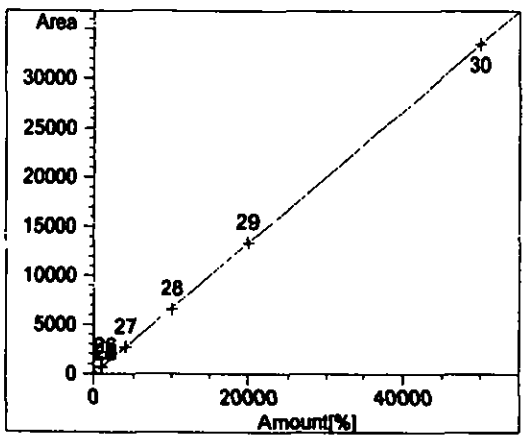
Hydrogen at exp. RT: 0.838
TCD1 A,
Correlation: 0.99862
Residual Std. Dev.: 41.79740
Formula: y = mx + b
m: 11.70486
b: -17.48129
x: Amount
y: Area
Calibration Level Weights:
Level 3 : 1
Level 51 : 0.16
Level 52 : 0.04
Level 53 : 0.0064



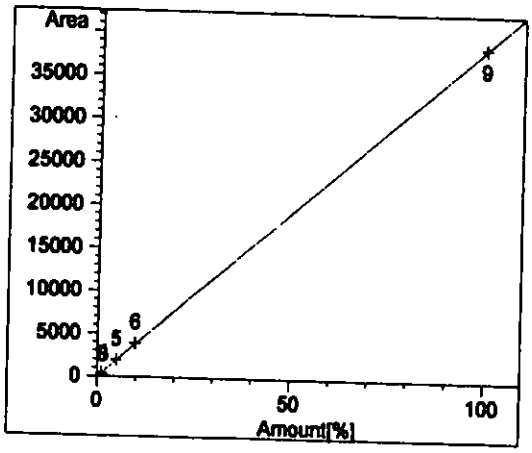
Methane at exp. RT: 1.221
FID2 B,
Correlation: 0.99927
Residual Std. Dev.: 19.32056
Formula: y = mx + b
m: 2.61733e-1
b: 2.73984e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.2002e-006
Level 27 : 3.87512e-007
Level 28 : 6.2002e-008



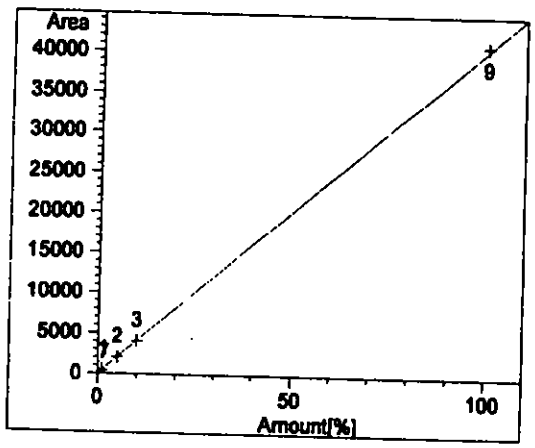
Ethane at exp. RT: 1.463
FID2 B,
Correlation: 0.99954
Residual Std. Dev.: 215.40200
Formula: y = mx + b
m: 4.51629e-1
b: 2.86341e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.250301
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.25e-006
Level 27 : 3.90625e-007
Level 28 : 6.25e-008
Level 29 : 1.54698e-008
Level 30 : 2.47516e-009



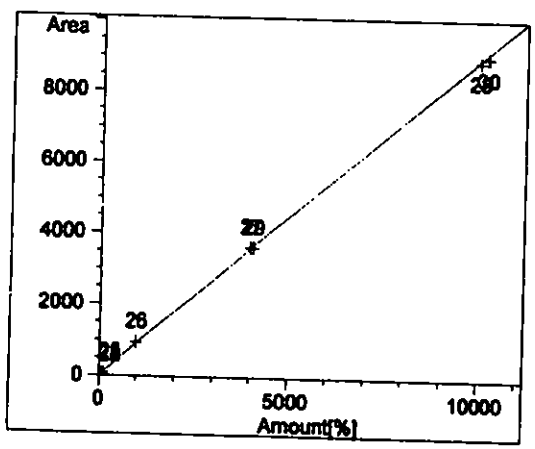
Propane at exp. RT: 2.299
FID2 B,
Correlation: 0.99977
Residual Std. Dev.: 62.46936
Formula: y = mx + b
m: 6.69307e-1
b: 1.19974e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.2002e-006
Level 27 : 3.87512e-007
Level 28 : 6.2002e-008
Level 29 : 1.55626e-008
Level 30 : 2.49001e-009



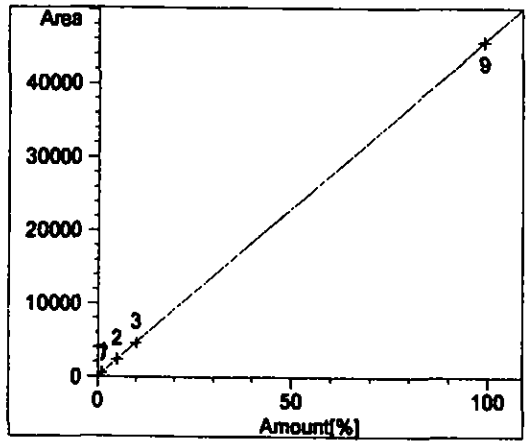
Oxygen at exp. RT: 3.150
TCD1 A,
Correlation: 0.99987
Residual Std. Dev.: 47.57254
Formula: y = mx + b
m: 386.12596
b: 3.30159
x: Amount
y: Area
Calibration Level Weights:
Level 8 : 1
Level 4 : 0.03449
Level 5 : 0.00138
Level 6 : 0.000345
Level 9 : 3.32569e-006



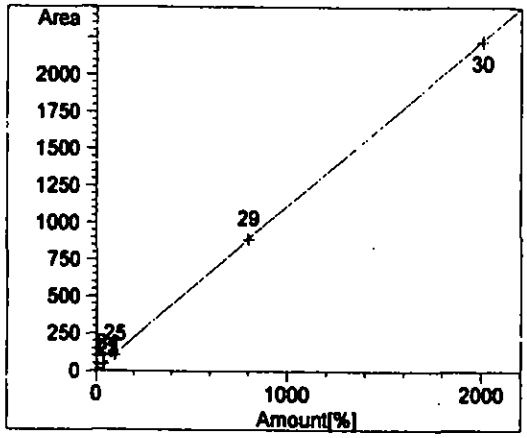
Nitrogen at exp. RT: 4.064
TCD1 A,
Correlation: 0.99998
Residual Std. Dev.: 216.30695
Formula: y = mx + b
m: 405.56551
b: 15.41704
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 4e-006



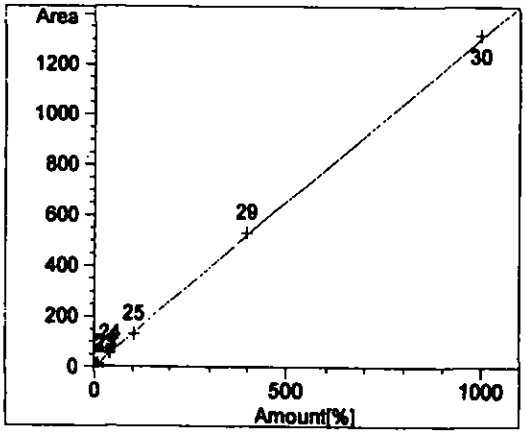
Butane at exp. RT: 4.949
FID2 B,
Correlation: 0.99976
Residual Std. Dev.: 60.52985
Formula: y = mx + b
m: 8.98671e-1
b: 1.24872e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.26252e-006
Level 27 : 3.91407e-007
Level 29 : 3.75457e-007
Level 28 : 6.26252e-008
Level 30 : 6.0073e-008



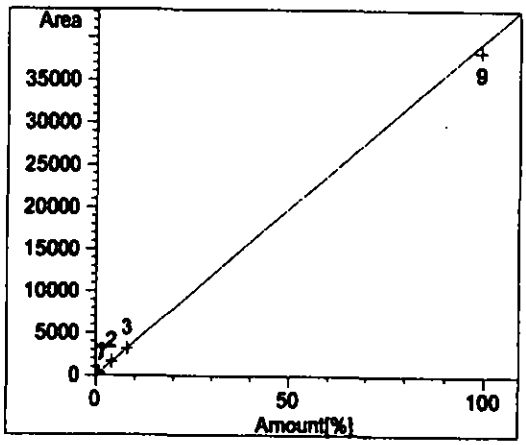
Carbon monoxide at exp. RT: 5.258
TCD1 A,
Correlation: 0.99993
Residual Std. Dev.: 51.04738
Formula: y = mx + b
m: 461.82579
b: 3.63989e-1
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 4.08122e-006



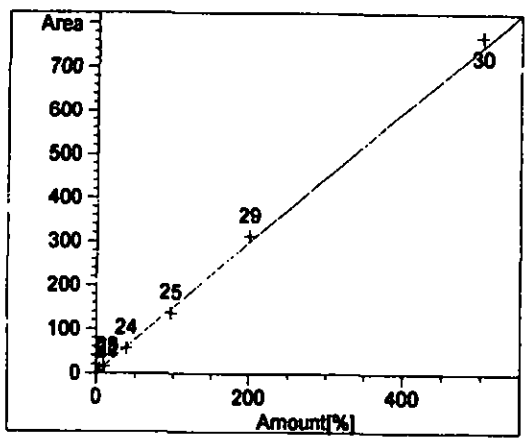
Pentane at exp. RT: 6.483
FID2 B,
Correlation: 0.99974
Residual Std. Dev.: 5.59918
Formula: y = mx + b
m: 1.11487
b: 1.65692e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 9.51387e-006
Level 30 : 1.52222e-006



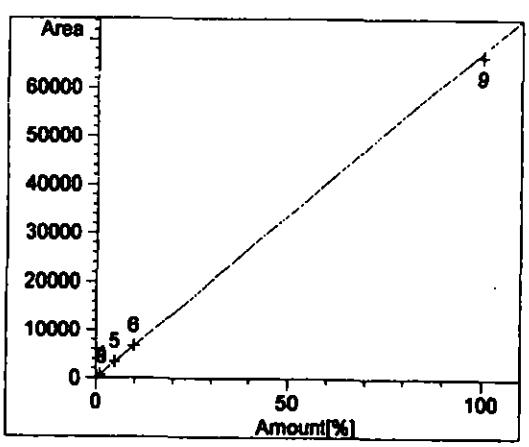
Hexane at exp. RT: 7.389
FID2 B,
Correlation: 0.99963
Residual Std. Dev.: 7.42308
Formula: y = mx + b
m: 1.30539
b: 1.48584e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 0.000042
Level 30 : 6.65723e-006



Methane at exp. RT: 7.559
TCD1 A,
Correlation: 0.99975
Residual Std. Dev.: 599.44235
Formula: y = mx + b
m: 397.42242
b: 3.49247
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 2.61198e-006



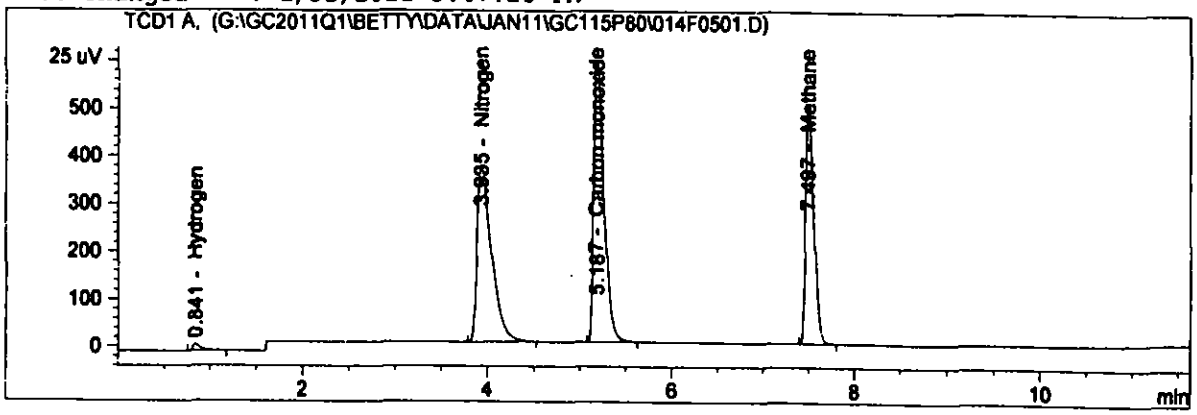
Heptane at exp. RT: 8.071
FID2 B,
Correlation: 0.99907
Residual Std. Dev.: 12.21897
Formula: y = mx + b
m: 1.49335
b: 6.33904e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 0.000147
Level 30 : 0.000023



Carbon dioxide at exp. RT: 9.070
TCD1 A,
Correlation: 0.99994
Residual Std. Dev.: 670.19494
Formula: y = mx + b
m: 677.94670
b: 4.63084
x: Amount
y: Area
Calibration Level Weights:
Level 8 : 1
Level 4 : 0.03449
Level 5 : 0.00138
Level 6 : 0.000345
Level 9 : 3.32569e-006

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0501.D
Sample Name: gc115p80 #PG4 ENV(1=0,3=376.47)

Acq. Operator : tbo
Seq. Line : 5
Acq. Instrument : Betty
Location : Vial 14
Injection Date : 14-Jan-11, 18:40:08
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
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
0.841	BB	77.55135	1.04693e-1	8.11908		Hydrogen
3.150		-	-	-		Oxygen
3.935	BB	4031.82422	2.45626e-3	9.90323		Nitrogen
5.187	BB	4547.25635	2.16515e-3	9.84547		Carbon monoxide
7.497	BB	3162.09521	2.51344e-3	7.94772		Methane
9.070		-	-	-		Carbon dioxide

Totals : 35.81549

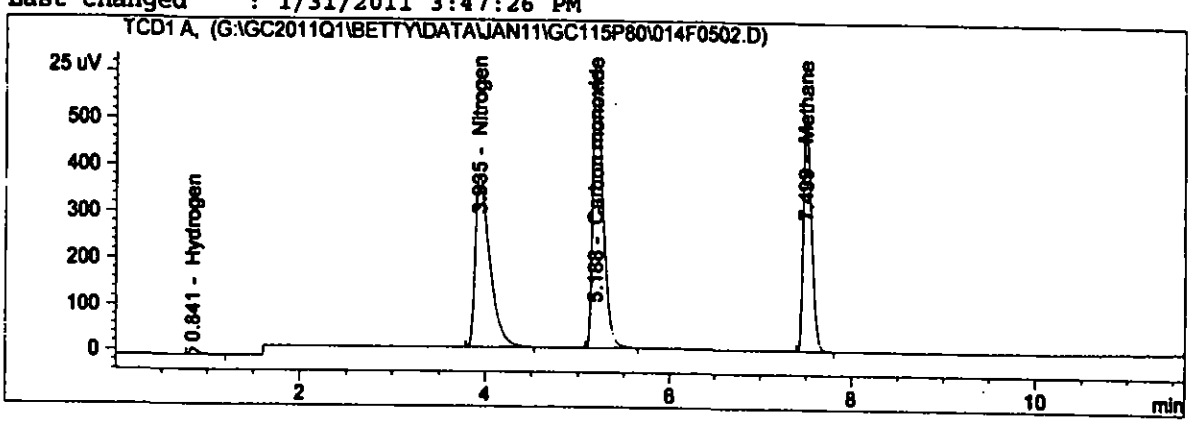
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0502.D
ample Name: gc115p80 #FG4 ENV(1=0,3=376.47)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 19:04:40
Seq. Line : 5
Location : Vial 14
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

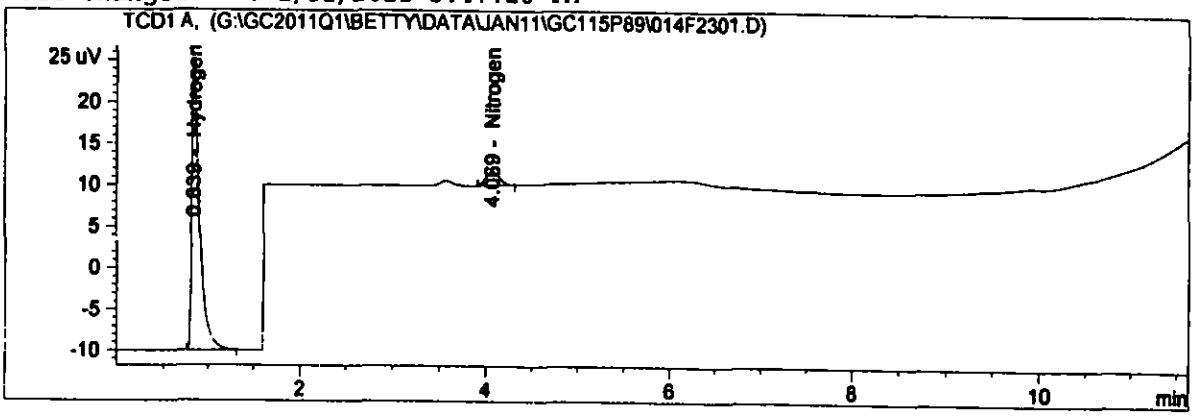
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.841	BB	77.60278	1.04680e-1	8.12347		Hydrogen
3.150		-	-	-		Oxygen
3.935	BB	4064.35645	2.45634e-3	9.98344		Nitrogen
5.188	BB	4594.47998	2.16515e-3	9.94773		Carbon monoxide
7.499	BB	3185.78735	2.51346e-3	8.00734		Methane
9.070		-	-	-		Carbon dioxide
Totals :				36.06197		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\014F2301.D
Sample Name: gc115p89 #H5 ENV(1=563.33,3=198)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 14:30:55
Seq. Line : 23
Location : Vial 14
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
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
0.839	BB	209.28973	9.25707e-2	19.37409		Hydrogen
3.150		-	-	-		Oxygen
4.069	BB	16.45806	2.07189e-3	3.40993e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 19.40819

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

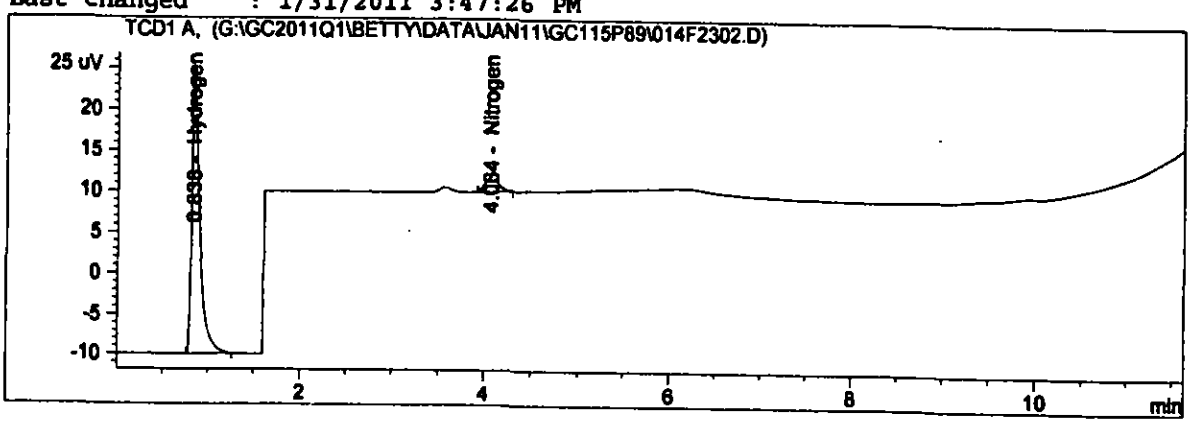
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\014F2302.D
Sample Name: gc115p89 #H5 ENV(1=563.33,3=198)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 14:55:49

Seq. Line : 23
Location : Vial 14
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with *ISTDs*

Signal 1: TCD1 A,

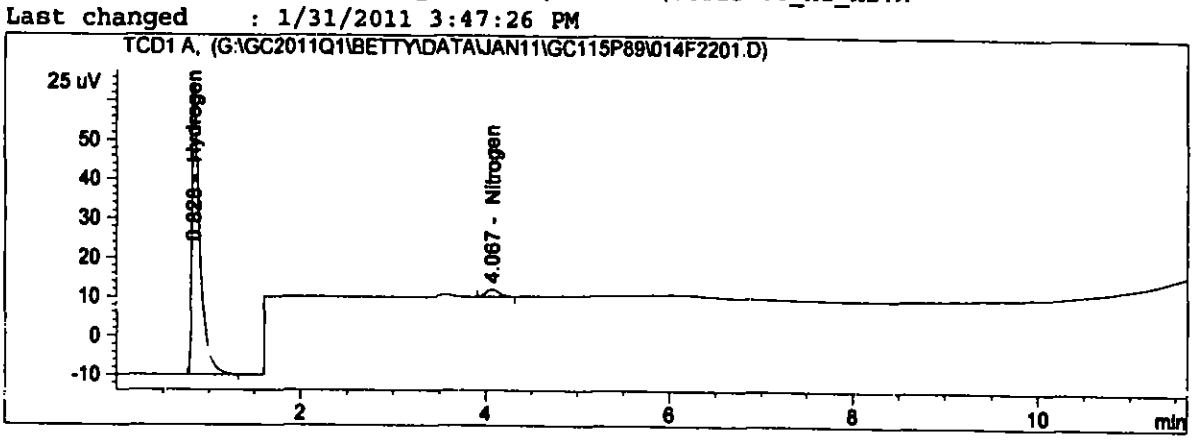
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838	BB	209.15642	9.25752e-2	19.36270		Hydrogen
3.150		-	-	-		Oxygen
4.064	BB	17.37440	2.07189e-3	3.59979e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				19.39870		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\014F2201.D
Sample Name: gc115p89 #H6 ENV(1=530,3=495)

Acq. Operator : cjt
Seq. Line : 22
Acq. Instrument : Betty
Location : Vial 14
Injection Date : 29-Jan-11, 13:41:08
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
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
0.828	BB	435.83084	8.88614e-2	38.72854		Hydrogen
3.150		-	-	-		Oxygen
4.067	BB	18.30756	2.07189e-3	3.79313e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 38.76647

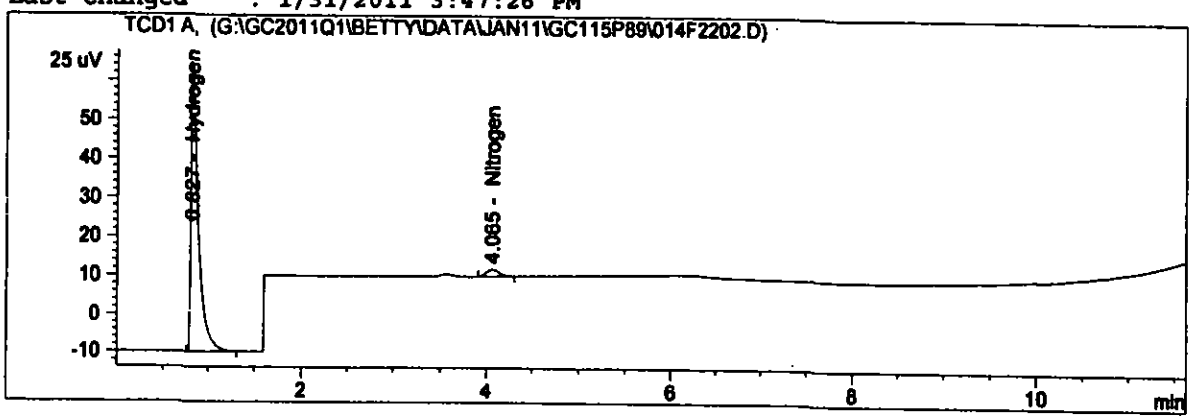
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\014F2202.D
ample Name: gc115p89 #H6 ENV(1=530,3=495)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 14:06:02
Seq. Line : 22
Location : Vial 14
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
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
0.827	BB	435.62662	8.88630e-2	38.71109		Hydrogen
3.150		-	-	-		Oxygen
4.065	BB	16.97754	2.07189e-3	3.51756e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 38.74626

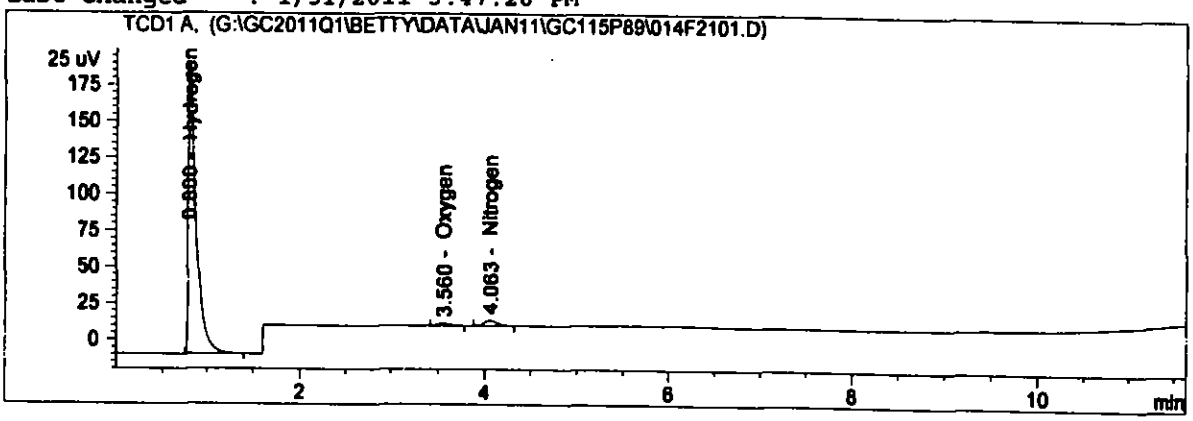
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\014F2101.D
Sample Name: gc115p89 #H7 ENV(1=0,3=450)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 12:50:54
Seq. Line : 21
Location : Vial 14
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
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
0.800	BB	1207.56982	8.66714e-2	104.66174		Hydrogen
3.560	BB	13.42415	2.47362e-3	3.32062e-2		Oxygen
4.063	BB	36.48639	2.07189e-3	7.55958e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 104.77054

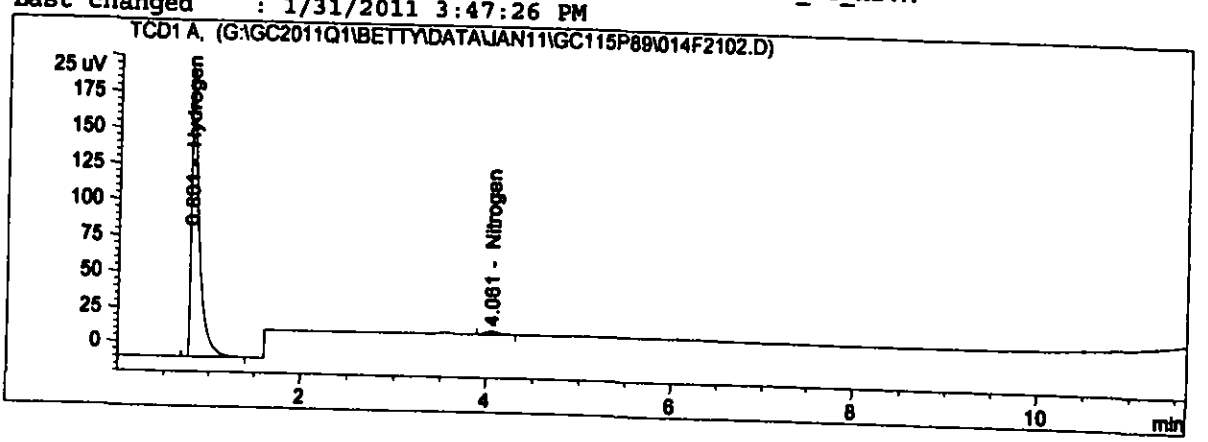
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\014F2102.D
Sample Name: gc115p89 #H7 ENV(1=0,3=450)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 13:16:05
Seq. Line : 21
Location : Vial 14
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2.M
Last changed : 1/31/2011 3:47:26 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : Monday, January 31, 2011 3:47:16 PM
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
0.801	BB	1211.80371	8.66671e-2	105.02346		Hydrogen
3.150		-	-	-		Oxygen
4.061	BB	21.92694	2.07189e-3	4.54303e-2		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 105.06889

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Calibration Table

Calib. Data Modified : 1/24/2011 3:39:04 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
0.845	1	7	1.60000e-1	1.52913	1.04634e-1			Hydrogen
	1	1	8.00000e-1	7.26941	1.10050e-1			
	1	2	4.00000	38.28706	1.04474e-1			
	1	3	8.00000	77.57706	1.03123e-1			
1.221	2	21	2.49500	6.79355e-1	3.67260			Methane
	2	22	4.99000	1.34354	3.71406			
	2	23	9.98000	2.65646	3.75687			
	2	24	39.92000	10.04382	3.97458			
	2	25	99.80000	24.68223	4.04339			
	2	26	1002.00000	274.57436	3.64928			
	2	27	4008.00000	1073.51213	3.73354			
	2	28	1.00200e4	2661.17391	3.76526			
1.463	2	21	2.49750	1.14828	2.17500			Ethane
	2	22	4.99200	2.30904	2.16193			
	2	23	9.99000	4.60531	2.16924			
	2	24	39.96000	17.73947	2.25260			
	2	25	99.90000	43.42362	2.30059			
	2	26	999.00000	473.58295	2.10945			
	2	27	3996.00000	1849.40361	2.16070			
	2	28	9990.00000	4578.52897	2.18192			
	2	29	2.00800e4	8829.43229	2.27421			
	2	30	5.02000e4	2.21178e4	2.26967			
2.299	2	21	2.49500	1.75532	1.42139			Propane
	2	22	4.99000	3.53912	1.40996			
	2	23	9.98000	7.03044	1.41954			
	2	24	39.92000	27.04940	1.47582			
	2	25	99.80000	66.10462	1.50973			

Method G:\GC2011Q1\BETTY\METHODS\GC115P80.M

RetTime [min]	Sig	Lvl	Amount [%]	Area	Amt/Area	Ref	Grp	Name
		26	1002.00000	676.83240	1.48043			
		27	4008.00000	2641.78499	1.51716			
		28	1.00200e4	6537.58447	1.53268			
		29	2.00000e4	1.33569e4	1.49735			
		30	5.00000e4	3.34749e4	1.49366			
3.150	1	8	1.82000e-1	73.86340	2.46401e-3			Oxygen
		4	9.80000e-1	372.66600	2.62970e-3			
		5	4.90000	1895.79468	2.58467e-3			
		6	9.80000	3857.11670	2.54076e-3			
		9	99.80000	3.85815e4	2.58673e-3			
4.024	1	7	2.00000e-1	96.54302	2.07162e-3			Nitrogen
		1	1.00000	421.19687	2.37419e-3			
		2	5.00000	2034.64948	2.45743e-3			
		3	10.00000	4048.09033	2.47030e-3			
		9	100.00000	4.09458e4	2.44225e-3			
4.949	2	21	2.50000	2.33551	1.07043			Butane
		22	5.00000	4.70685	1.06228			
		23	10.00000	9.36084	1.06828			
		24	40.00000	35.93151	1.11323			
		25	100.00000	87.92505	1.13733			
		26	999.00000	925.66610	1.07922			
		27	3996.00000	3607.10563	1.10781			
		29	4080.00000	3603.68677	1.13217			
		28	9990.00000	8913.12370	1.12082			
		30	1.02000e4	9024.72168	1.13023			
5.258	1	7	2.00000e-1	92.42490	2.16392e-3			Carbon monoxide
		1	1.00000	470.54378	2.12520e-3			
		2	5.00000	2302.92566	2.17115e-3			
		3	10.00000	4570.86816	2.18777e-3			
		9	99.00000	4.56475e4	2.16879e-3			
6.483	2	21	2.47250	2.87491	8.60028e-1			Pentane
		22	4.94500	5.78764	8.54408e-1			
		23	9.89000	11.54544	8.56615e-1			
		24	39.56000	44.15979	8.95838e-1			
		25	98.90000	107.92964	9.16338e-1			
		29	801.60000	889.96724	9.00707e-1			
		30	2004.00000	2222.72542	9.01596e-1			
7.389	2	21	2.57500	3.46969	7.42140e-1			Hexane
		22	5.15000	6.96531	7.39379e-1			
		23	10.30000	13.96476	7.37571e-1			
		24	41.20000	53.01079	7.77200e-1			
		25	103.00000	129.42855	7.95806e-1			
		29	399.20000	529.44120	7.54003e-1			
		30	998.00000	1316.37195	7.58144e-1			
7.559	1	7	1.60000e-1	66.68196	2.39945e-3			Methane
		1	8.00000e-1	331.24899	2.41510e-3			
		2	4.00000	1600.45245	2.49929e-3			
		3	8.00000	3173.94128	2.52053e-3			
		9	99.00000	3.83102e4	2.58417e-3			
8.071	2	21	2.42500	3.66508	6.61651e-1			Heptane
		22	4.85000	7.36073	6.58902e-1			
		23	9.70000	14.81784	6.54616e-1			
		24	38.80000	56.01848	6.92629e-1			
		25	97.00000	136.11146	7.12651e-1			
		29	200.16000	312.41323	6.40690e-1			
		30	500.40000	769.34119	6.50427e-1			
9.070	1	8	1.82000e-1	127.79887	1.42411e-3			Carbon dioxide
		4	9.80000e-1	674.36972	1.45321e-3			
		5	4.90000	3344.95581	1.46489e-3			
		6	9.80000	6683.89722	1.46621e-3			
		9	99.80000	6.65036e4	1.50067e-3			

More compound-specific settings:

Compound: Methane
  Time Window : From 1.141 min To 1.333 min

Compound: Oxygen
  Time Window : From 2.848 min To 3.567 min

Compound: Nitrogen
  Time Window : From 3.527 min To 4.699 min

Compound: Carbon monoxide
  Time Window : From 4.772 min To 5.712 min

Compound: Methane
  Time Window : From 7.163 min To 7.734 min

Compound: Heptane
  Time Window : From 8.028 min To 8.138 min

Compound: Carbon dioxide
  Time Window : From 8.707 min To 9.408 min

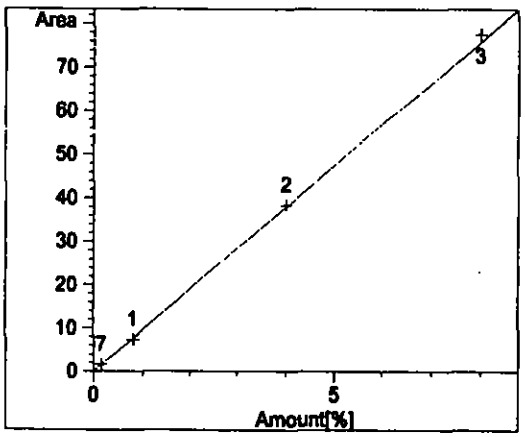
1 Warnings or Errors :

Warning : Cal. table open and changed while report was generated.

Peak Sum Table

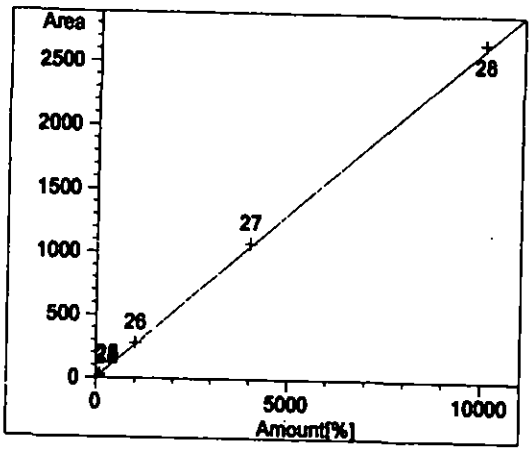
Name	StartTime [min]	EndTime [min]	Use Reference	Response factor	Multiplier	ISTD Peak
as Ethane	1.260	1.850	None	2.2055	1.0000	None
as Propane	1.850	3.600	None	1.4758	1.0000	None
as Butane	3.600	5.700	None	1.1022	1.0000	None
as Pentane	5.700	6.950	None	8.8365e-1	1.0000	None
as Hexane	6.950	7.750	None	7.5775e-1	1.0000	None
as Heptane	7.750	11.600	None	6.6737e-1	1.0000	None

Calibration Curves

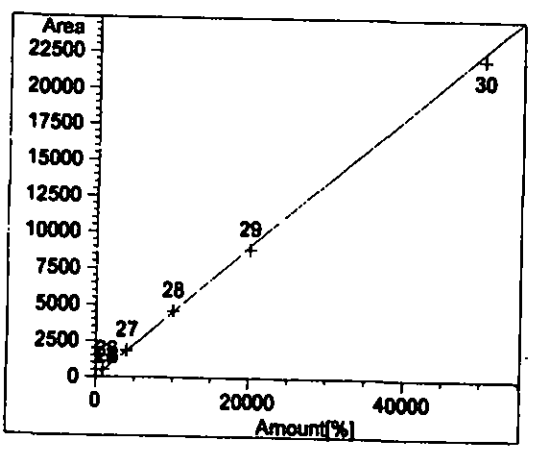


Hydrogen at exp. RT: 0.845
TCD1 A,
Correlation: 0.99951
Residual Std. Dev.: 1.30956
Formula: y = mx + b
  m: 9.47392
  b: 2.16664e-3
  x: Amount
  y: Area
Calibration Level Weights:
  Level 7 : 1
  Level 1 : 0.04
  Level 2 : 0.0016
  Level 3 : 0.0004

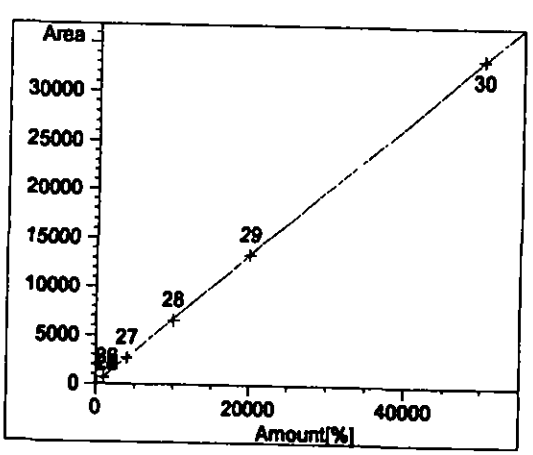
Method G:\GC2011Q1\BETTY\METHODS\GC115P80.M



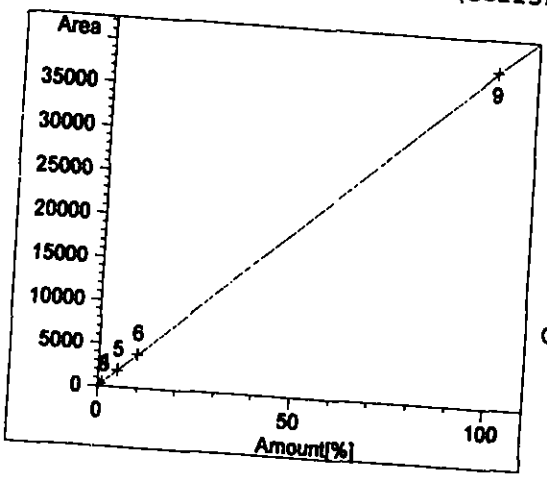
Methane at exp. RT: 1.221
FID2 B,
Correlation: 0.99927
Residual Std. Dev.: 19.32056
Formula: y = mx + b
m: 2.61733e-1
b: 2.73984e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.2002e-006
Level 27 : 3.87512e-007
Level 28 : 6.2002e-008



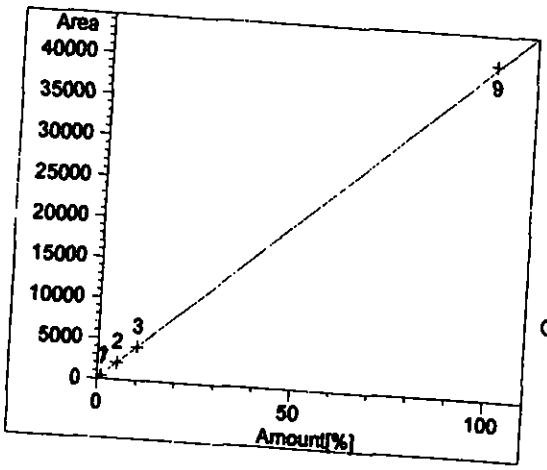
Ethane at exp. RT: 1.463
FID2 B,
Correlation: 0.99954
Residual Std. Dev.: 215.40200
Formula: y = mx + b
m: 4.51629e-1
b: 2.86341e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.250301
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.25e-006
Level 27 : 3.90625e-007
Level 28 : 6.25e-008
Level 29 : 1.54698e-008
Level 30 : 2.47516e-009



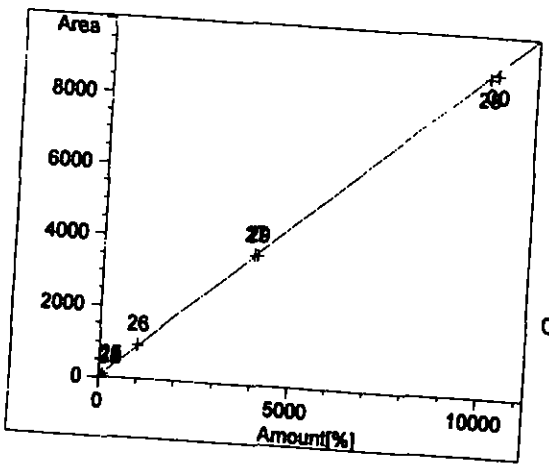
Propane at exp. RT: 2.299
FID2 B,
Correlation: 0.99977
Residual Std. Dev.: 62.46936
Formula: y = mx + b
m: 6.69307e-1
b: 1.19974e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.2002e-006
Level 27 : 3.87512e-007
Level 28 : 6.2002e-008
Level 29 : 1.55626e-008
Level 30 : 2.49001e-009



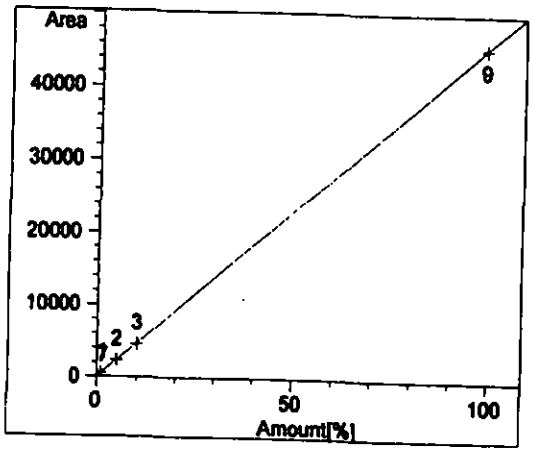
Oxygen at exp. RT: 3.150
TCD1 A,
Correlation: 0.99987
Residual Std. Dev.: 47.57254
Formula: y = mx + b
m: 386.12596
b: 3.30159
x: Amount
y: Area
Calibration Level Weights:
Level 8 : 1
Level 4 : 0.03449
Level 5 : 0.00138
Level 6 : 0.000345
Level 9 : 3.32569e-006



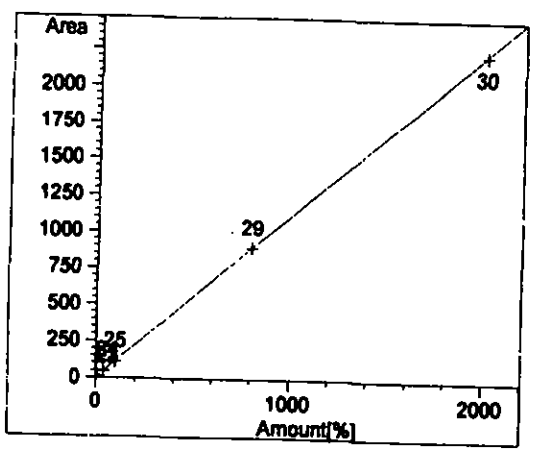
Nitrogen at exp. RT: 4.024
TCD1 A,
Correlation: 0.99998
Residual Std. Dev.: 216.30695
Formula: y = mx + b
m: 405.56551
b: 15.41704
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 4e-006



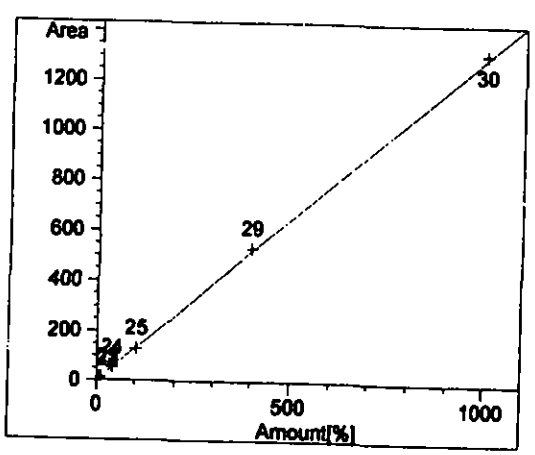
Butane at exp. RT: 4.949
FID2 B,
Correlation: 0.99976
Residual Std. Dev.: 60.52985
Formula: y = mx + b
m: 8.98671e-1
b: 1.24872e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 26 : 6.26252e-006
Level 27 : 3.91407e-007
Level 29 : 3.75457e-007
Level 28 : 6.26252e-008
Level 30 : 6.0073e-008



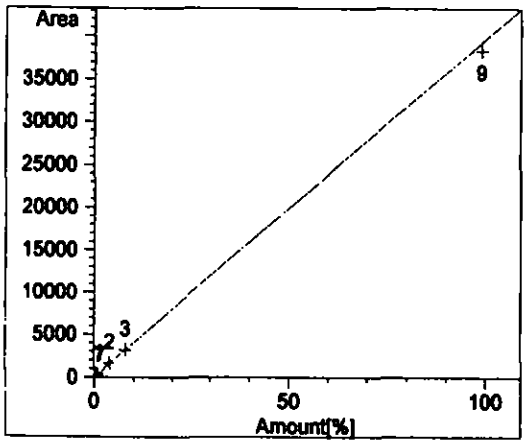
Carbon monoxide at exp. RT: 5.258
TCD1 A,
Correlation: 0.99993
Residual Std. Dev.: 51.04738
Formula: y = mx + b
m: 461.82579
b: 3.63989e-1
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 4.08122e-006



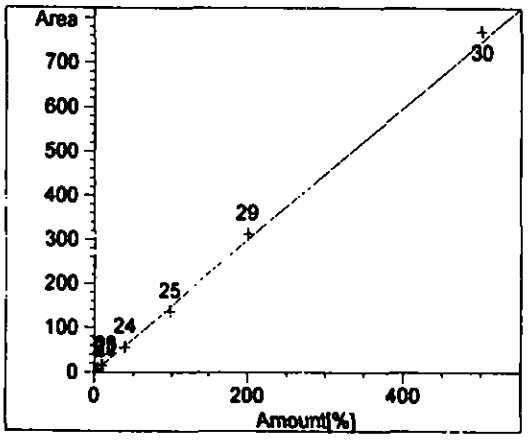
Pentane at exp. RT: 6.483
FID2 B,
Correlation: 0.99974
Residual Std. Dev.: 5.59918
Formula: y = mx + b
m: 1.11487
b: 1.65692e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 9.51387e-006
Level 30 : 1.52222e-006



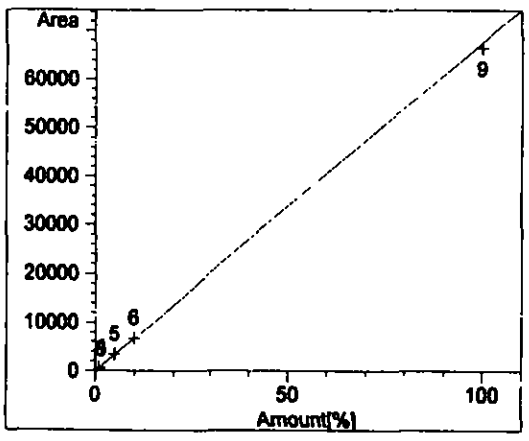
Hexane at exp. RT: 7.389
FID2 B,
Correlation: 0.99963
Residual Std. Dev.: 7.42308
Formula: y = mx + b
m: 1.30539
b: 1.48584e-1
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 0.000042
Level 30 : 6.65723e-006



Methane at exp. RT: 7.559
TCD1 A,
Correlation: 0.99975
Residual Std. Dev.: 599.44235
Formula: y = mx + b
m: 397.42242
b: 3.49247
x: Amount
y: Area
Calibration Level Weights:
Level 7 : 1
Level 1 : 0.04
Level 2 : 0.0016
Level 3 : 0.0004
Level 9 : 2.61198e-006



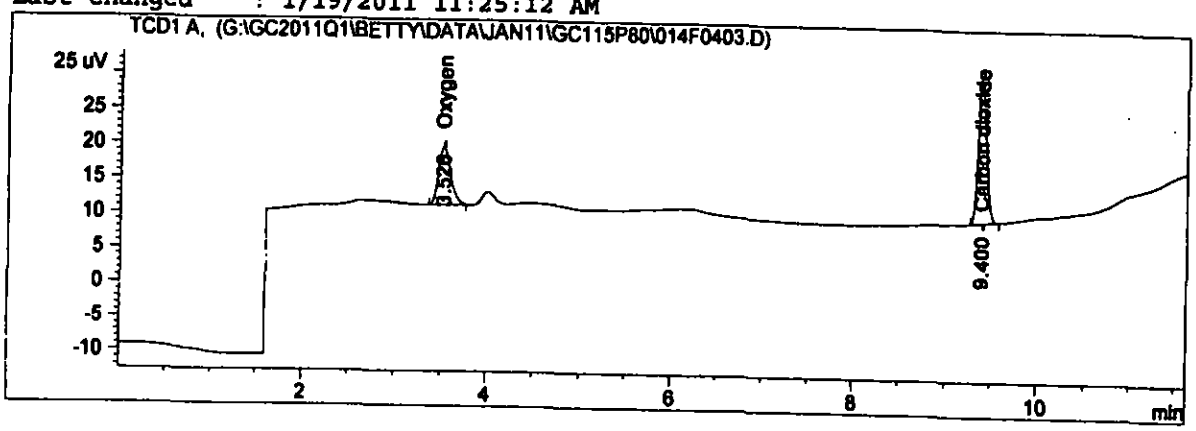
Heptane at exp. RT: 8.071
FID2 B,
Correlation: 0.99907
Residual Std. Dev.: 12.21897
Formula: y = mx + b
m: 1.49335
b: 6.33904e-2
x: Amount
y: Area
Calibration Level Weights:
Level 21 : 1
Level 22 : 0.25
Level 23 : 0.0625
Level 24 : 0.003906
Level 25 : 0.000625
Level 29 : 0.000147
Level 30 : 0.000023



Carbon dioxide at exp. RT: 9.070
TCD1 A,
Correlation: 0.99994
Residual Std. Dev.: 670.19494
Formula: y = mx + b
m: 677.94670
b: 4.63084
x: Amount
y: Area
Calibration Level Weights:
Level 8 : 1
Level 4 : 0.03449
Level 5 : 0.00138
Level 6 : 0.000345
Level 9 : 3.32569e-006

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0403.D
Sample Name: gc115p80 #PG5 ENV(1=4854.78,2=103.63)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 15:25:30
Seq. Line : 4
Location : Vial 14
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.526	BB	74.67765	2.47508e-3	1.84833e-1		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.400	BB	128.14978	1.42174e-3	1.82196e-1		Carbon dioxide

Totals : 3.67029e-1

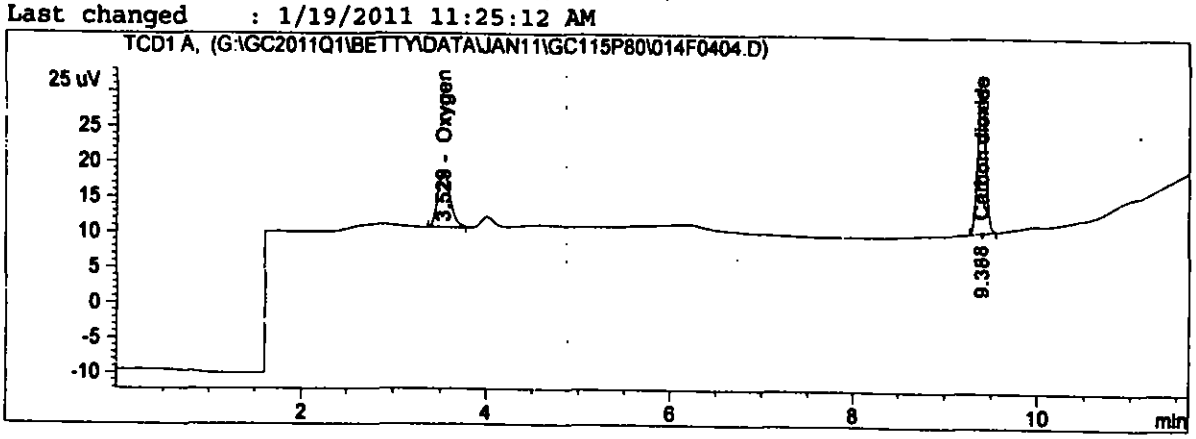
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0404.D
Sample Name: gc115p80 #FG5 ENV(1=4854.78,2=103.63)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 15:49:48
Seq. Line : 4
Location : Vial 14
Inj : 4
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.529	BB	73.04916	2.47335e-3	1.80676e-1		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.388	BB	127.44795	1.42168e-3	1.81191e-1		Carbon dioxide

Totals : 3.61867e-1

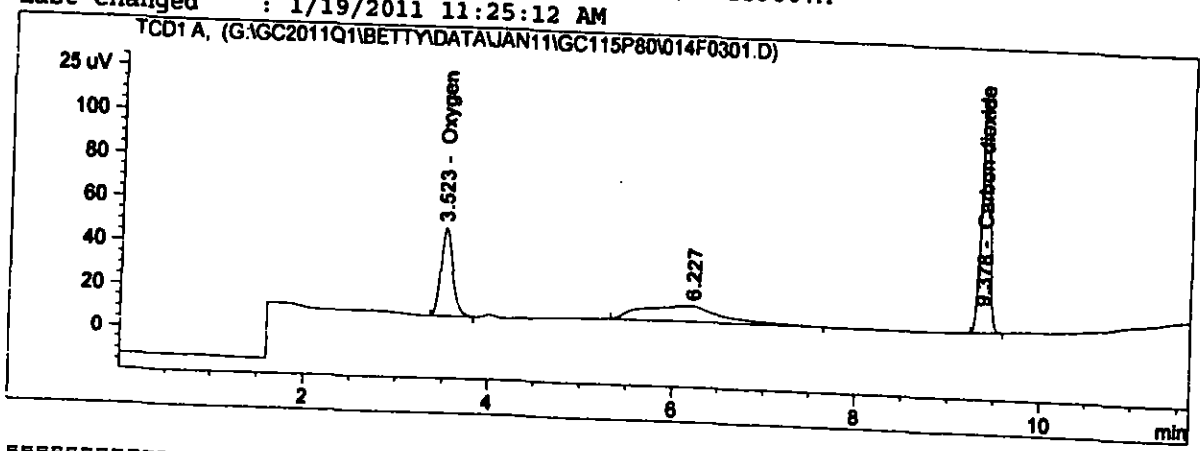
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0301.D
Sample Name: gc115p80 #FG6 ENV(1=1271.99,2=159.17)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 13:26:09
Seq. Line : 3
Location : Vial 14
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		
3.523	BB	369.18857	2.56780e-3	9.48001e-1		Hydrogen
4.000		-	-	-		Oxygen
5.258		-	-	-		Nitrogen
7.385		-	-	-		Carbon monoxide
9.378	BB	678.73358	1.46498e-3	9.94330e-1		Methane
						Carbon dioxide

Totals : 1.94233

Signal 2: FID2 B, not found

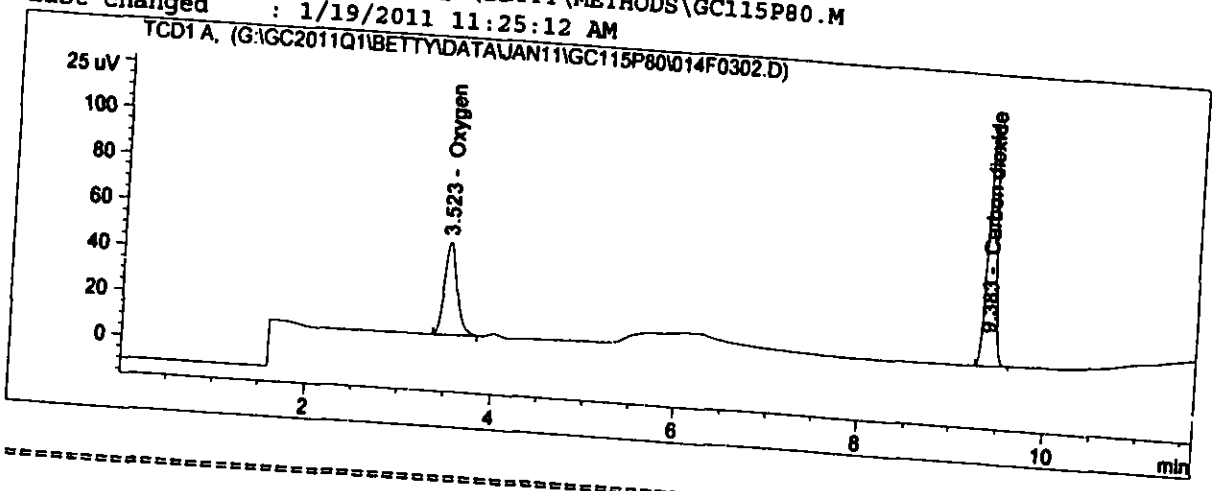
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		
1.463		-	-	-		Methane
2.299		-	-	-		Ethane
4.949		-	-	-		Propane
6.483		-	-	-		Butane
7.389		-	-	-		Pentane
8.071		-	-	-		Hexane
						Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0302.D
Sample Name: gc115p80 #PG6 ENV(1=1271.99,2=159.17)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 13:50:45
Seq. Line : 3
Location : Vial 14
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.523	BB	376.14343	2.56823e-3	9.66023e-1		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.383	BB	670.00586	1.46485e-3	9.81456e-1		Carbon dioxide

Totals : 1.94748

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

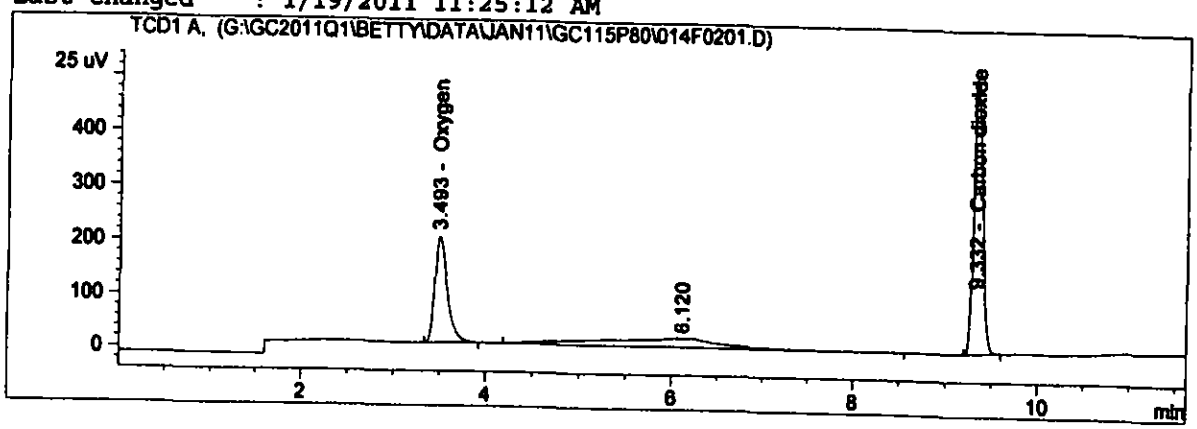
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0201.D
Sample Name: gc115p80 #PG7 ENV(1=636,2=716.28)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 12:36:45

Seq. Line : 2
Location : Vial 14
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.493	BB	1894.65234	2.58672e-3	4.90094		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.332	BB	3341.34692	1.47300e-3	4.92180		Carbon dioxide

Totals : 9.82274

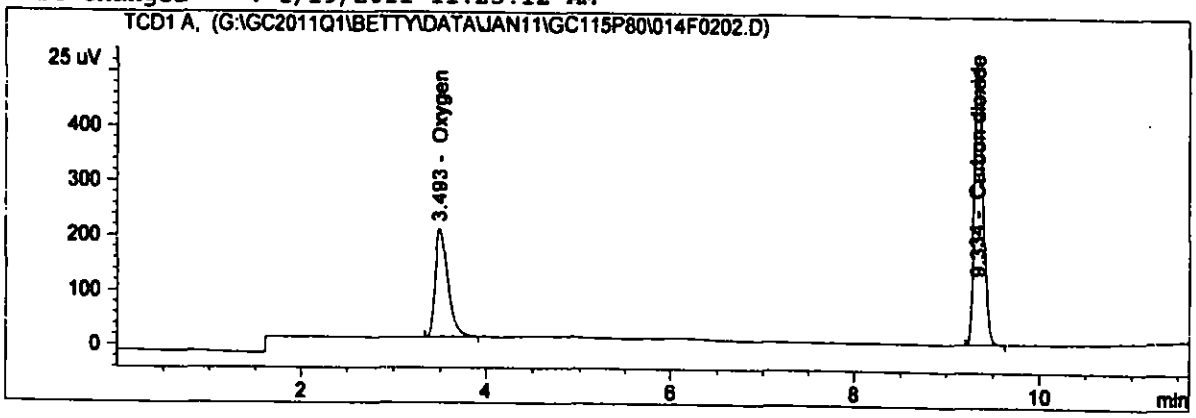
Signal 2: FID2 B, *not found*

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0202.D
Sample Name: gc115p80 #FG7 ENV(1=636,2=716.28)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 13:01:28
Seq. Line : 2
Location : Vial 14
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.493	BB	1896.93701	2.58673e-3	4.90686		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.334	BB	3348.56470	1.47300e-3	4.93244		Carbon dioxide

Totals : 9.83931

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

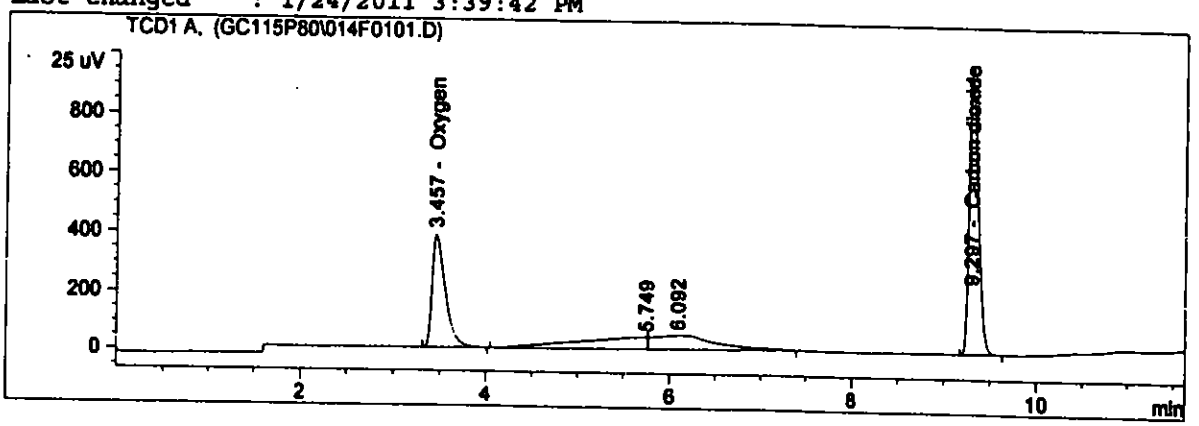
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0101.D
Sample Name: gc115p80 #FG8 ENV(1=0,2=358.14)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 11:46:47

Seq. Line : 1
Location : Vial 14
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/24/2011 3:39:04 PM
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
0.845		-	-	-		Hydrogen
3.457	BB	3858.56592	2.58761e-3	9.98447		Oxygen
4.024		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.297	BB	6713.76709	1.47402e-3	9.89626		Carbon dioxide

Totals : 19.88073

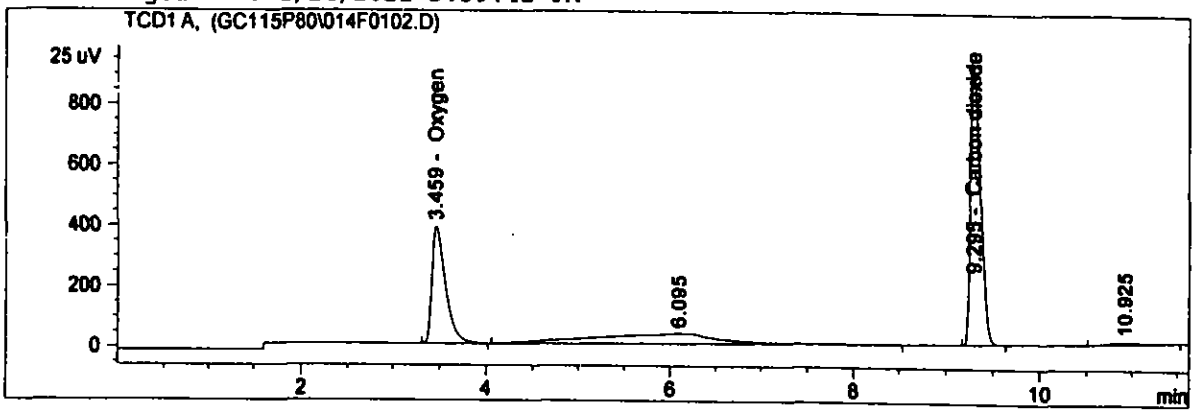
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0102.D
Sample Name: gc115p80 #FG8 ENV(1=0,2=358.14)

Acq. Operator : tbo
Seq. Line : 1
Acq. Instrument : Betty
Location : Vial 14
Injection Date : 14-Jan-11, 12:11:53
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/24/2011 3:39:04 PM
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
0.845		-	-	-		Hydrogen
3.459	BB	3855.66748	2.58761e-3	9.97697		Oxygen
4.024		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.295	BB	6654.02734	1.47402e-3	9.80814		Carbon dioxide

Totals : 19.78511

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

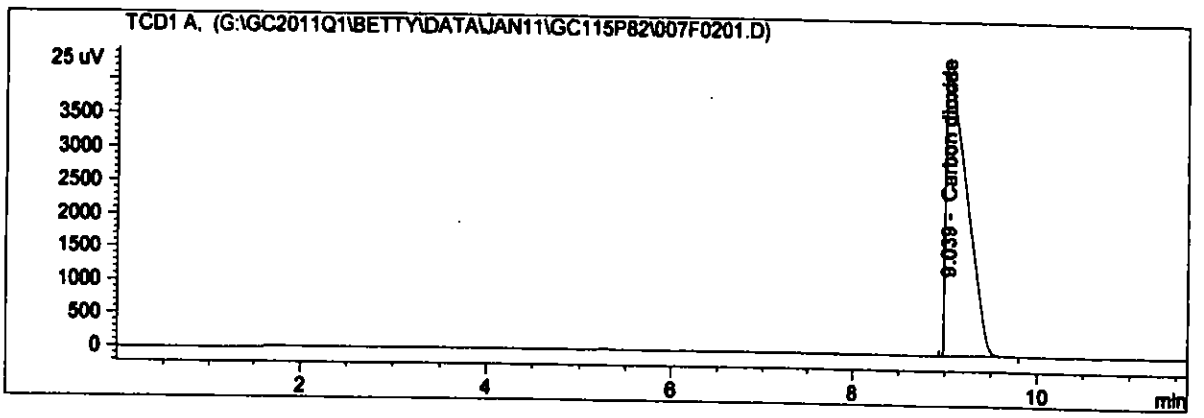
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\007F0201.D
Sample Name: ~~99.0%~~ 99.8% Carbon Dioxide

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 14:21:01

Seq. Line : 2
Location : Vial 7
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM
Sample Info : Aldrich Batch# 01629AJ



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.039	BB S	6.67765e4	1.47494e-3	98.49137		Carbon dioxide
Totals :				98.49137		

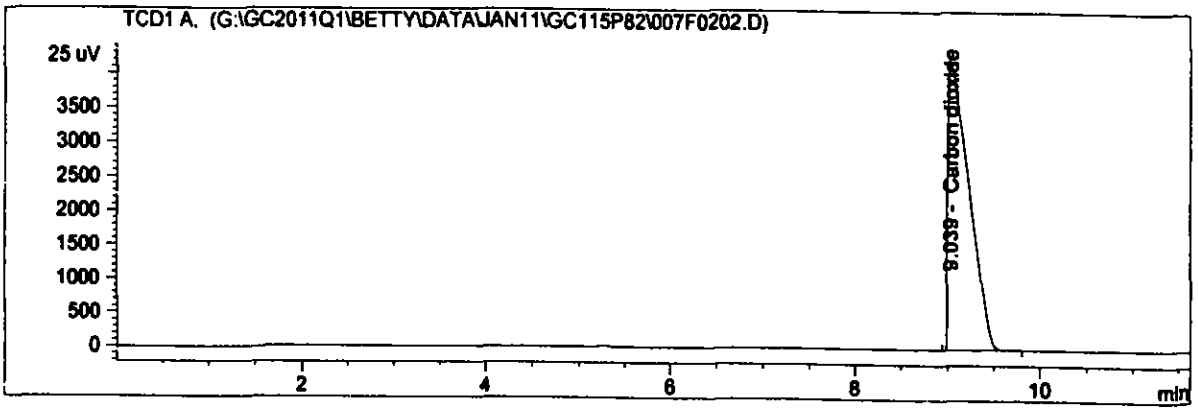
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\007F0202.D
Sample Name: ~~99.8%~~ Carbon Dioxide

99.8%

Acq. Operator : cjt
Seq. Line : 2
Acq. Instrument : Betty
Location : Vial 7
Injection Date : 17-Jan-11, 14:42:32
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM
Sample Info : Aldrich Batch# 01629AJ



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.039	BB S	6.62307e4	1.47494e-3	97.68619		Carbon dioxide

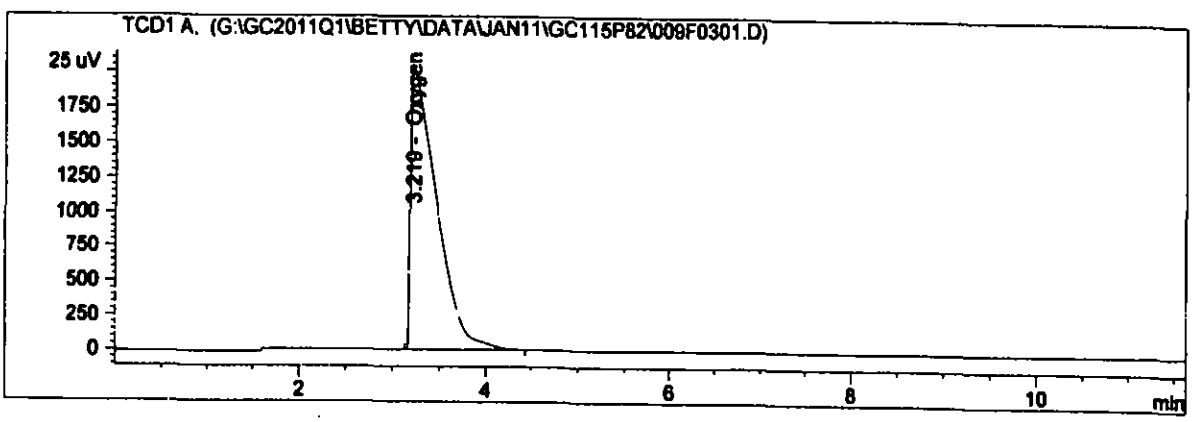
Totals : 97.68619

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\009F0301.D
ample Name: 100% Oxygen

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 15:04:00
Seq. Line : 3
Location : Vial 9
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM
Sample Info : Matheson Lot# 1059413064



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.219	BB	3.86257e4	2.59108e-3	100.08229		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

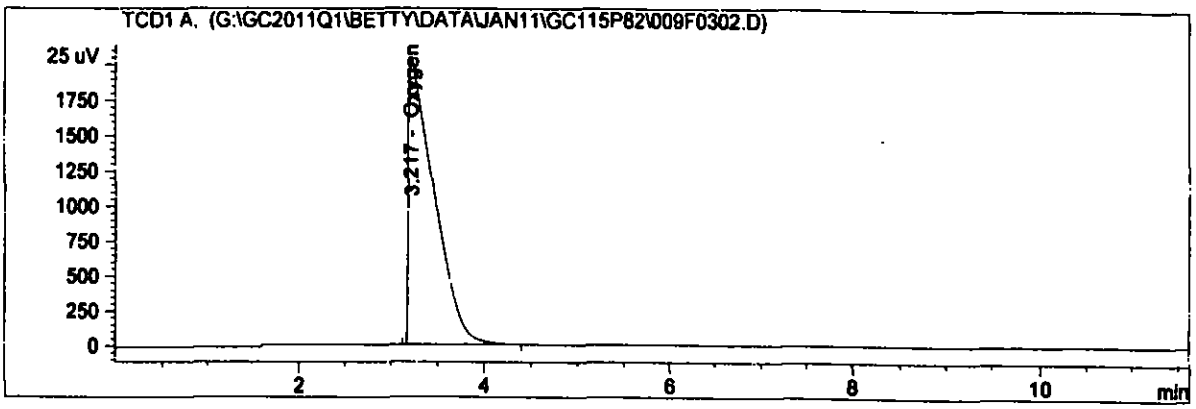
Totals : 100.08229

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\009F0302.D
Sample Name: 100% Oxygen

Acq. Operator	: cjt	Seq. Line	: 3
Acq. Instrument	: Betty	Location	: Vial 9
Injection Date	: 17-Jan-11, 15:25:24	Inj	: 2
		Inj Volume	: External
Acq. Method	: G:\GC2011Q1\BETTY\METHODS\GC115P025.M		
Last changed	: 11/5/2010 9:38:55 PM		
Analysis Method	: G:\GC2011Q1\BETTY\METHODS\GC115P80.M		
Last changed	: 1/19/2011 11:25:12 AM		
Sample Info	: Matheson Lot# 1059413064		



External Standard Report

Sorted By	:	Signal	
Calib. Data Modified	:	1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.217	BB	3.85374e4	2.59108e-3	99.85338		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

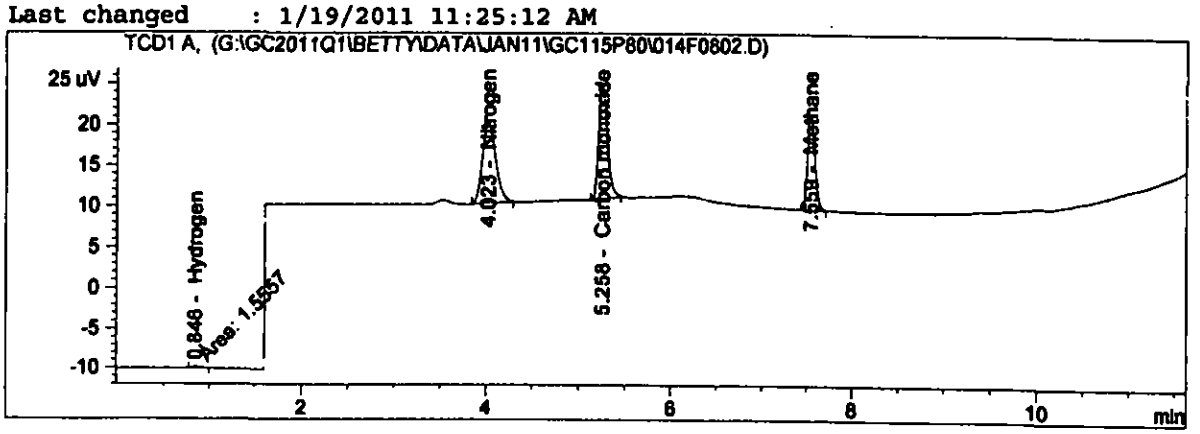
Totals : 99.85338

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0802.D
ample Name: gc115p80 #FG1 ENV(1=692.53,4=16.73)

Acq. Operator : tbo Seq. Line : 8
Acq. Instrument : Betty Location : Vial 14
Injection Date : 14-Jan-11, 21:31:40 Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.846~~	~~MM~~	~~1.55570~~	~~1.05406e-1~~	~~1.63900e-1~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
4.023	BB	96.64458	2.07236e-3	2.00282e-1		Nitrogen
5.258	BB	92.91468	2.15684e-3	2.00402e-1		Carbon monoxide
7.559	BB	67.17511	2.38540e-3	1.60239e-1		Methane
9.070		-	-	-		Carbon dioxide

Totals : 7.24903e-1

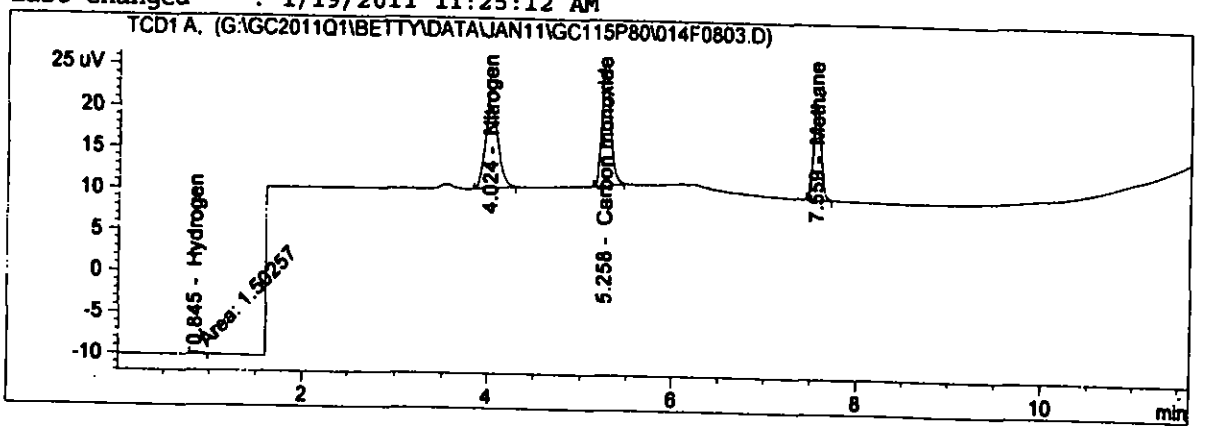
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0803.D
Sample Name: gc115p80 #FG1 ENV(1=692.53,4=16.73)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 21:56:14
Seq. Line : 8
Location : Vial 14
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.845~~	~~MM~~	~~1.50257~~	~~1.05402e-1~~	~~1.58374e-1~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
4.024	BB	96.44145	2.07189e-3	1.99816e-1		Nitrogen
5.258	BB	91.93511	2.15682e-3	1.98287e-1		Carbon monoxide
7.559	BB	66.18882	2.38521e-3	1.57874e-1		Methane
9.070		-	-	-		Carbon dioxide

Totals : 7.14352e-1

Signal 2: FID2 B, not found

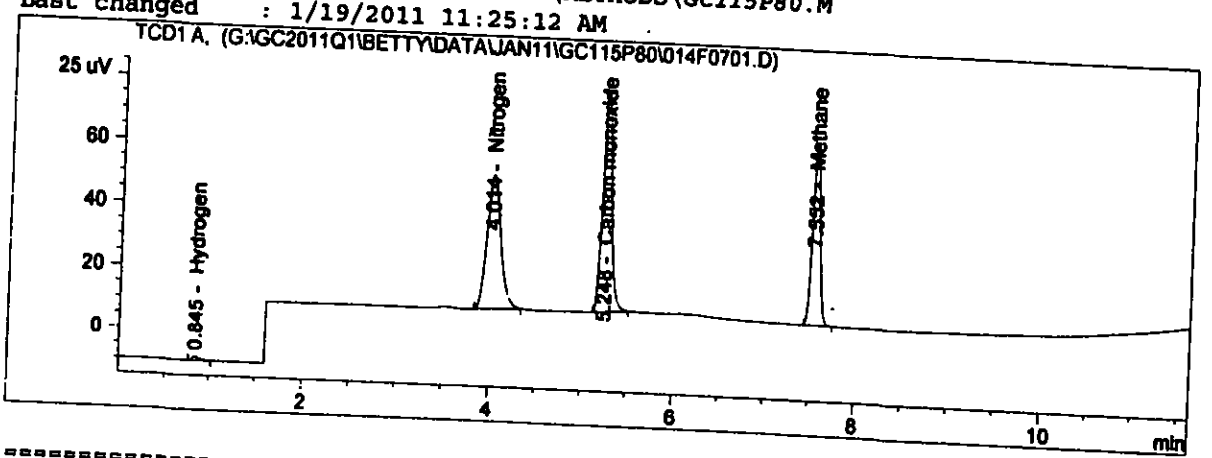
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0701.D
Sample Name: gc115p80 #PG2 ENV(1=636,4=83.66)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 20:18:11
Seq. Line : 7
Location : Vial 14
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.845~~	~~BB~~	~~7.32600~~	~~1.05522e-1~~	~~7.73052e-1~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
4.014	BB	422.34094	2.37569e-3	1.00335		Nitrogen
5.248	BB	470.87659	2.16364e-3	1.01881		Carbon monoxide
7.552	BB	330.28137	2.48961e-3	8.22271e-1		Methane
9.070		-	-	-		Carbon dioxide

Totals : 3.61748

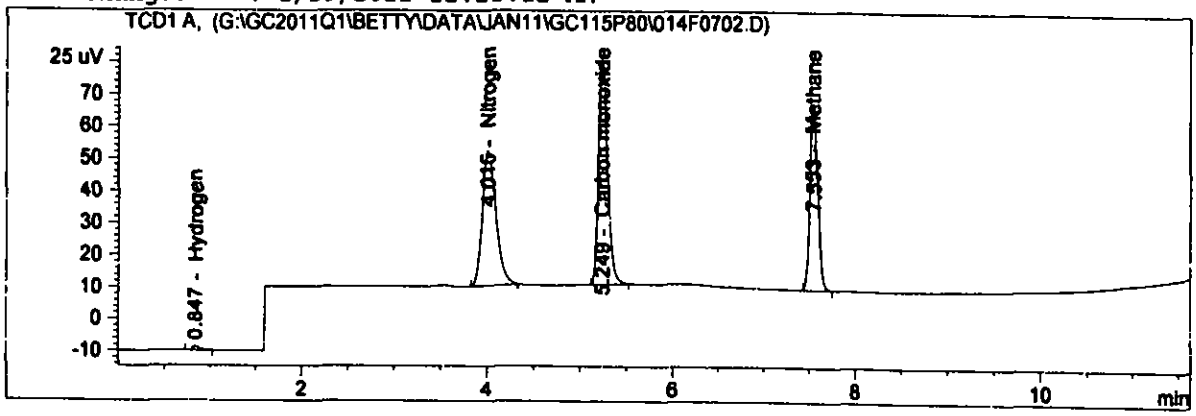
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0702.D
Sample Name: gc115p80 #FG2 ENV(1=636,4=83.66)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 20:42:40
Seq. Line : 7
Location : Vial 14
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.847	BB	7.21282	1.05521e-1	7.61105e-1		Hydrogen
3.150		-	-	-		Oxygen
4.015	BB	420.05280	2.37520e-3	9.97708e-1		Nitrogen
5.249	BB	470.21097	2.16364e-3	1.01737		Carbon monoxide
7.553	BB	332.21661	2.48976e-3	8.27140e-1		Methane
9.070		-	-	-		Carbon dioxide

Totals : 3.60332

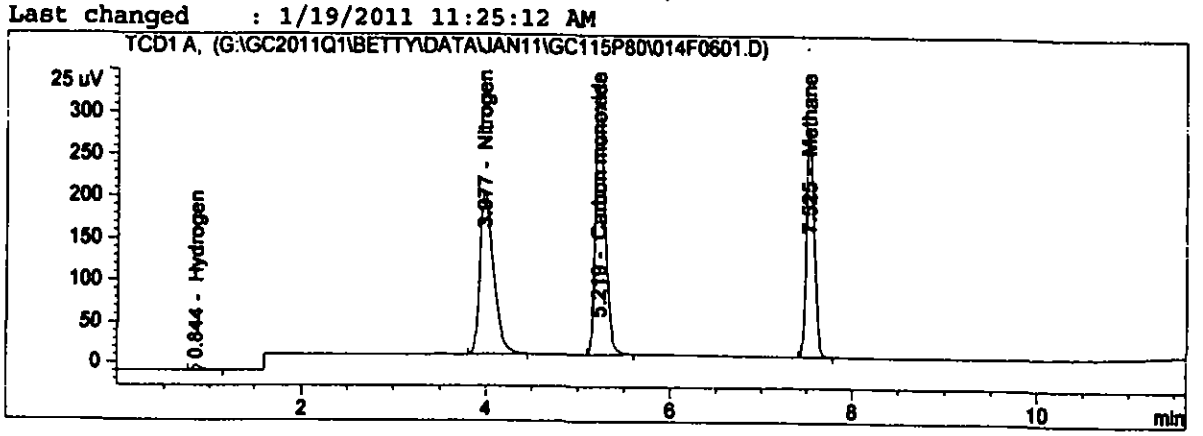
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0601.D
Sample Name: gc115p80 #PG3 ENV(1=318,3=376.47)

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 14-Jan-11, 19:29:13
Seq. Line : 6
Location : Vial 14
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.844~~	~~BB~~	~~38.42260~~	~~1.05547e-1~~	~~4.05529~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
3.977	BB	2038.76733	2.44705e-3	4.98896		Nitrogen
5.219	BB	2303.93726	2.16498e-3	4.98797		Carbon monoxide
7.525	BB	1596.07581	2.51071e-3	4.00728		Methane
9.070		-	-	-		Carbon dioxide

Totals : 18.03960

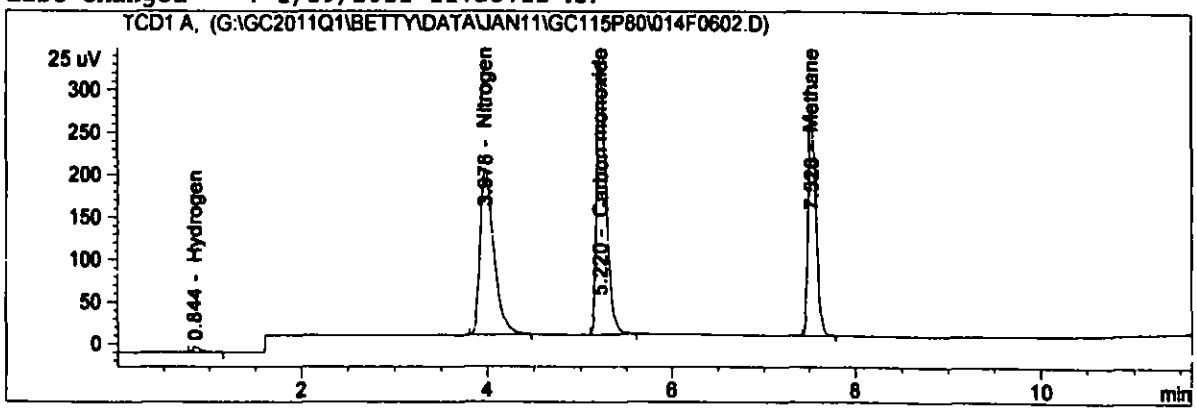
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0602.D
Sample Name: gc115p80 #FG3 ENV(1=318,3=376.47)

Acq. Operator : tbo Seq. Line : 6
Acq. Instrument : Betty Location : Vial 14
Injection Date : 14-Jan-11, 19:53:41 Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.844~~	~~BB~~	~~38.15152~~	~~1.05547e-1~~	~~4.02678~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
3.978	BB	2030.53162	2.44697e-3	4.96865		Nitrogen
5.220	BB	2301.91406	2.16498e-3	4.98359		Carbon monoxide
7.526	BB	1604.82910	2.51074e-3	4.02931		Methane
9.070		-	-	-		Carbon dioxide

Totals : 18.00833

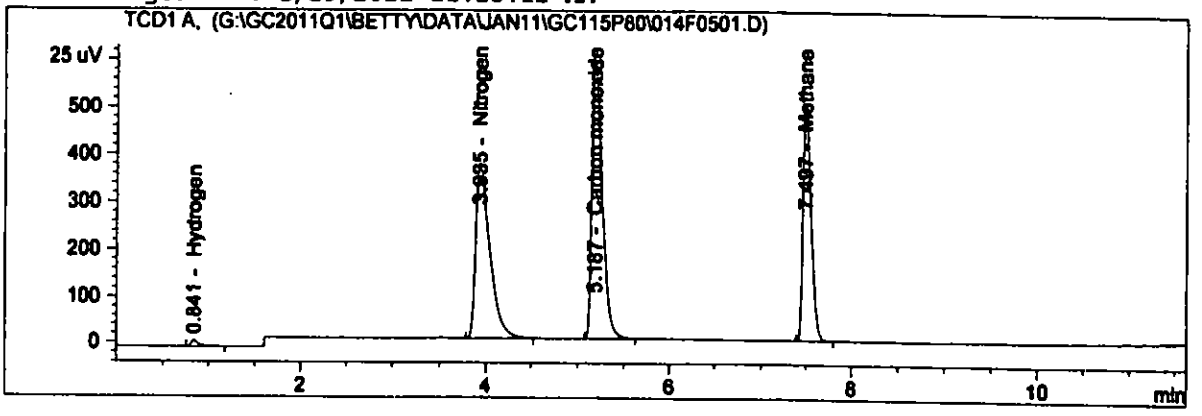
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0501.D
Sample Name: gc115p80 #FG4 ENV(1=0,3=376.47)

Acq. Operator : tbo Seq. Line : 5
Acq. Instrument : Betty Location : Vial 14
Injection Date : 14-Jan-11, 18:40:08 Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.841~~	~~BB~~	~~77.55135~~	~~1.05550e-1~~	~~8.18554~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
3.935	BB	4031.82422	2.45626e-3	9.90323		Nitrogen
5.187	BB	4547.25635	2.16515e-3	9.84547		Carbon monoxide
7.497	BB	3162.09521	2.51344e-3	7.94772		Methane
9.070		-	-	-		Carbon dioxide

Totals : 35.88196

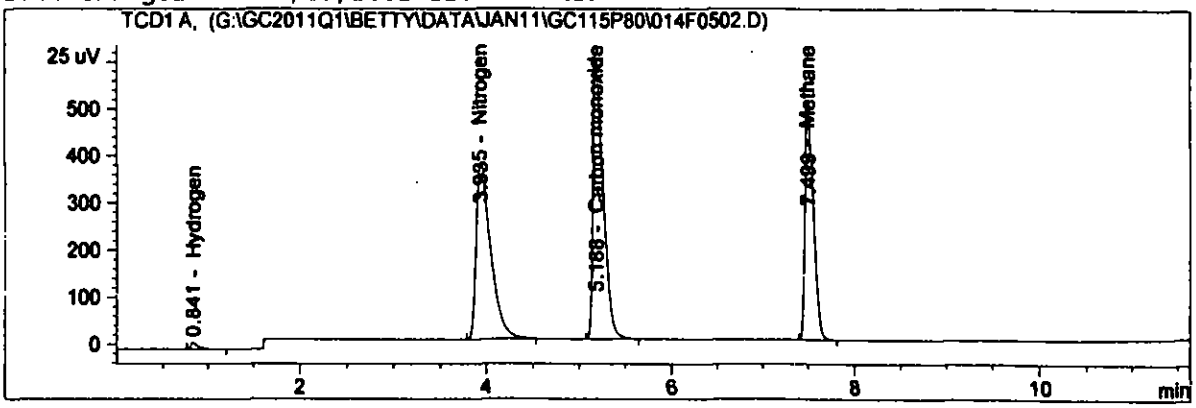
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\014F0502.D
Sample Name: gc115p80 #FG4 ENV(1=0,3=376.47)

Acq. Operator : tbo
Seq. Line : 5
Acq. Instrument : Betty
Location : Vial 14
Injection Date : 14-Jan-11, 19:04:40
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
~~0.841~~	~~BB~~	~~77.60278~~	~~1.05550e-1~~	~~8.19097~~		~~Hydrogen~~
3.150		-	-	-		Oxygen
3.935	BB	4064.35645	2.45634e-3	9.98344		Nitrogen
5.188	BB	4594.47998	2.16515e-3	9.94773		Carbon monoxide
7.499	BB	3185.78735	2.51346e-3	8.00734		Methane
9.070		-	-	-		Carbon dioxide

Totals : 36.12947

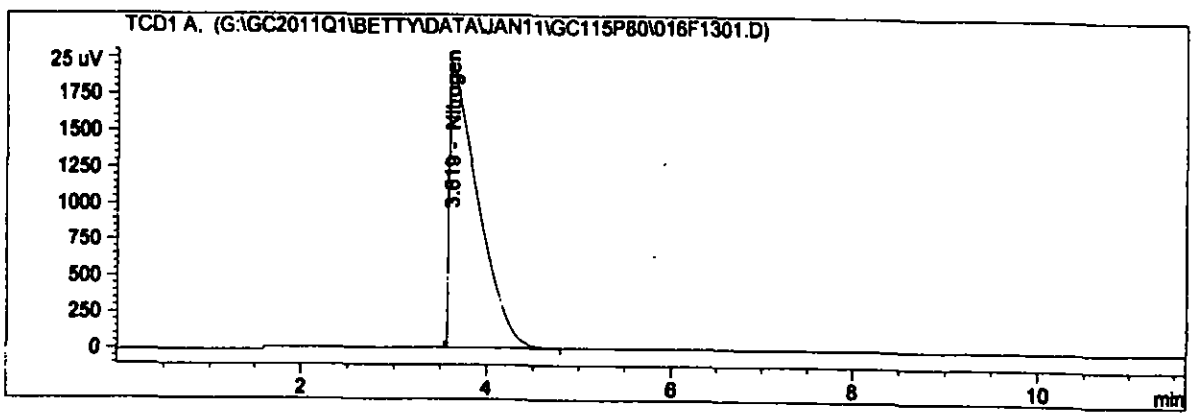
Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 0.00000

ata File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\016F1301.D
ample Name: 100% Nitrogen

Acq. Operator : tbo
Acq. Instrument : Betty
Injection Date : 15-Jan-11, 10:08:28
Seq. Line : 13
Location : Vial 16
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM
Sample Info : Airgas Lot # 7951-N-7310-17-10-7469



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.619	VB	4.12403e4	2.46477e-3	101.64791		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

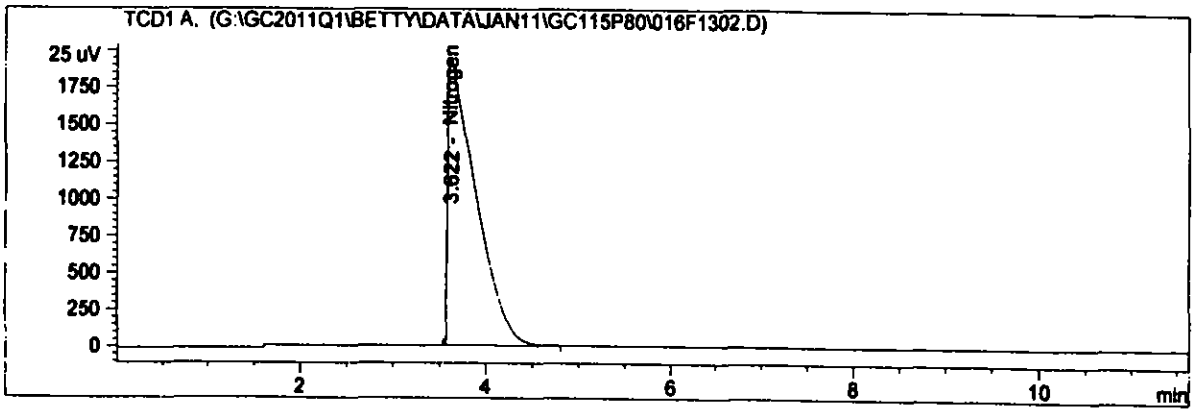
Totals : 101.64791

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P80\016F1302.D
Sample Name: 100% Nitrogen

```
Acq. Operator    : tbo                                  Seq. Line :  13
Acq. Instrument  : Betty                                 Location : Vial 16
Injection Date   : 15-Jan-11, 10:30:31                       Inj :   2
                                                      Inj Volume : External
Acq. Method      : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed     : 11/5/2010 9:38:55 PM
Analysis Method  : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed     : 1/19/2011 11:25:12 AM
Sample Info      : Airgas Lot # 7951-N-7310-17-10-7469
```



External Standard Report

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Sorted By             :      Signal
Calib. Data Modified  :      1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.622	VB	4.06513e4	2.46476e-3	100.19569		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

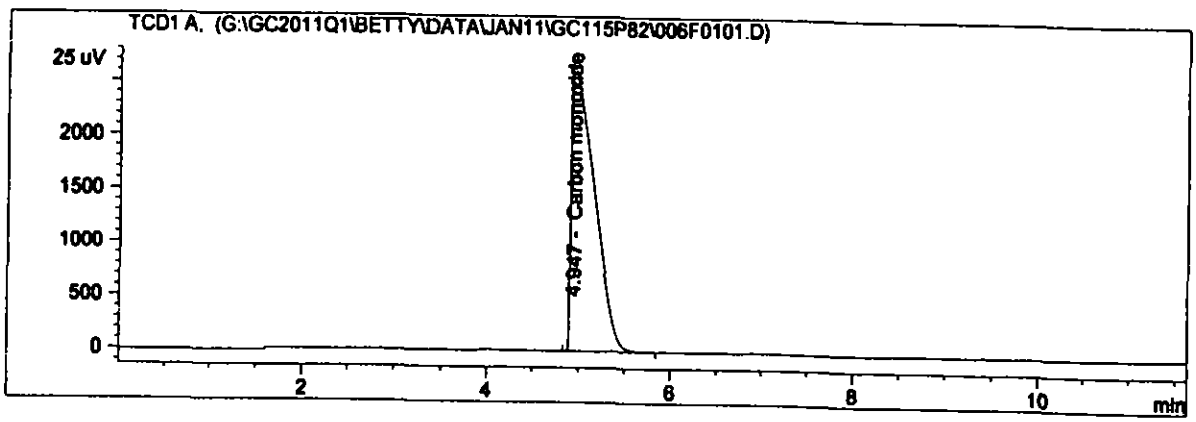
Totals : 100.19569

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\006F0101.D
Sample Name: 99.0% Carbon Monoxide

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 13:37:30
Seq. Line : 1
Location : Vial 6
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM
Sample Info : Aldrich Batch# 03611BJ



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.000		-	-	-		Nitrogen
4.947	BB	4.56701e4	2.16530e-3	98.88948		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

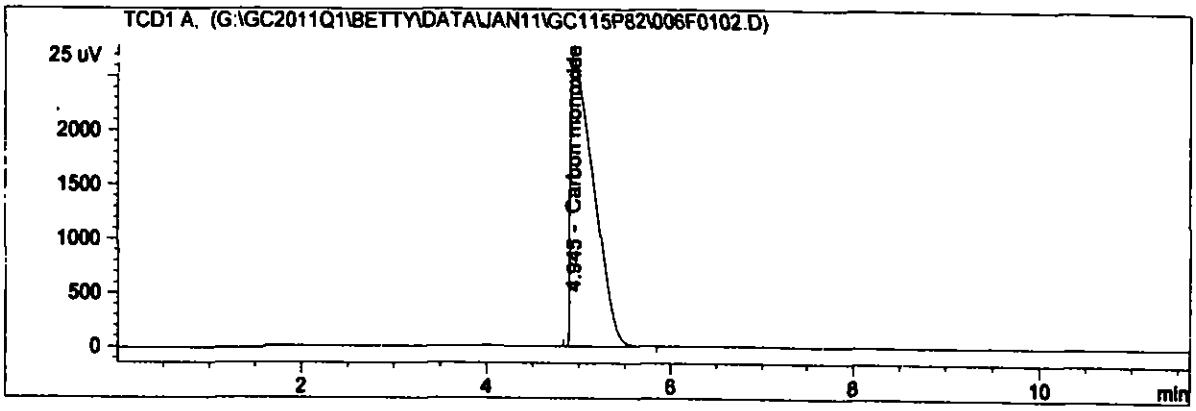
Totals : 98.88948

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\006F0102.D
Sample Name: 99.0% Carbon Monoxide

```
Acq. Operator    : cjt                                  Seq. Line :   1
Acq. Instrument  : Betty                                 Location : Vial 6
Injection Date   : 17-Jan-11, 13:59:23                       Inj :   2
                                                       Inj Volume : External
Acq. Method      : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed     : 11/5/2010 9:38:55 PM
Analysis Method  : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed     : 1/19/2011 11:25:12 AM
Sample Info      : Aldrich Batch# 03611BJ
```



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

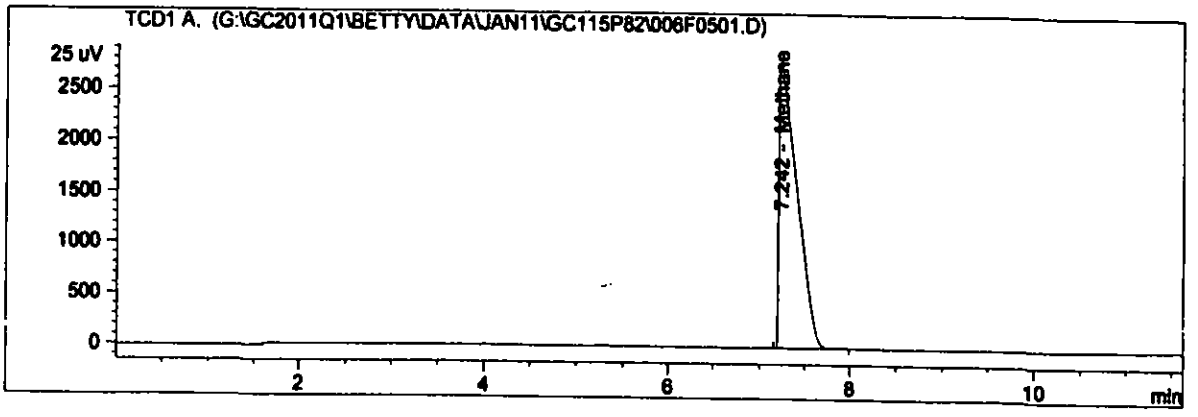
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.000		-	-	-		Nitrogen
4.945	BB	4.56249e4	2.16530e-3	98.79158		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				98.79158		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\006F0501.D
Sample Name: 99.0% Methane

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 16:29:45
Seq. Line : 5
Location : Vial 6
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:25:12 AM
Sample Info : Aldrich Batch# MKBB4558



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.242	BB	3.84313e4	2.51599e-3	96.69269		Methane
9.070		-	-	-		Carbon dioxide

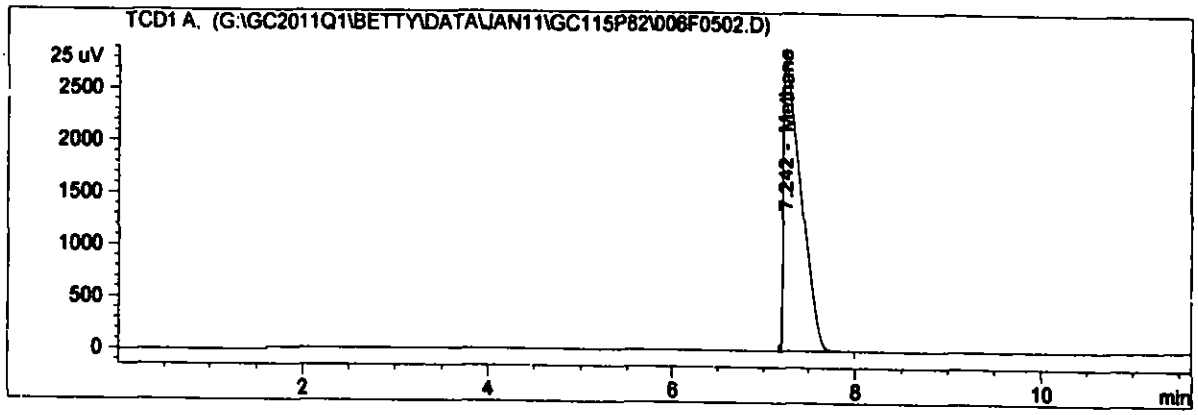
Totals : 96.69269

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\006F0502.D
Sample Name: 99.0% Methane

```
Acq. Operator    : cjt                                  Seq. Line :   5
Acq. Instrument  : Betty                                 Location : Vial 6
Injection Date   : 17-Jan-11, 16:51:10                       Inj :   2
                                                      Inj Volume : External
Acq. Method      : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed     : 11/5/2010 9:38:55 PM
Analysis Method  : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed     : 1/19/2011 11:25:12 AM
Sample Info      : Aldrich Batch# MKBB4558
```



External Standard Report

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Sorted By             :      Signal
Calib. Data Modified  :      1/19/2011 11:24:06 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
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.000		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.242	BB	3.81890e4	2.51598e-3	96.08287		Methane
9.070		-	-	-		Carbon dioxide

Totals : 96.08287

Signal 2: FID2 B, not found

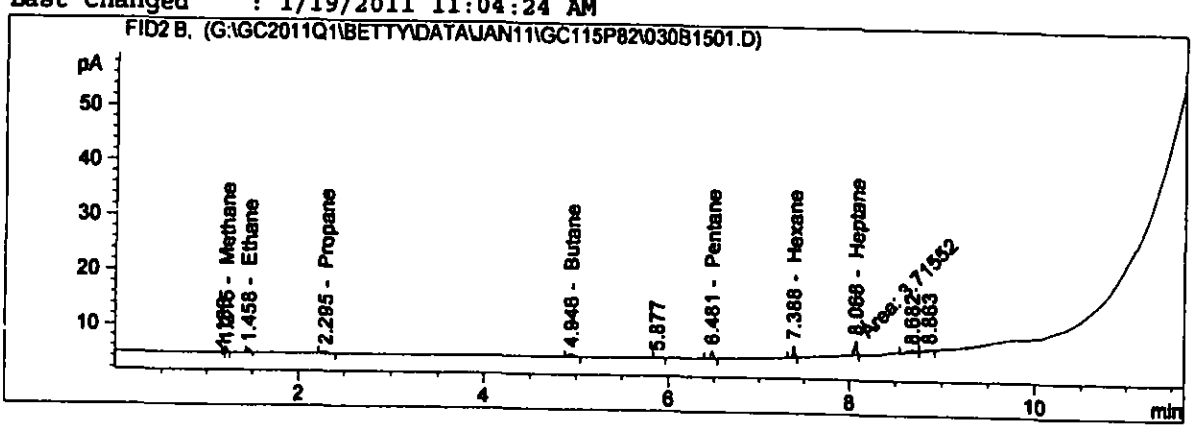
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1501.D
Sample Name: gc115p82 #C1 ENV(1=2755.99,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 00:42:10

Seq. Line : 15
Location : Vial 30
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.215	PB	6.75351e-1	3.66683	2.47640		Methane
1.458	BB	1.14731	2.15939	2.47749		Ethane
2.295	BB	1.77376	1.39394	2.47251		Propane
4.946	BB	2.33032	1.05416	2.45653		Butane
6.481	BB	2.86728	8.46109e-1	2.42603		Pentane
7.388	BV	3.46800	7.33627e-1	2.54422		Hexane
8.068	MM	3.71552	6.58211e-1	2.44559		Heptane

Manual Int. "II" (CJT)

Totals : 17.29877

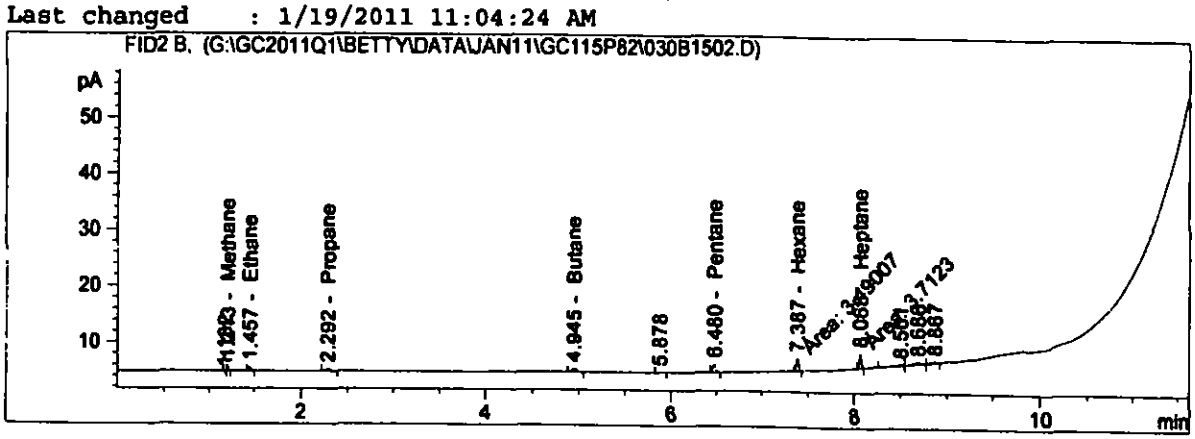
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1502.D
Sample Name: gc115p82 #C1 ENV(1=2755.99,2=100.17)

Acq. Operator : cjt
Seq. Line : 15
Acq. Instrument : Betty
Location : Vial 30
Injection Date : 18-Jan-11, 01:07:47
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.213	PB	6.86212e-1	3.66813	2.51712		Methane
1.457	BB	1.16412	2.15974	2.51419		Ethane
2.292	BB	1.75867	1.39394	2.45147		Propane
4.945	BB	2.35244	1.05416	2.47985		Butane
6.480	BB	2.89631	8.46109e-1	2.45059		Pentane
7.387	MM	3.49007	7.33627e-1	2.56041		Hexane Manual Int. "II" (CJT)
8.068	MM	3.71230	6.58201e-1	2.44344		Heptane Manual Int. "II" (CJT)

Totals : 17.41709

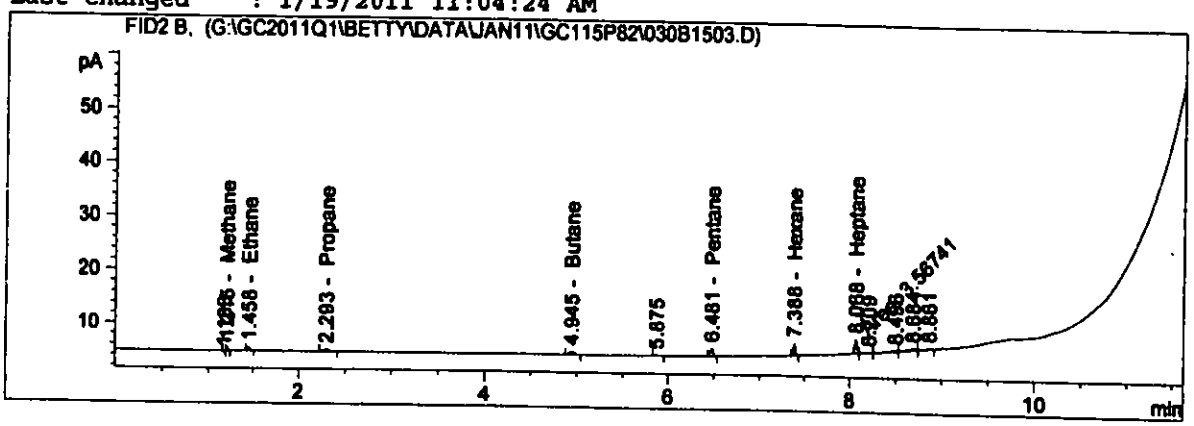
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1503.D
Sample Name: gc115p82 #C1 ENV(1=2755.99,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 01:33:30
Seq. Line : 15
Location : Vial 30
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.215	PB	6.76502e-1	3.66683	2.48062		Methane
1.458	BB	1.13341	2.15939	2.44746		Ethane
2.293	BB	1.73353	1.39394	2.41643		Propane
4.945	BB	2.32378	1.05416	2.44965		Butane
6.481	BB	2.86113	8.46109e-1	2.42083		Pentane
7.388	BB	3.45101	7.33627e-1	2.53175		Hexane
8.068	MM	3.56741	6.58116e-1	2.34777		Heptane

Manual Int. "II" (CJT)

Totals : 17.09451

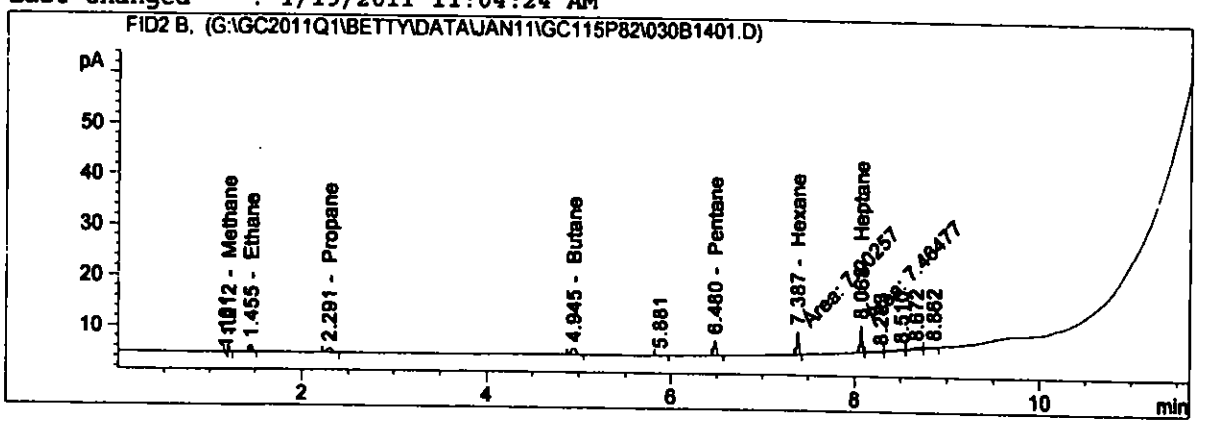
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1401.D
Sample Name: gc115p82 #C2 ENV(1=1342.66,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 23:26:15
Seq. Line : 14
Location : Vial 30
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name	
1.212	PB	1.35273	3.74330	5.06367		Methane	
1.455	BB	2.29418	2.18657	5.01640		Ethane	
2.291	BB	3.53465	1.44337	5.10180		Propane	
4.945	BB	4.70793	1.08324	5.09982		Butane	
6.480	BB	5.81299	8.71401e-1	5.06544		Pentane	
7.387	MM	7.00257	7.49801e-1	5.25054		Hexane	Manual Int. "II" (CJT)
8.068	MM	7.46477	6.63949e-1	4.95623		Heptane	Manual Int. "II" (CJT)
Totals :				35.55390			

Signal 2: TCD1 A, not found

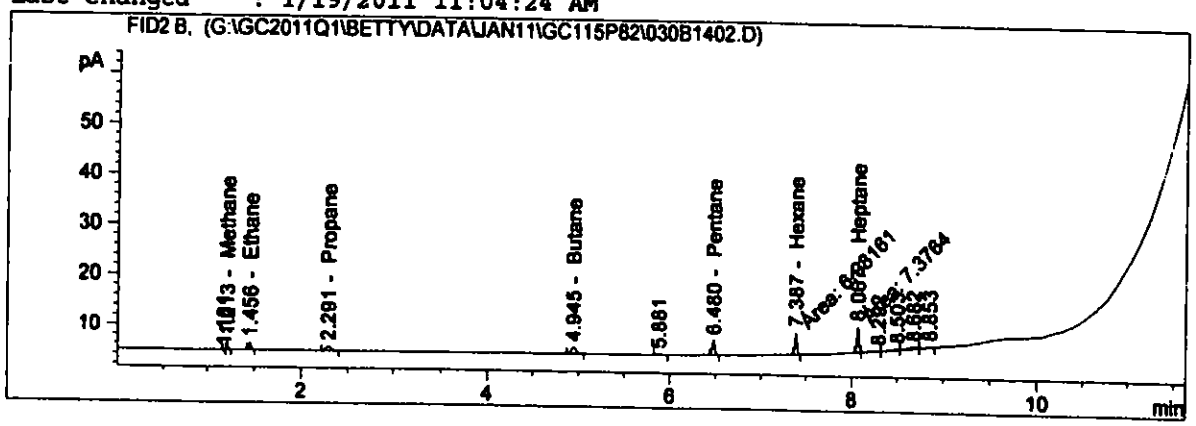
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1402.D
Sample Name: gc115p82 #C2 ENV(1=1342.66,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 23:51:34

Seq. Line : 14
Location : Vial 30
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.213	PB	1.34899	3.74308	5.04940		Methane
1.456	BB	2.33169	2.18702	5.09944		Ethane
2.291	BB	3.53770	1.44341	5.10636		Propane
4.945	BB	4.74245	1.08345	5.13823		Butane
6.480	BB	5.82069	8.71435e-1	5.07235		Pentane
7.387	MM	6.98161	7.49752e-1	5.23448		Hexane
8.067	MM	7.37640	6.63881e-1	4.89705		Heptane
Totals :				35.59730		

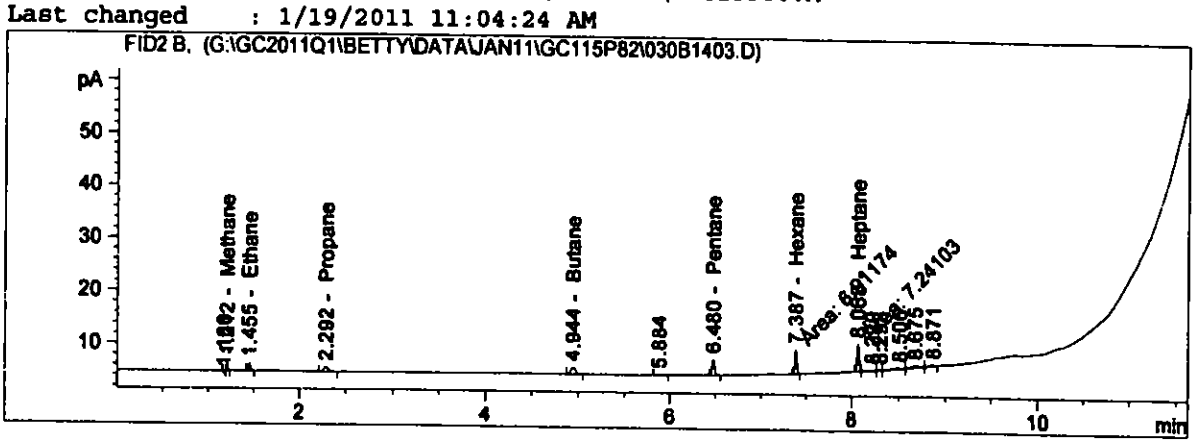
Manual Int. "II" (CJT)
Manual Int. "II" (CJT)

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1403.D
Sample Name: gc115p82 #C2 ENV(1=1342.66,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 00:16:53
Seq. Line : 14
Location : Vial 30
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PB	1.32890	3.74191	4.97264		Methane
1.455	BB	2.30126	2.18666	5.03207		Ethane
2.292	BB	3.54501	1.44352	5.11729		Propane
4.944	BB	4.67016	1.08300	5.05779		Butane
6.480	BB	5.72923	8.71027e-1	4.99031		Pentane
7.387	MM	6.91174	7.49588e-1	5.18095		Hexane
8.068	MM	7.24103	6.63774e-1	4.80640		Heptane
Totals :				35.15746		

Manual Int. "II" (CJT)
Manual Int. "II" (CJT)

Signal 2: TCD1 A, not found

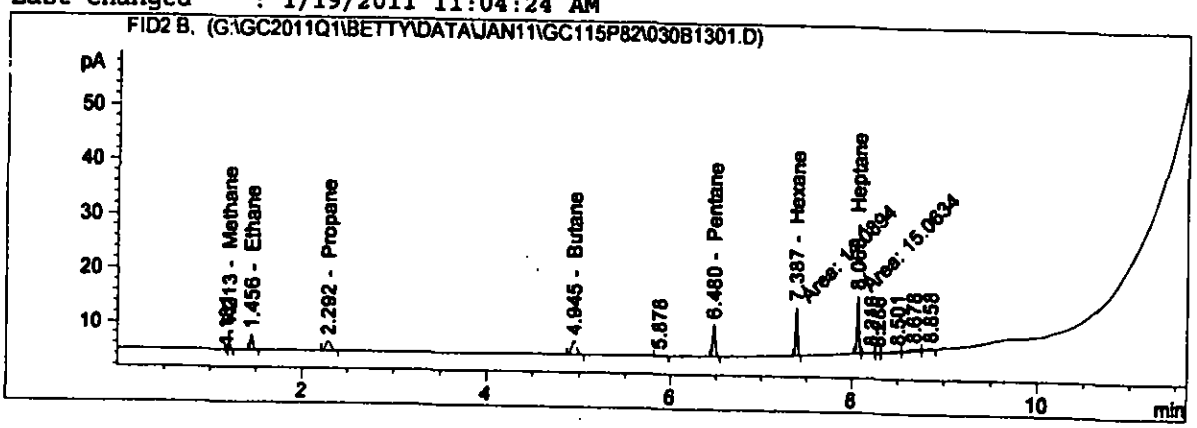
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1301.D
Sample Name: gc115p82 #C3 ENV(1=636,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 22:10:21

Seq. Line : 13
Location : Vial 30
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.213	PB	2.65705	3.78128	10.04707		Methane
1.456	BB	4.60290	2.20043	10.12836		Ethane
2.292	BB	7.00847	1.46851	10.29198		Propane
4.945	BB	9.37295	1.09793	10.29084		Butane
6.480	BB	11.59449	8.84150e-1	10.25127		Pentane
7.387	MM	14.08938	7.57977e-1	10.67943		Hexane
8.068	MM	15.06336	6.66818e-1	10.04452		Heptane
Totals :				71.73347		

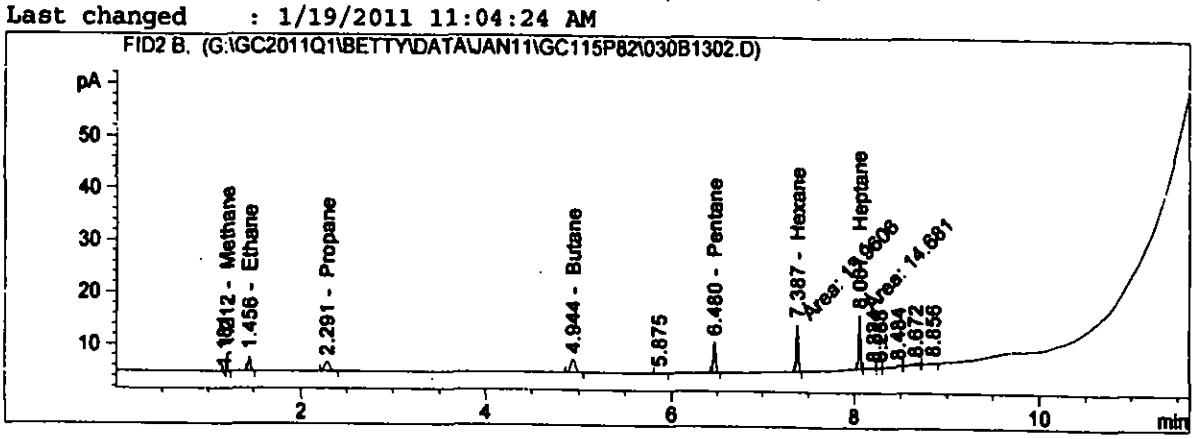
Manual Int. "II" (CJT)
Manual Int. "II" (CJT)

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1302.D
Sample Name: gc115p82 #C3 ENV(1=636,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 22:35:36
Seq. Line : 13
Location : Vial 30
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PB	2.65036	3.78118	10.02150		Methane
1.456	BB	4.60142	2.20043	10.12510		Ethane
2.291	BB	7.04213	1.46863	10.34227		Propane
4.944	BB	9.36716	1.09792	10.28440		Butane
6.480	BB	11.52403	8.84071e-1	10.18807		Pentane
7.387	MM	13.96064	7.57903e-1	10.58081		Hexane
8.067	MM	14.68102	6.66745e-1	9.78849		Heptane
Totals :				71.33063		

Manual Int. "II" (CJT)
Manual Int. "II" (CJT)

Signal 2: TCD1 A, not found

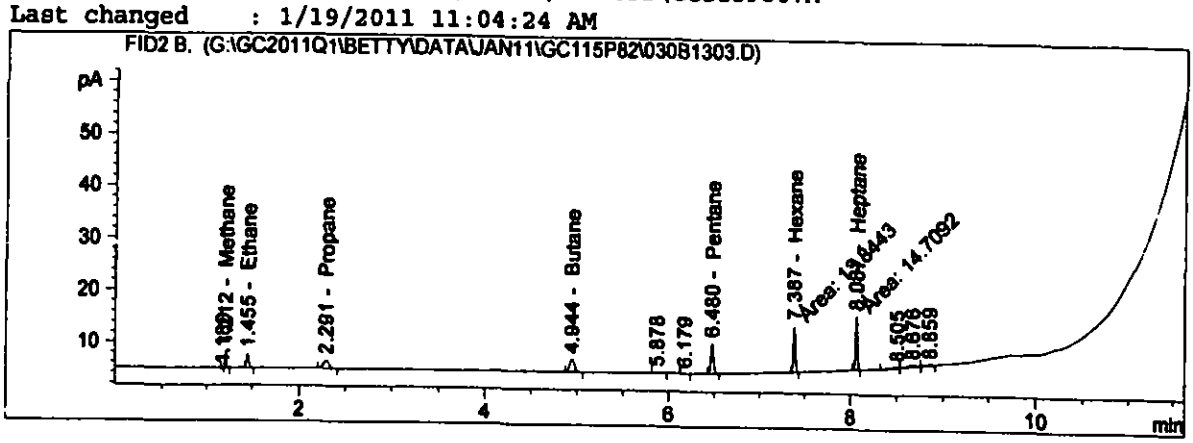
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1303.D
Sample Name: gc115p82 #C3 ENV(1=636,2=100.17)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 23:00:53

Seq. Line : 13
Location : Vial 30
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.212	PB	2.66198	3.78136	10.06588		Methane
1.455	BB	4.61161	2.20046	10.14765		Ethane
2.291	BB	7.04073	1.46862	10.34018		Propane
4.944	BB	9.34240	1.09788	10.25684		Butane
6.480	BB	11.51779	8.84064e-1	10.18247		Pentane
7.387	MM	13.84427	7.57834e-1	10.49166		Hexane
8.067	MM	14.70916	6.66750e-1	9.80733		Heptane
Totals :				71.29200		

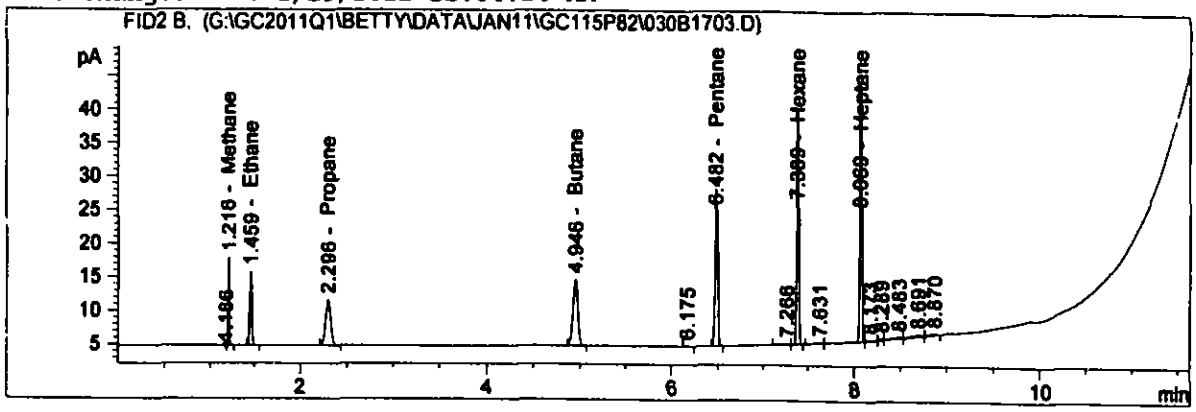
Manual Int. "II" (CJT)
Manual Int. "II" (CJT)

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1703.D
Sample Name: gc115p82 #C4 ENV(1=848,2=801.36)

Acq. Operator : cjt
Seq. Line : 17
Acq. Instrument : Betty
Location : Vial 30
Injection Date : 18-Jan-11, 10:52:27
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

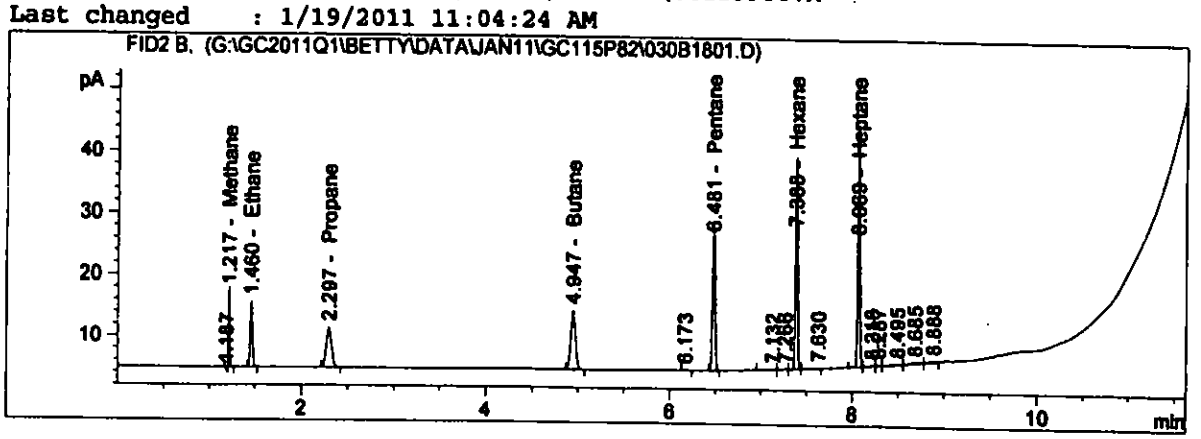
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.216	PB	10.07094	3.81029	38.37314		Methane
1.459	BB	17.78449	2.21064	39.31514		Ethane
2.296	BB	27.05823	1.48746	40.24796		Propane
4.946	BB	35.93809	1.10889	39.85129		Butane
6.482	BB	44.20187	8.93606e-1	39.49903		Pentane
7.389	VB	53.00255	7.63908e-1	40.48908		Hexane
8.069	VV	56.10905	6.68879e-1	37.53019		Heptane
Totals :				275.30585		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1801.D
Sample Name: gc115p82 #C4 ENV(1=848,2=801.36)

Acq. Operator : cjt
Seq. Line : 18
Acq. Instrument : Betty
Location : Vial 30
Injection Date : 18-Jan-11, 11:17:12
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.217	PB	9.98737	3.81020	38.05386		Methane
1.460	BB	17.63805	2.21061	38.99089		Ethane
2.297	BB	26.91148	1.48742	40.02871		Propane
4.947	BB	35.77299	1.10887	39.66758		Butane
6.481	BB	43.95308	8.93587e-1	39.27588		Pentane
7.388	VB	52.77983	7.63899e-1	40.31847		Hexane
8.069	VV	55.80420	6.68875e-1	37.32605		Heptane

Totals : 273.66143

Signal 2: TCD1 A, not found

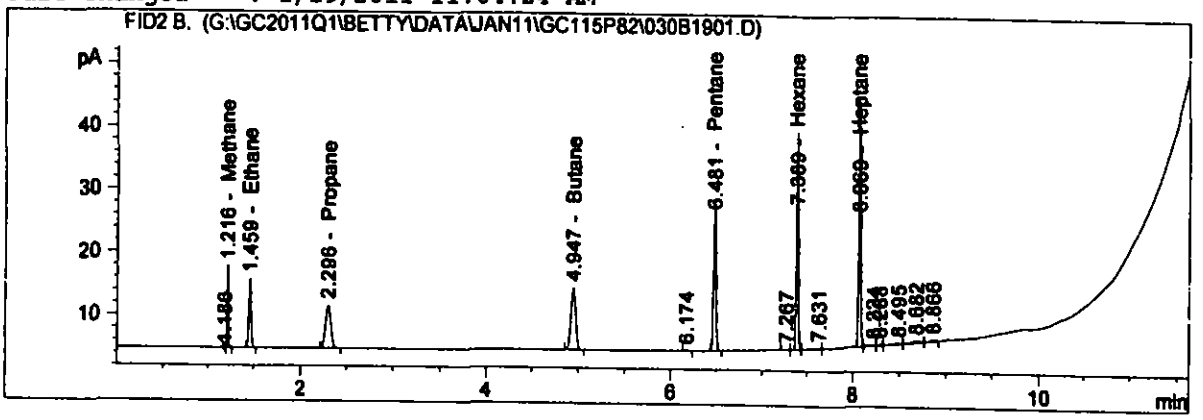
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1901.D
Sample Name: gc115p82 #C4 ENV(1=848,2=801.36)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 11:41:54
Seq. Line : 19
Location : Vial 30
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.216	PB	10.07316	3.81029	38.38163		Methane
1.459	BB	17.79588	2.21064	39.34037		Ethane
2.296	BB	27.17849	1.48749	40.42764		Propane
4.947	BB	36.08345	1.10890	40.01304		Butane
6.481	BB	44.32442	8.93615e-1	39.60896		Pentane
7.389	VV	53.24998	7.63918e-1	40.67863		Hexane
8.069	VV	56.14221	6.68880e-1	37.55239		Heptane
Totals :				276.00265		

Signal 2: TCD1 A, not found

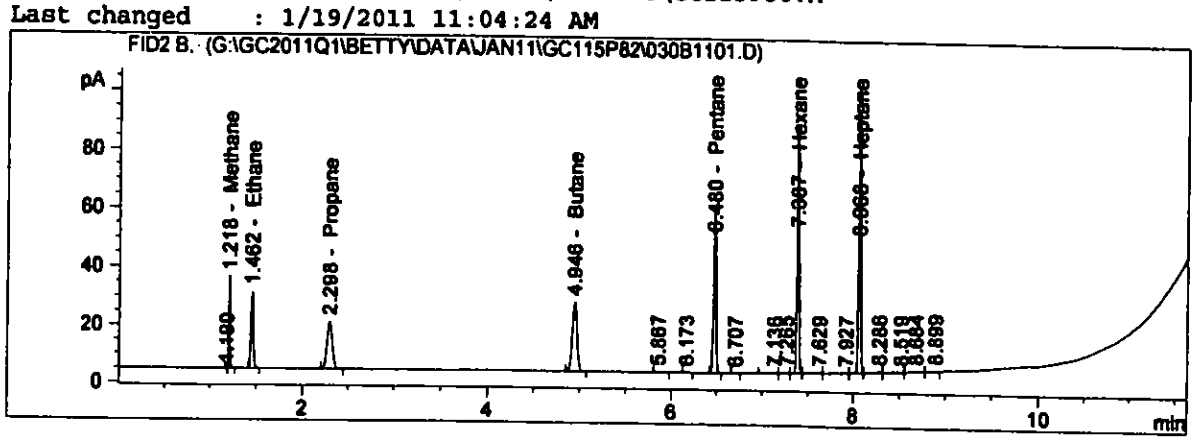
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1101.D
Sample Name: gc115p82 #C5 ENV(1=0,2=601.2)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 19:39:34

Seq. Line : 11
Location : Vial 30
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.218	PB	24.76468	3.81645	94.51325		Methane
1.462	BB	43.52746	2.21275	96.31541		Ethane
2.298	BB	66.27335	1.49138	98.83858		Propane
4.946	BB	88.12537	1.11118	97.92288		Butane
6.480	BB	108.18443	8.95594e-1	96.88934		Pentane
7.387	VV	129.75668	7.65178e-1	99.28702		Hexane
8.068	VV	136.55444	6.69325e-1	91.39932		Heptane

Totals : 675.16579

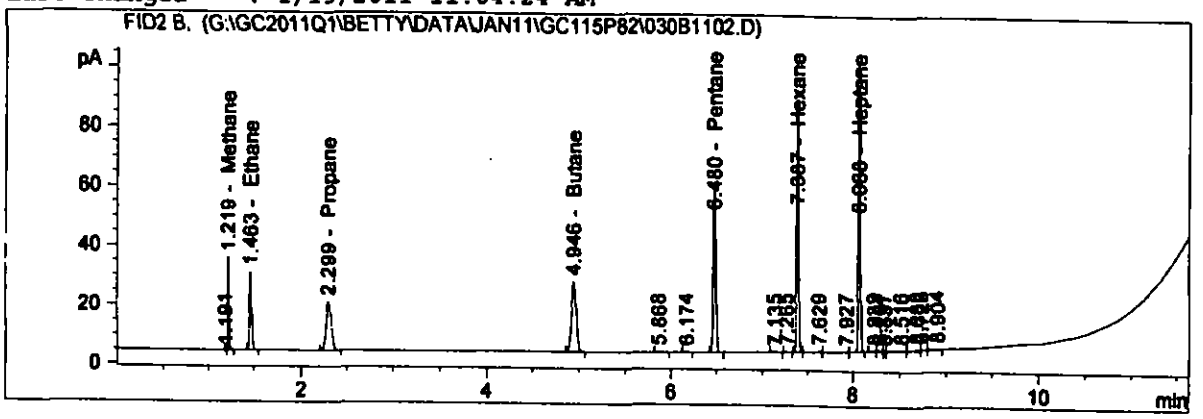
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1102.D
Sample Name: gc115p82 #C5 ENV(1=0,2=601.2)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 20:04:33
Seq. Line : 11
Location : Vial 30
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.219	PB	24.40649	3.81639	93.14471		Methane
1.463	BB	42.93327	2.21273	94.99974		Ethane
2.299	BB	65.33573	1.49134	97.43769		Propane
4.946	BB	86.98543	1.11116	96.65441		Butane
6.480	BB	106.72661	8.95575e-1	95.58172		Pentane
7.387	BB	127.97121	7.65166e-1	97.91926		Hexane
8.068	VB	134.28214	6.69320e-1	89.87770		Heptane

Totals : 665.61523

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

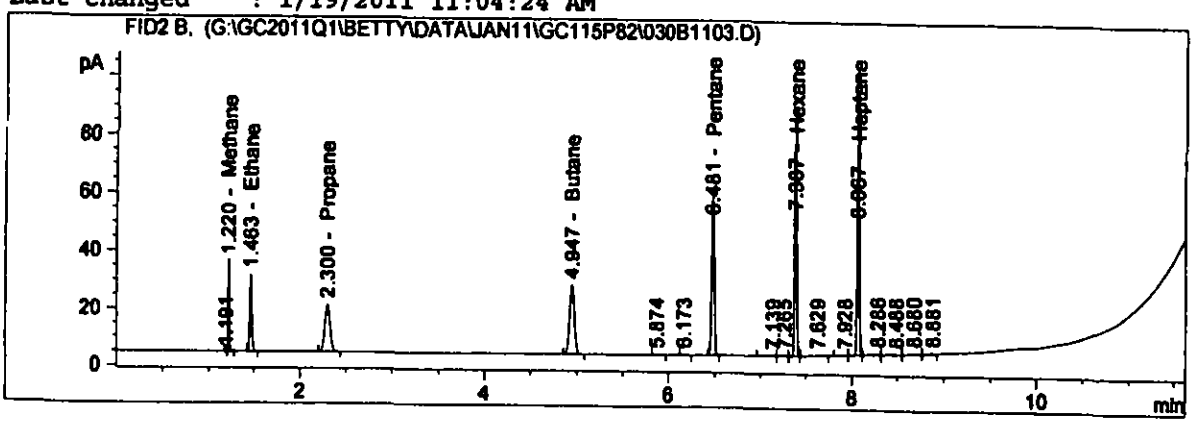
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B1103.D
Sample Name: gc115p82 #C5 ENV(1=0,2=601.2)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 17-Jan-11, 20:29:43

Seq. Line : 11
Location : Vial 30
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

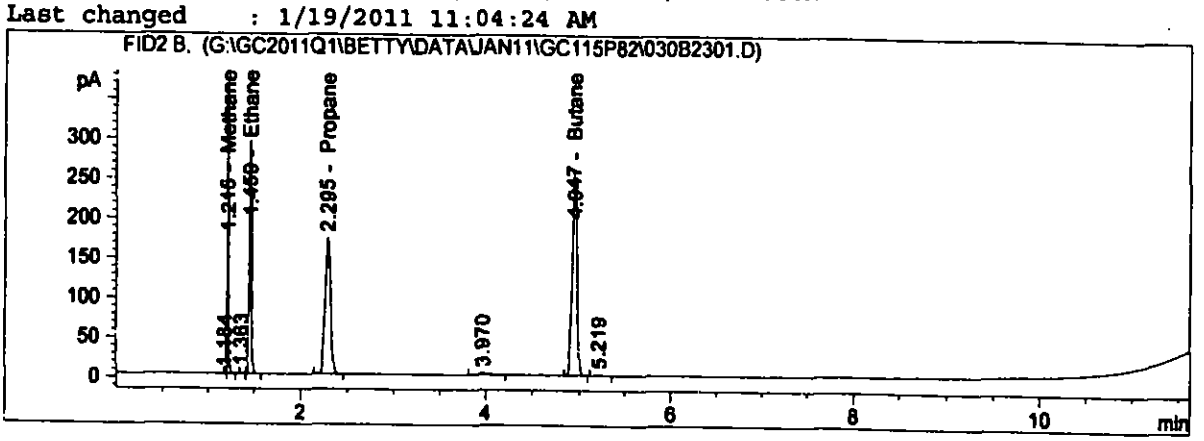
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.220	PB	24.87553	3.81647	94.93678		Methane
1.463	BB	43.81013	2.21276	96.94130		Ethane
2.300	BB	66.70478	1.49139	99.48316		Propane
4.947	BB	88.66436	1.11119	98.52265		Butane
6.481	BB	108.87788	8.95603e-1	97.51135		Pentane
7.387	VV	130.55774	7.65184e-1	99.90068		Hexane
8.067	VV	137.49780	6.69327e-1	92.03103		Heptane
Totals :				679.32694		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2301.D
Sample Name: gc115p82 #C6 ENV(1=636,2=105.53)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 14:42:36
Seq. Line : 23
Location : Vial 30
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.215	PB	276.01038	3.82030	1054.44275		Methane
1.459	VB	476.49008	2.21407	1054.98434		Ethane
2.295	BB	681.14868	1.49382	1017.51275		Propane
4.947	BB	932.97552	1.11260	1038.03305		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 4164.97289

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

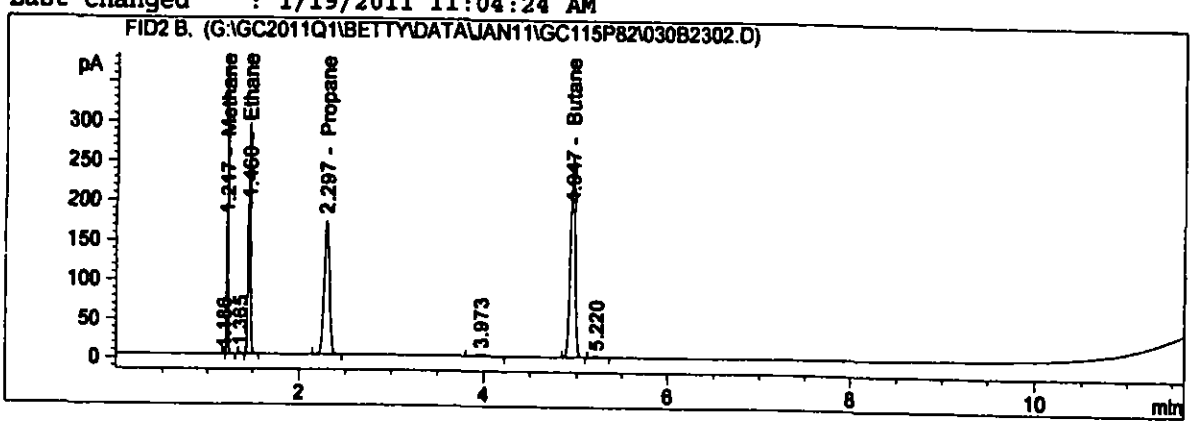
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2302.D
Sample Name: gc115p82 #C6 ENV(1=636,2=105.53)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 15:07:00

Seq. Line : 23
Location : Vial 30
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.217	PB	275.46643	3.82030	1052.36451		Methane
1.460	BB	474.88812	2.21407	1051.43727		Ethane
2.297	BB	678.70374	1.49382	1013.85980		Propane
4.947	BB	927.64136	1.11260	1032.09744		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 4149.75902

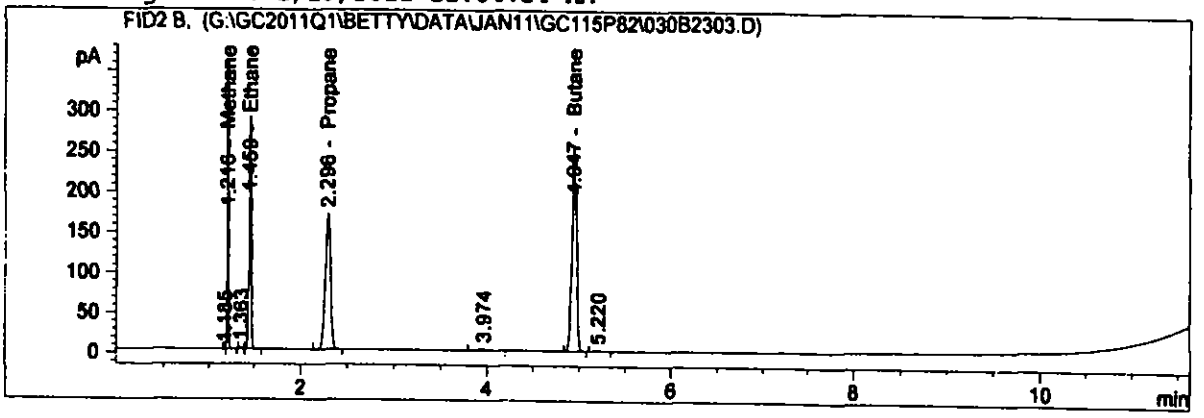
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2303.D
Sample Name: gc115p82 #C6 ENV(1=636,2=105.53)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 15:31:25
Seq. Line : 23
Location : Vial 30
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.216	PB	272.24628	3.82030	1040.06133		Methane
1.459	VB	469.37064	2.21407	1039.22042		Ethane
2.296	BB	670.64478	1.49381	1001.81905		Propane
4.947	BB	916.38141	1.11260	1019.56789		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 4100.66868

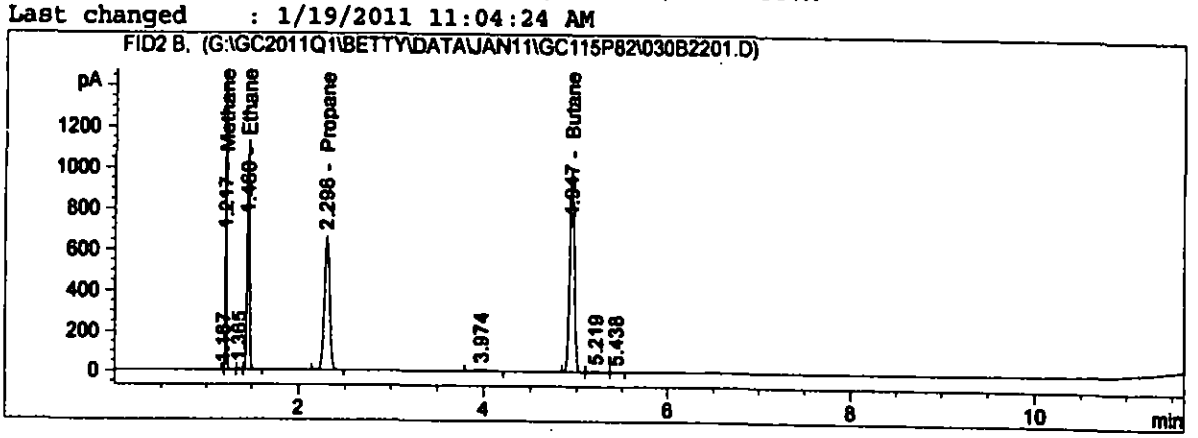
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2201.D
Sample Name: gc115p82 #C7 ENV(1=848,2=844.24)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 13:29:02
Seq. Line : 22
Location : Vial 30
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.217	PB	1066.38916	3.82058	4074.22746		Methane
1.460	VB	1837.75244	2.21417	4069.10119		Ethane
2.296	BB	2625.04150	1.49401	3921.84806		Propane
4.947	BV	3586.37695	1.11271	3990.61542		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 1.60558e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

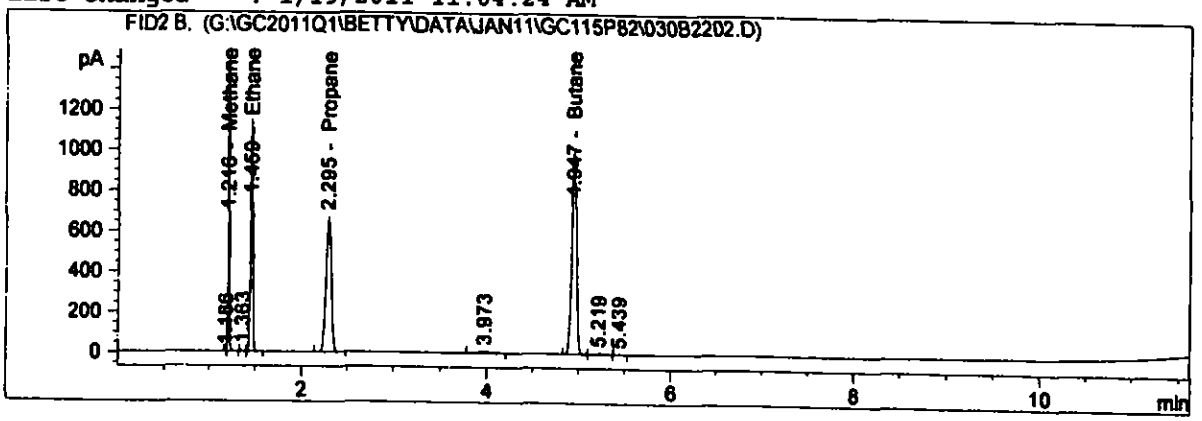
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2202.D
Sample Name: gc115p82 #C7 ENV(1=848,2=844.24)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 13:53:34

Seq. Line : 22
Location : Vial 30
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.216	PB	1082.73999	3.82058	4136.69875		Methane
1.459	VB	1864.95728	2.21417	4129.33833		Ethane
2.295	BB	2664.21826	1.49401	3980.38135		Propane
4.947	BV	3637.57153	1.11272	4047.58238		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 1.62940e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

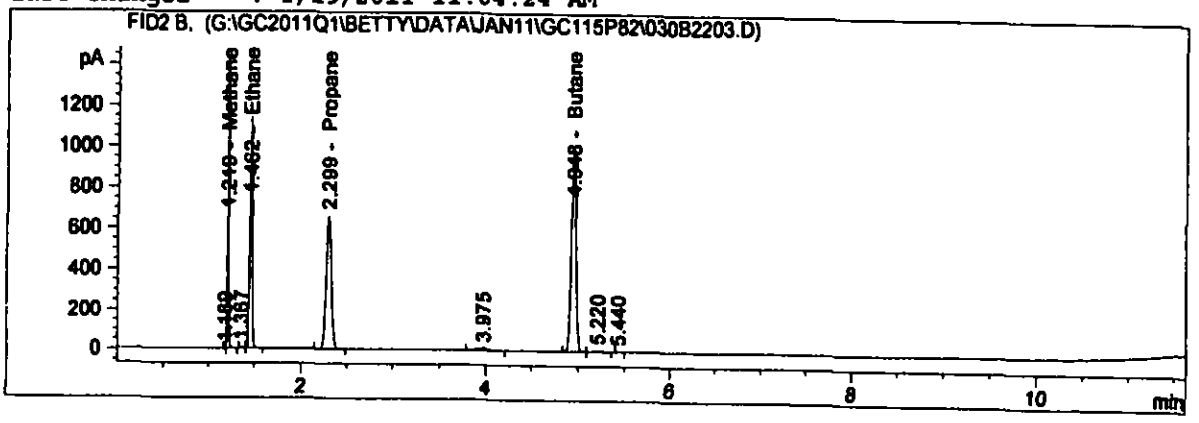
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2203.D
Sample Name: gc115p82 #C7 ENV(1=848,2=844.24)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 14:18:07

Seq. Line : 22
Location : Vial 30
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.219	PB	1071.40723	3.82058	4093.39989		Methane
1.462	VB	1845.50110	2.21417	4086.25832		Ethane
2.299	BB	2636.09521	1.49401	3938.36321		Propane
4.948	BV	3597.36841	1.11272	4002.84620		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 1.61209e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

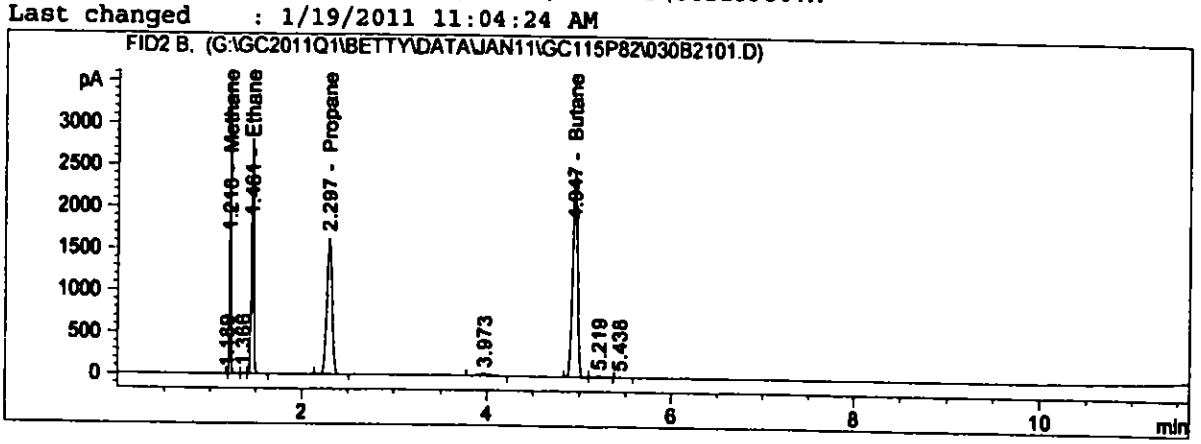
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2101.D
Sample Name: gc115p82 #C8 ENV(1=0,2=422.12)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 12:15:24

Seq. Line : 21
Location : Vial 30
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.218	PV	2654.34448	3.82064	1.01413e4		Methane
1.461	VB S	4564.58691	2.21419	1.01069e4		Ethane
2.297	BB	6517.44092	1.49405	9737.41204		Propane
4.947	BV	8879.41309	1.11274	9880.46118		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 3.98660e4

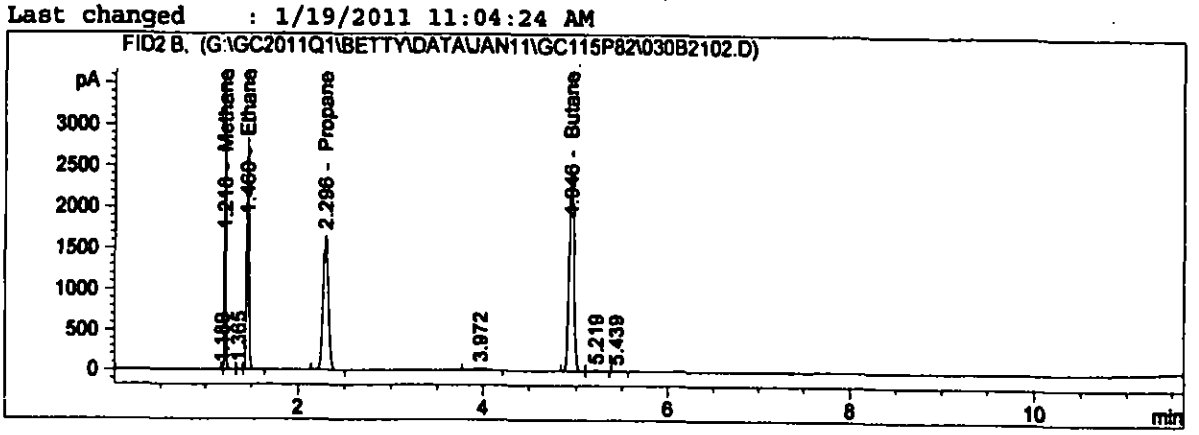
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2102.D
Sample Name: gc115p82 #C8 ENV(1=0,2=422.12)

Acq. Operator : cjt
Seq. Line : 21
Acq. Instrument : Betty
Location : Vial 30
Injection Date : 18-Jan-11, 12:39:52
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.218	PV	2671.75220	3.82064	1.02078e4		Methane
1.460	VB S	4597.86182	2.21419	1.01806e4		Ethane
2.296	BB	6564.96484	1.49405	9808.41668		Propane
4.946	BV	8952.79883	1.11274	9962.12144		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 4.01589e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

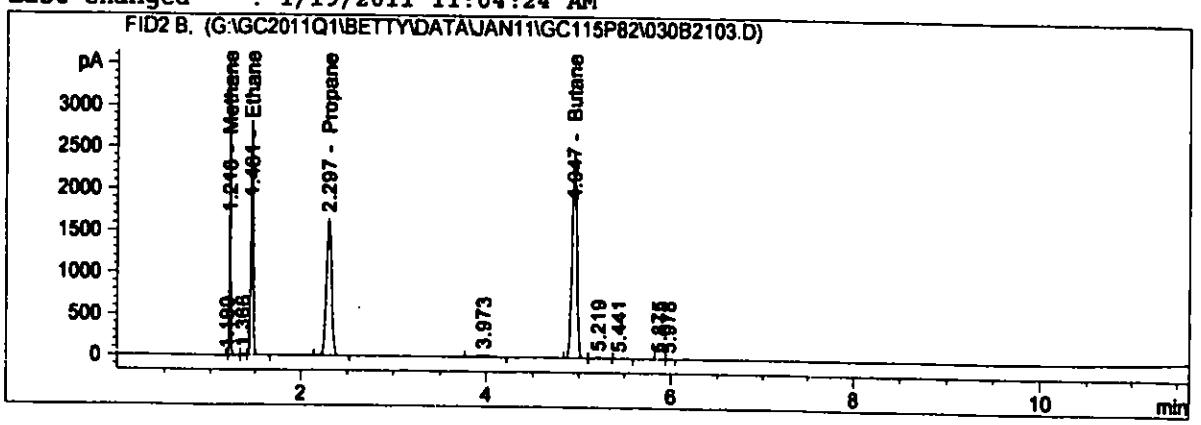
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2103.D
Sample Name: gc115p82 #C8 ENV(1=0,2=422.12)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 13:04:28

Seq. Line : 21
Location : Vial 30
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.218	PV	2657.42505	3.82064	1.01531e4		Methane
1.461	VB S	4573.13818	2.21419	1.01258e4		Ethane
2.297	BB	6530.34766	1.49405	9756.69576		Propane
4.947	BV	8907.15918	1.11274	9911.33575		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane
8.071		-	-	-		Heptane

Totals : 3.99469e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

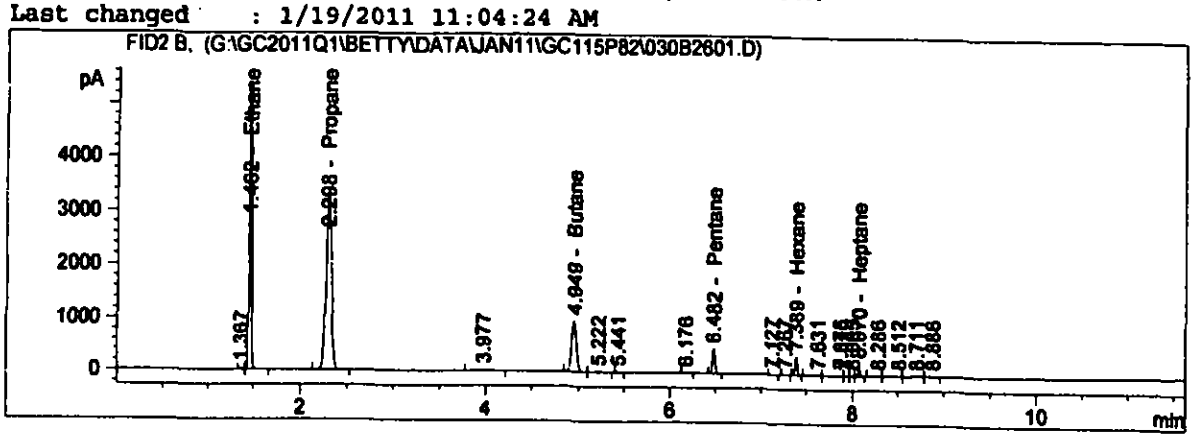
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2601.D
Sample Name: gc115p82 #C9 ENV(1=848,3=936.88)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 17:16:35

Seq. Line : 26
Location : Vial 30
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.462	VB S	8749.18945	2.21420	1.93725e4		Ethane
2.298	BB	1.32368e4	1.49407	1.97767e4		Propane
4.949	BV	3573.22363	1.11271	3975.97901		Butane
6.482	BB	883.35217	8.96800e-1	792.18993		Pentane
7.389	BB	526.12885	7.65839e-1	402.93018		Hexane
8.070	VB	311.16394	6.69500e-1	208.32412		Heptane

Totals : 4.45285e4

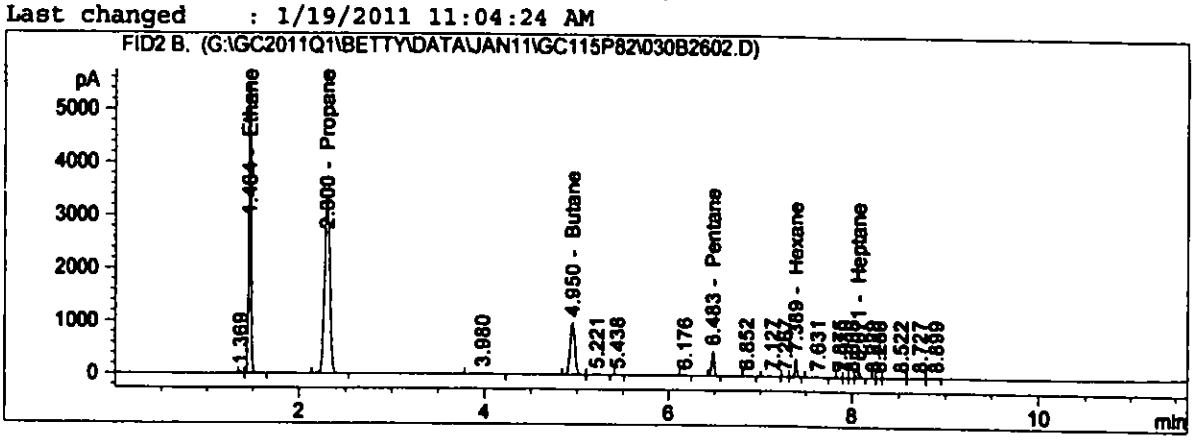
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2602.D
Sample Name: gc115p82 #C9 ENV(1=848,3=936.88)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 17:42:04
Seq. Line : 26
Location : Vial 30
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.464	VB S	8901.31445	2.21420	1.97093e4		Ethane
2.300	BB	1.34654e4	1.49407	2.01182e4		Propane
4.950	BV	3632.17456	1.11272	4041.57688		Butane
6.483	BB	896.58728	8.96802e-1	804.06139		Pentane
7.389	VB	533.22693	7.65842e-1	408.36771		Hexane
8.071	VB	314.20065	6.69501e-1	210.35761		Heptane

Totals : 4.52918e4

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

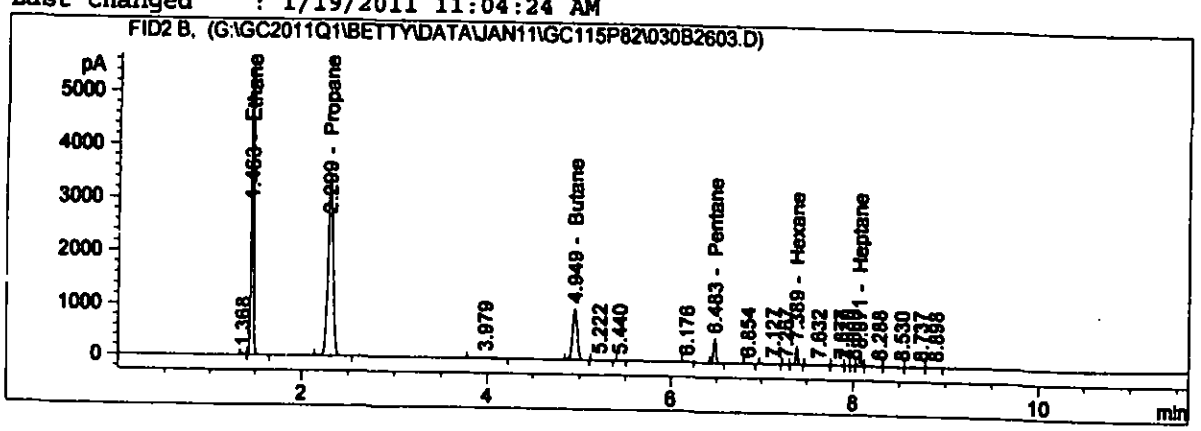
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2603.D
Sample Name: gc115p82 #C9 ENV(1=848,3=936.88)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 18:07:42

Seq. Line : 26
Location : Vial 30
Inj : 3
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463	VB S	8837.79297	2.21420	1.95686e4		Ethane
2.299	BB	1.33687e4	1.49407	1.99738e4		Propane
4.949	BB	3605.66211	1.11272	4012.07505		Butane
6.483	BB	889.96228	8.96801e-1	798.11898		Pentane
7.389	VB	528.96783	7.65841e-1	405.10500		Hexane
8.071	VV	311.87509	6.69500e-1	208.80033		Heptane

Totals : 4.49665e4

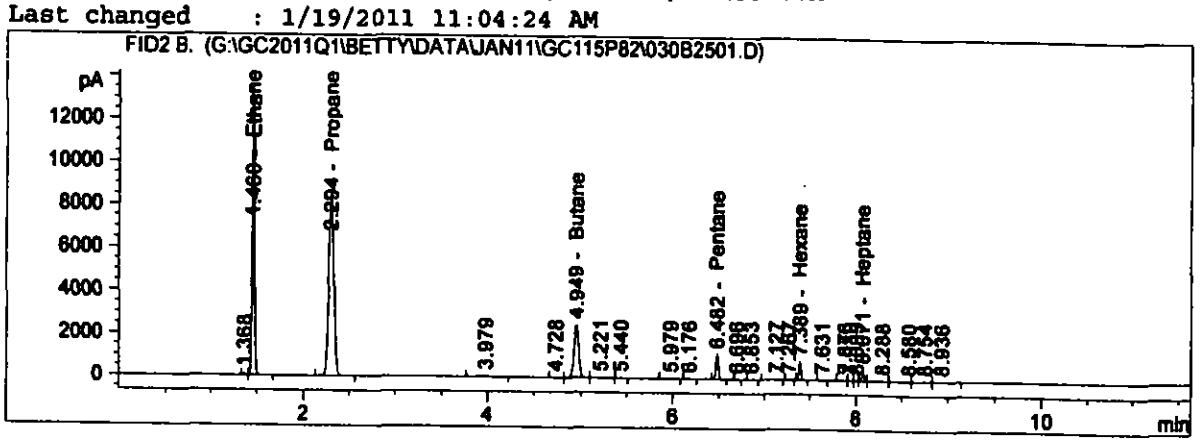
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2501.D
Sample Name: gc115p82 #C10 ENV(1=0,3=468.44)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 16:00:42
Seq. Line : 25
Location : Vial 30
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.460	VB S	2.21706e4	2.21420	4.90903e4		Ethane
2.294	BB S	3.35506e4	1.49408	5.01272e4		Propane
4.949	VV	9042.81250	1.11274	1.00623e4		Butane
6.482	BB	2222.84473	8.96901e-1	1993.67176		Pentane
7.389	BB	1313.23120	7.65969e-1	1005.89443		Hexane
8.071	VV	763.66217	6.69580e-1	511.33321		Heptane

Totals : 1.12791e5

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

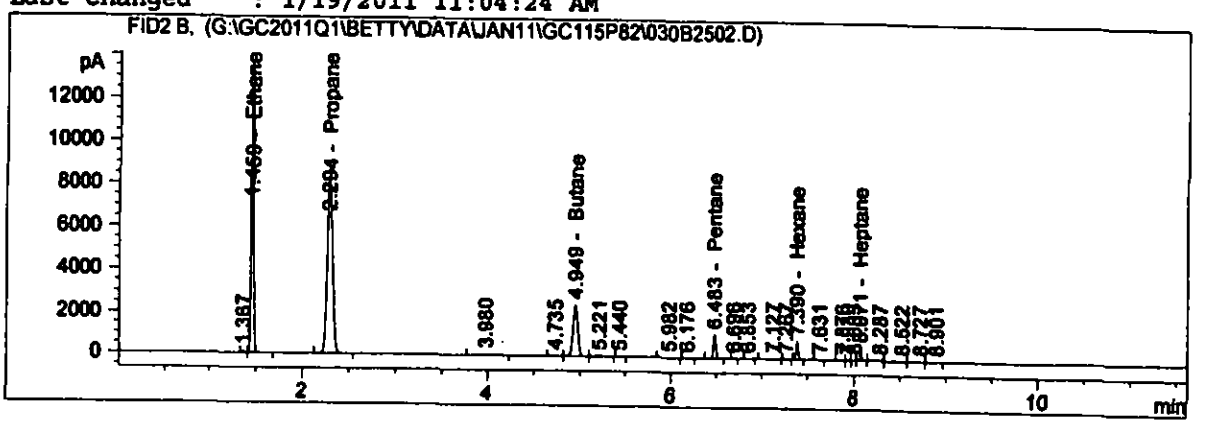
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2502.D
Sample Name: gc115p82 #C10 ENV(1=0,3=468.44)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 16:25:51

Seq. Line : 25
Location : Vial 30
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.459	VB S	2.19364e4	2.21420	4.85717e4		Ethane
2.294	BB S	3.32002e4	1.49408	4.96036e4		Propane
4.949	VV	8951.94727	1.11274	9961.17386		Butane
6.483	BB	2206.53198	8.96901e-1	1979.03975		Pentane
7.390	BB	1307.67737	7.65969e-1	1001.63989		Hexane
8.071	VB	765.73596	6.69581e-1	512.72190		Heptane

Totals : 1.11630e5

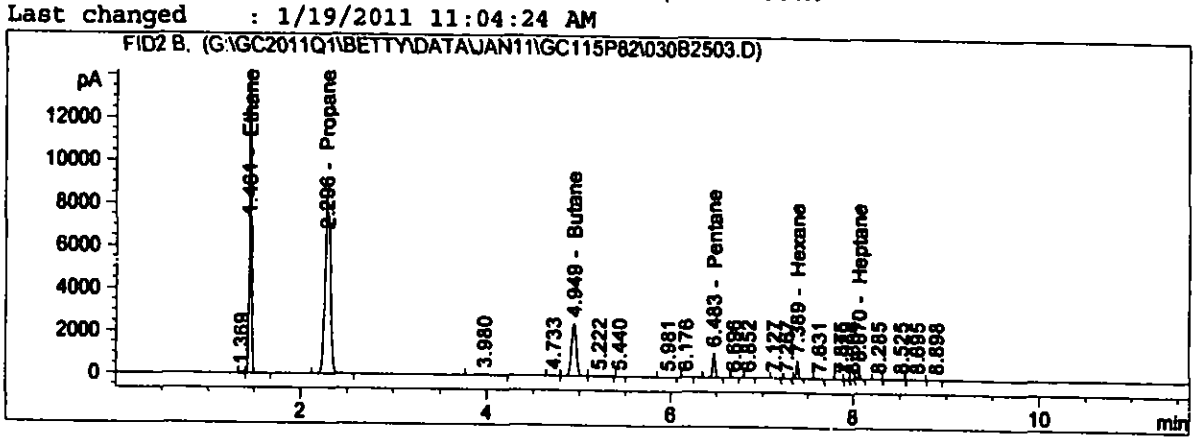
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P82\030B2503.D
Sample Name: gc115p82 #C10 ENV(1=0,3=468.44)

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 18-Jan-11, 16:50:43
Seq. Line : 25
Location : Vial 30
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P025.M
Last changed : 11/5/2010 9:38:55 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/19/2011 11:04:24 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 1/19/2011 11:04:00 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.461	VB S	2.22462e4	2.21420	4.92577e4		Ethane
2.296	BB S	3.36739e4	1.49408	5.03114e4		Propane
4.949	VV	9079.40527	1.11274	1.01030e4		Butane
6.483	BB	2238.79956	8.96902e-1	2007.98273		Pentane
7.389	BB	1328.20728	7.65970e-1	1017.36694		Hexane
8.070	VB	778.62543	6.69581e-1	521.35315		Heptane

Totals : 1.13219e5

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.846		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
3.621		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.385		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

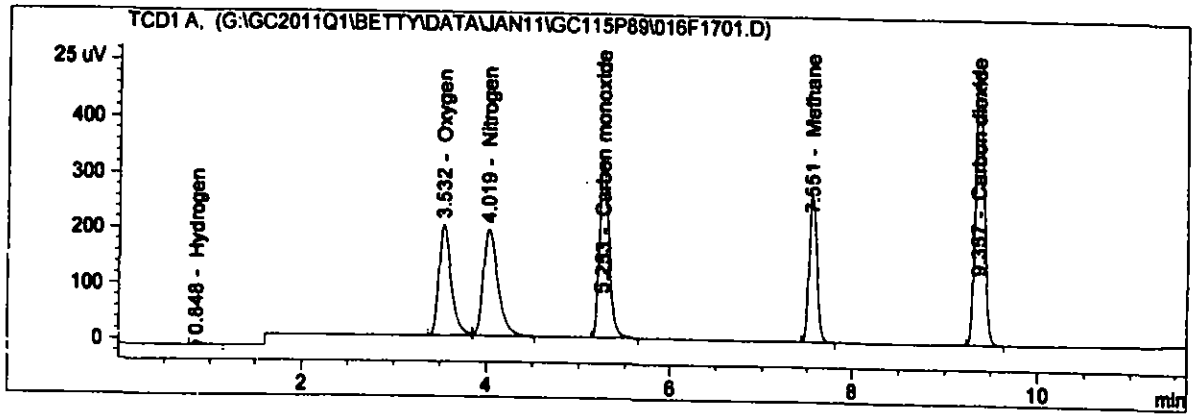
Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\016F1701.D
Sample Name: Scotty Cylinder ST0000087933

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 28-Jan-11, 19:39:42

Seq. Line : 17
Location : Vial 16
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM
Sample Info : 4.0% H2, 5.0% O2, 5.0% N2, 5.16% CO, 4.17% CH4, 4.99% CO2



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

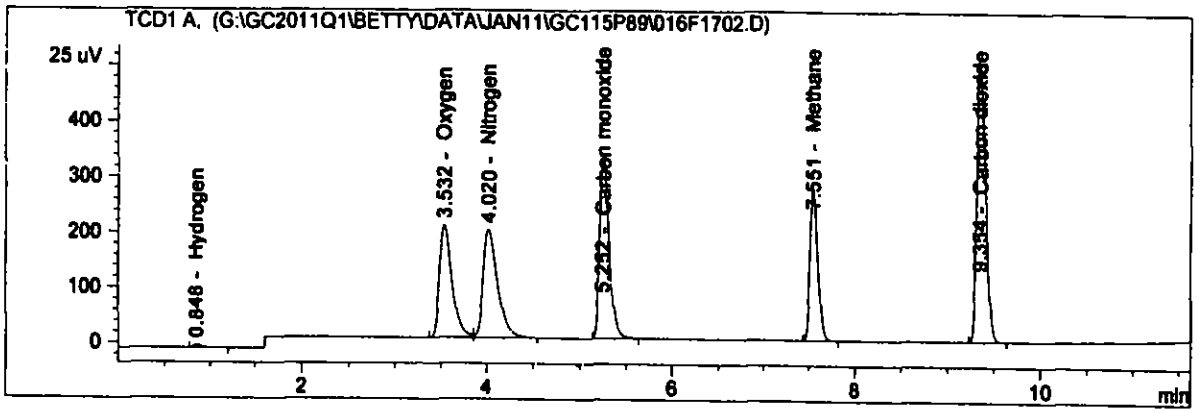
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.848	BB	37.33082	1.05045e-1	3.92143		Hydrogen
3.532	BV	1853.47424	2.58522e-3	4.79163		Oxygen
4.019	VB	2074.01782	2.44736e-3	5.07588		Nitrogen
5.253	BB	2312.64355	2.16498e-3	5.00682		Carbon monoxide
7.551	BB	1598.42920	2.51072e-3	4.01320		Methane
9.357	BB	3281.04614	1.47296e-3	4.83285		Carbon dioxide
Totals :				27.64181		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\016F1702.D
Sample Name: Scotty Cylinder ST0000087933

```
Acq. Operator   : cjt                                  Seq. Line :  17
Acq. Instrument : Betty                               Location : Vial 16
Injection Date  : 28-Jan-11, 20:01:55                     Inj :   2
                                                    Inj Volume : External
Acq. Method     : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed    : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed    : 2/4/2011 11:42:58 AM
Sample Info     : 4.0% H2, 5.0% O2, 5.0% N2, 5.16% CO, 4.17% CH4, 4.99% C
                  O2
```



External Standard Report

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Sorted By             :      Signal
Calib. Data Modified  :      2/4/2011 11:42:33 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
0.848	BB	38.05704	1.05045e-1	3.99771		Hydrogen
3.532	BV	1896.32214	2.58532e-3	4.90260		Oxygen
4.020	VB	2123.87231	2.44779e-3	5.19880		Nitrogen
5.252	BB	2350.67236	2.16498e-3	5.08917		Carbon monoxide
7.551	BB	1632.66187	2.51083e-3	4.09934		Methane
9.354	BB	3344.79004	1.47300e-3	4.92688		Carbon dioxide
Totals :				28.21450		

Signal 2: FID2 B, not found

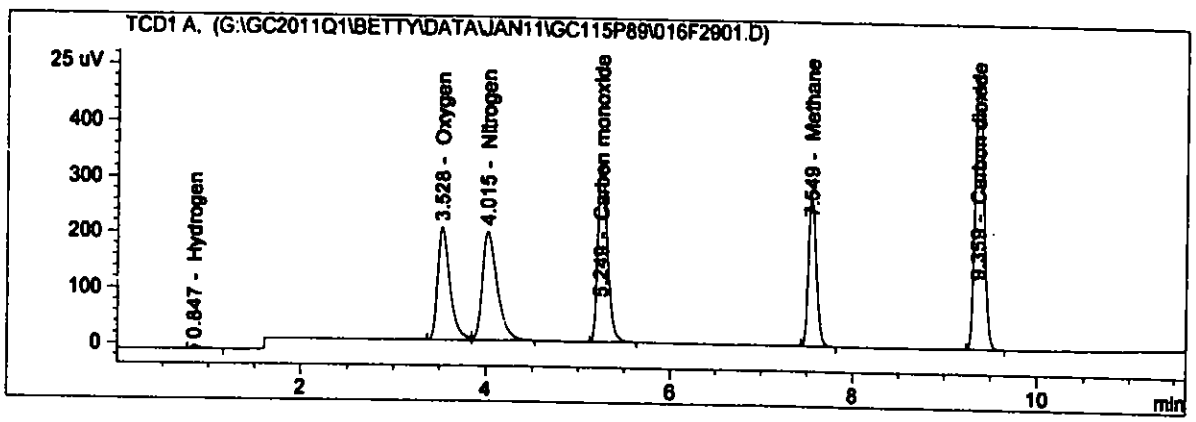
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\016F2901.D
Sample Name: Scotty Cylinder ST0000087933

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 18:44:27

Seq. Line : 29
Location : Vial 16
Inj : 1
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM
Sample Info : 4.0% H2, 5.0% O2, 5.0% N2, 5.16% CO, 4.17% CH4, 4.99% CO2



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: TCD1 A,

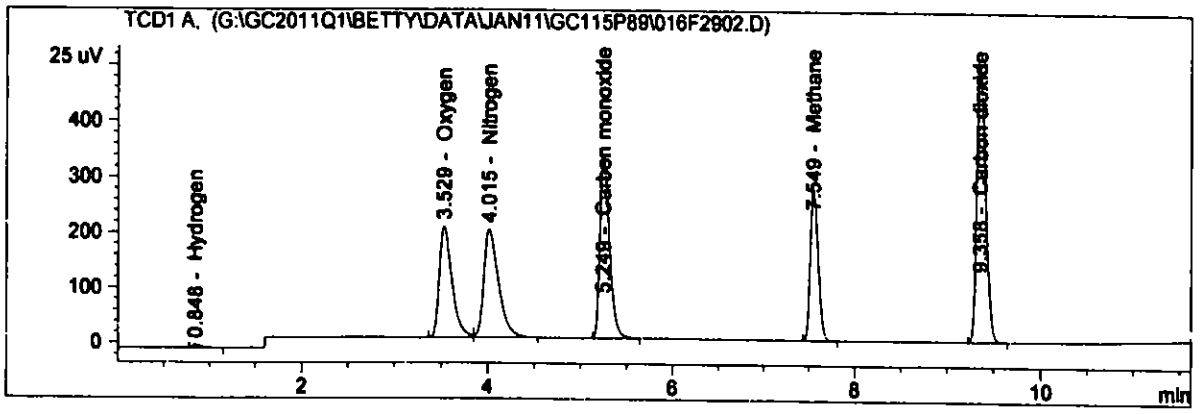
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.847	BB	37.59630	1.05045e-1	3.94932		Hydrogen
3.528	BV	1873.56665	2.58526e-3	4.84367		Oxygen
4.015	VB	2097.43311	2.44757e-3	5.13361		Nitrogen
5.249	BB	2316.24829	2.16498e-3	5.01463		Carbon monoxide
7.549	BB	1622.71545	2.51080e-3	4.07431		Methane
9.359	BB	3296.14966	1.47297e-3	4.85513		Carbon dioxide
Totals :				27.87066		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\016F2902.D
Sample Name: Scotty Cylinder ST0000087933

```
Acq. Operator    : cjt                                  Seq. Line :  29
Acq. Instrument  : Betty                                 Location : Vial 16
Injection Date   : 29-Jan-11, 19:06:43                       Inj :   2
                                                      Inj Volume : External
Acq. Method      : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed     : 1/24/2011 3:39:42 PM
Analysis Method  : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed     : 2/4/2011 11:42:58 AM
Sample Info      : 4.0% H2, 5.0% O2, 5.0% N2, 5.16% CO, 4.17% CH4, 4.99% C
                   O2
```



External Standard Report

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Sorted By             :      Signal
Calib. Data Modified  :      2/4/2011 11:42:33 AM
Multiplier:                   :      1.0000
Dilution:                     :      1.0000
Use Multiplier & Dilution Factor with ISTDs
```

Signal 1: TCD1 A,

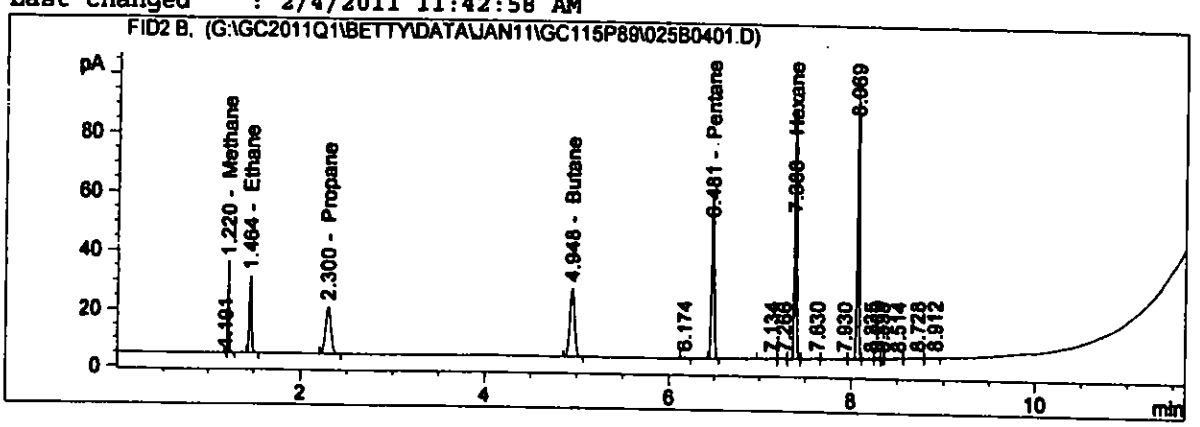
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.848	BB	37.64360	1.05045e-1	3.95428		Hydrogen
3.529	BV	1887.90662	2.58530e-3	4.88080		Oxygen
4.015	VB	2131.18628	2.44786e-3	5.21684		Nitrogen
5.249	BB	2365.12500	2.16499e-3	5.12046		Carbon monoxide
7.549	BB	1655.11914	2.51090e-3	4.15585		Methane
9.358	BB	3342.38184	1.47300e-3	4.92332		Carbon dioxide
Totals :				28.25156		

Signal 2: FID2 B, not found

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.221		-	-	-		Methane
1.463		-	-	-		Ethane
2.299		-	-	-		Propane
4.949		-	-	-		Butane
6.483		-	-	-		Pentane
7.389		-	-	-		Hexane

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\025B0401.D
Sample Name: gc115p82 #C5

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 27-Jan-11, 19:38:27
Seq. Line : 4
Location : Vial 25
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.220	PB	24.55708	3.81642	93.72006		Methane
1.464	BB	43.25582	2.21274	95.71394		Ethane
2.300	BB	65.87146	1.49136	98.23811		Propane
4.948	BB	87.59897	1.11117	97.33713		Butane
6.481	BB	107.63536	8.95587e-1	96.39684		Pentane
7.388	VB	129.22847	7.65175e-1	98.88238		Hexane

Totals : 580.28846

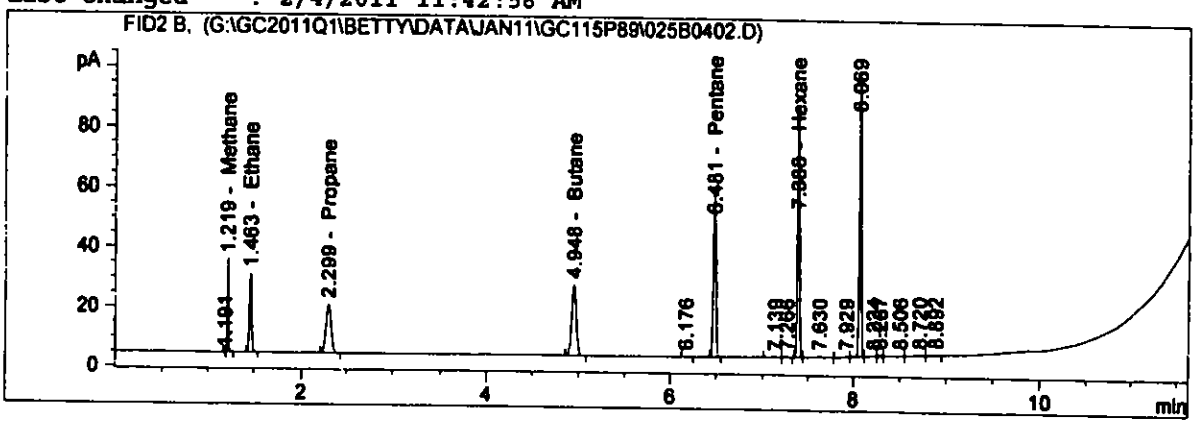
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\025B0402.D
Sample Name: gc115p82 #C5

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 27-Jan-11, 20:00:03
Seq. Line : 4
Location : Vial 25
Inj : 2
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

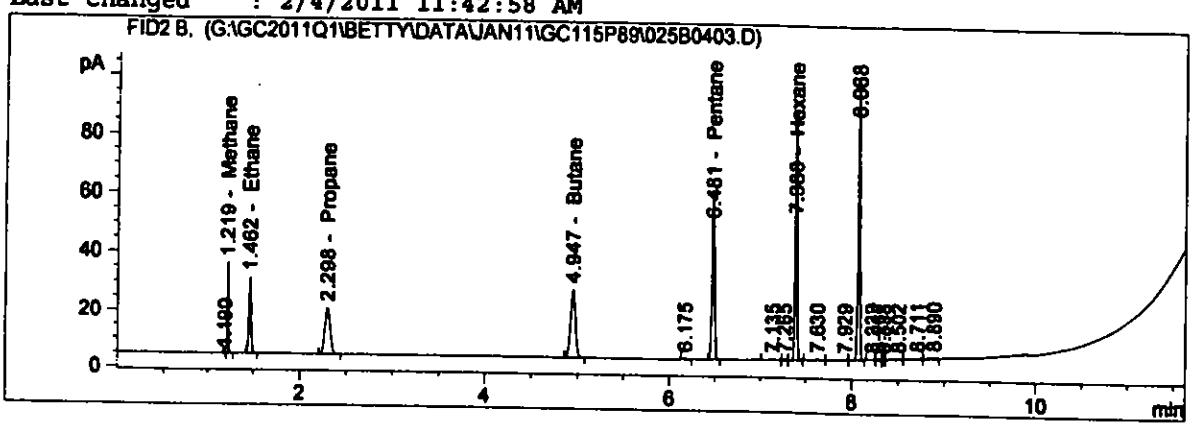
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.219	PB	24.14779	3.81635	92.15630		Methane
1.463	BB	42.61547	2.21272	94.29608		Ethane
2.299	BB	64.91190	1.49132	96.80445		Propane
4.948	BB	86.35930	1.11114	95.95768		Butane
6.481	BB	106.09092	8.95567e-1	95.01153		Pentane
7.388	BV	127.51800	7.65163e-1	97.57207		Hexane
Totals :				571.79810		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\025B0403.D
Sample Name: gc115p82 #C5

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 27-Jan-11, 20:21:40
Seq. Line : 4
Location : Vial 25
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.219	PB	24.50256	3.81641	93.51177		Methane
1.462	BB	43.29166	2.21274	95.79329		Ethane
2.298	BB	65.86964	1.49136	98.23539		Propane
4.947	BB	87.65632	1.11117	97.40095		Butane
6.481	BB	107.74104	8.95588e-1	96.49164		Pentane
7.388	VB	129.59038	7.65177e-1	99.15962		Hexane

Totals : 580.59266

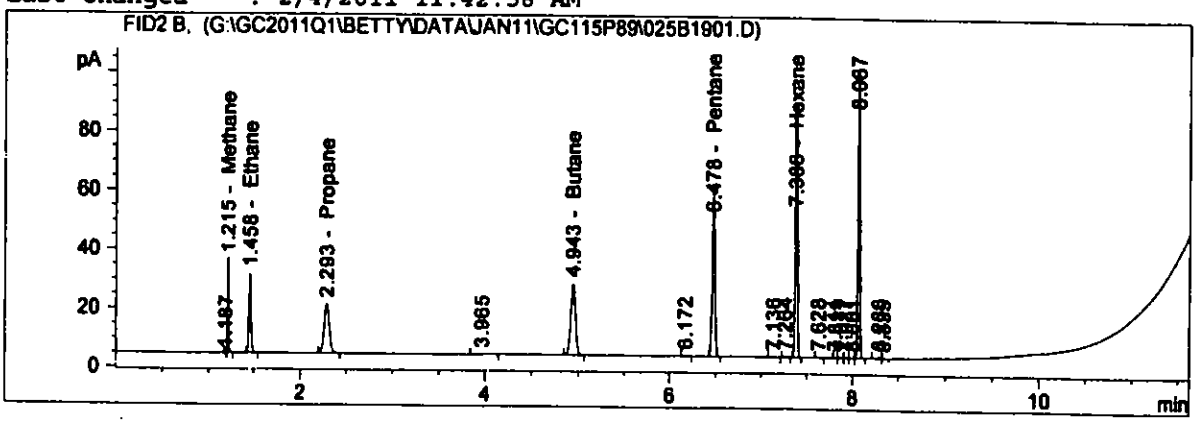
Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide

Totals : 0.00000

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\025B1901.D
Sample Name: gc115p82 #C5

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 10:09:47
Seq. Line : 19
Location : Vial 25
Inj : 1
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.215	PB	24.86326	3.81647	94.88990		Methane
1.458	BB	43.84980	2.21276	97.02915		Ethane
2.293	BB	66.73470	1.49140	99.52787		Propane
4.943	BB	88.75592	1.11119	98.62453		Butane
6.478	BB	109.05749	8.95605e-1	97.67245		Pentane
7.386	BB	130.92519	7.65186e-1	100.18216		Hexane
Totals :				587.92605		

Signal 2: TCD1 A, not found

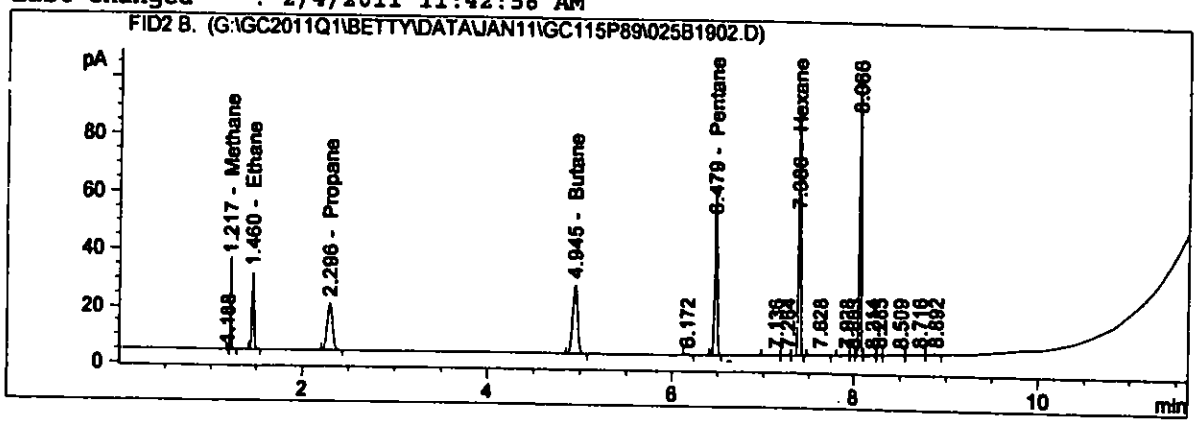
RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\025B1902.D
Sample Name: gc115p82 #C5

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 10:31:54

Seq. Line : 19
Location : Vial 25
Inj : 2
Inj Volume : External

Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

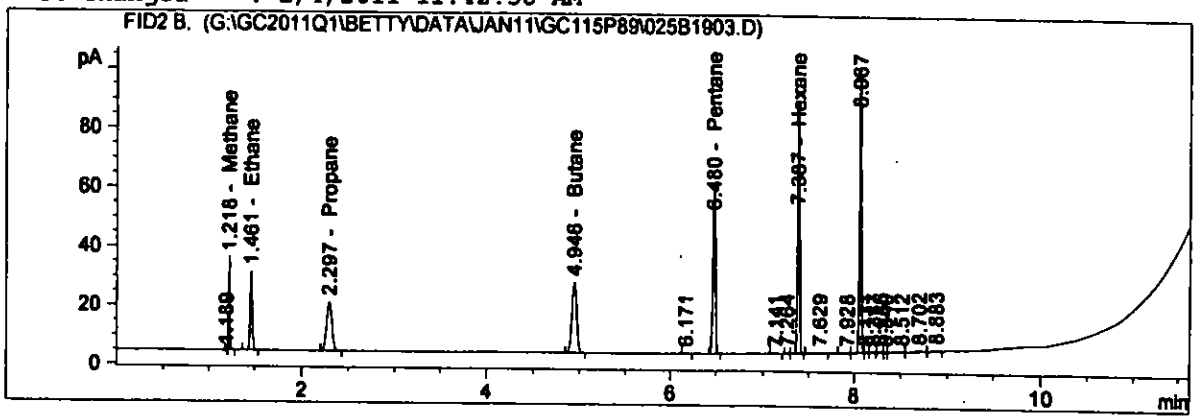
RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.217	PB	24.98350	3.81649	95.34928		Methane
1.460	BB	44.10100	2.21277	97.58534		Ethane
2.296	BB	67.14098	1.49141	100.13489		Propane
4.945	BB	89.38824	1.11120	99.32815		Butane
6.479	BB	109.75915	8.95614e-1	98.30181		Pentane
7.386	VB	131.90143	7.65193e-1	100.93002		Hexane
Totals :				591.62949		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

Data File G:\GC2011Q1\BETTY\DATA\JAN11\GC115P89\025B1903.D
Sample Name: gc115p82 #C5

Acq. Operator : cjt
Acq. Instrument : Betty
Injection Date : 29-Jan-11, 10:53:39
Seq. Line : 19
Location : Vial 25
Inj : 3
Inj Volume : External
Acq. Method : G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Last changed : 1/24/2011 3:39:42 PM
Analysis Method : G:\GC2011Q1\BETTY\METHODS\GC115P80_HI_H2_0111-58.M
Last changed : 2/4/2011 11:42:58 AM



External Standard Report

Sorted By : Signal
Calib. Data Modified : 2/4/2011 11:42:33 AM
Multiplier: : 1.0000
Dilution: : 1.0000
Use Multiplier & Dilution Factor with ISTDs

Signal 1: FID2 B,

RetTime [min]	Type	Area [pA*s]	Amt/Area	Amount [%]	Grp	Name
1.218	PB	24.45387	3.81640	93.32574		Methane
1.461	BB	43.23330	2.21274	95.66407		Ethane
2.297	BB	65.79632	1.49136	98.12585		Propane
4.946	BB	87.52605	1.11117	97.25599		Butane
6.480	BB	107.57748	8.95586e-1	96.34493		Pentane
7.387	VB	129.26613	7.65175e-1	98.91123		Hexane
Totals :				579.62781		

Signal 2: TCD1 A, not found

RetTime [min]	Type	Area [25 uV*s]	Amt/Area	Amount [%]	Grp	Name
0.838		-	-	-		Hydrogen
3.150		-	-	-		Oxygen
4.064		-	-	-		Nitrogen
5.258		-	-	-		Carbon monoxide
7.559		-	-	-		Methane
9.070		-	-	-		Carbon dioxide
Totals :				0.00000		

method: G:\GC2010Q3\BETTY\METHODS\GC115P025.M
Modified on: 8/17/2010 at 9:45:44 AM

Injection Source and Location

Injection Source: 6890 GC Valve

Injection Location: Dual

6890 GC METHOD

OVEN
Initial temp: -10 'C (On)
Initial time: 4.00 min
Ramps:

#	Rate	Final temp	Final time
1	40.00	210	0.50
2	35.00	260	0.20
3	0.0 (Off)		

Post temp: 50 'C
Post time: 0.00 min
Run time: 11.63 min
Maximum temp: 280 'C
Equilibration time: 0.20 min

CRYO (N2)
Cryo: On
Cryo fault: On
Cryo timeout: 30.00 min (On)
Quick cryo cool: Off
Ambient temp: 5 'C

FRONT INLET (SPLIT/SPLITLESS)
Mode: Splitless
Initial temp: 150 'C (On)
Pressure: 44.00 psi (On)
Purge flow: 0.0 mL/min
Purge time: 0.00 min
Total flow: 15.4 mL/min
Gas saver: Off
Gas type: Helium

BACK INLET (SPLIT/SPLITLESS)
Mode: Split
Initial temp: 200 'C (On)
Pressure: 5.83 psi (On)
Split ratio: 7:1
Split flow: 21.9 mL/min
Total flow: 31.7 mL/min
Gas saver: Off
Gas type: Hydrogen

COLUMN 1
Packed Column
Model Number: Restek 19808
Shin Carbon ST 2m x 1mm
Max temperature: 330 'C
Mode: constant pressure
Pressure: 44.00 psi
Inlet: Front Inlet
Outlet: Front Detector
Outlet pressure: ambient

COLUMN 2
Capillary Column
Model Number: Restek 10198
Rtx-1 30m x 0.32mm x 0.4 um SN450928
Max temperature: 280 'C
Nominal length: 30.0 m
Nominal diameter: 320.00 um
Nominal film thickness: 4.00 um
Mode: constant flow
Initial flow: 3.1 mL/min
Nominal init pressure: 5.83 psi
Average velocity: 50 cm/sec
Inlet: Back Inlet
Outlet: Back Detector
Outlet pressure: ambient

FRONT DETECTOR (TCD)
Temperature: 275 'C (On)
Reference flow: 25.0 mL/min (On)
Mode: Constant makeup flow
Makeup flow: 7.0 mL/min (On)
Makeup Gas Type: Helium
Filament: On
Negative polarity: On

BACK DETECTOR (FID)
Temperature: 300 'C (On)
Hydrogen flow: 40.0 mL/min (On)
Air flow: 450.0 mL/min (On)
Mode: Constant makeup flow
Makeup flow: 45.0 mL/min (On)
Makeup Gas Type: Nitrogen
Flame: On
Electrometer: On
Lit offset: 2.0

SIGNAL 1

SIGNAL 2

method: G:\GC2010Q3\BETTY\METHODS\GC115P025.M
Modified on: 8/17/2010 at 9:45:44 AM

Data rate: 20 Hz
Type: front detector
Save Data: On
Zero: 0.0 (Off)
Range: 0
Fast Peaks: Off
Attenuation: 0

Data rate: 20 Hz
Type: back detector
Save Data: On
Zero: 0.0 (Off)
Range: 0
Fast Peaks: Off
Attenuation: 0

COLUMN COMP 1
Derive from front detector

COLUMN COMP 2
Derive from back detector

THERMAL AUX 1
Use: Valve Box Heater
Description:
Initial temp: 150 'C (On)
Initial time: 0.00 min

#	Rate	Final temp	Final time
1	0.0(Off)		

VALVES
Valve 1 Gas Sampling
Description:
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Back Inlet
Valve 2 Gas Sampling
Description:
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet

POST RUN
Post Time: 0.00 min

TIME TABLE

Time	Specifier	Parameter & Setpoint	
1.60		Front Detector Polarity:	Off

GC Injector

Front Injector:
Injector not configured, use these parameters if it becomes configured

Sample Washes	0
Sample Pumps	0
Injection Volume	1.00 microliters
Syringe Size	10.0 microliters
PostInj Solvent A Washes	0
PostInj Solvent B Washes	0
Viscosity Delay	0 seconds
Plunger Speed	Fast

Back Injector:
Injector not configured, use these parameters if it becomes configured

Sample Washes	0
Sample Pumps	0
Injection Volume	1.00 microliters
Syringe Size	10.0 microliters
PostInj Solvent A Washes	0
PostInj Solvent B Washes	0
Viscosity Delay	0 seconds
Plunger Speed	Fast

method: G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Modified on: 1/19/2011 at 11:25:12 AM

6890 GC METHOD

OVEN
Initial temp: -10 'C (On)
Initial time: 4.00 min
Ramps:

#	Rate	Final temp	Final time
1	40.00	210	0.50
2	35.00	260	0.20
3	0.0(Off)		

Post temp: 50 'C
Post time: 0.00 min
Run time: 11.63 min
Maximum temp: 280 'C
Equilibration time: 0.20 min

CRYO (N2)
Cryo: On
Cryo fault: On
Cryo timeout: 30.00 min (On)
Quick cryo cool: Off
Ambient temp: 37 'C

FRONT INLET (SPLIT/SPLITLESS)
Mode: Splitless
Initial temp: 150 'C (On)
Pressure: 44.00 psi (On)
Purge flow: 0.0 mL/min
Purge time: 0.00 min
Total flow: 15.4 mL/min
Gas saver: Off
Gas type: Helium

BACK INLET (SPLIT/SPLITLESS)
Mode: Split
Initial temp: 200 'C (On)
Pressure: 5.83 psi (On)
Split ratio: 7:1
Split flow: 21.9 mL/min
Total flow: 31.7 mL/min
Gas saver: Off
Gas type: Hydrogen

COLUMN 1
Packed Column
Model Number: Restek 19808
Shin Carbon ST 2m x 1mm
Max temperature: 330 'C
Mode: constant pressure
Pressure: 44.00 psi
Inlet: Front Inlet
Outlet: Front Detector
Outlet pressure: ambient

COLUMN 2
Capillary Column
Model Number: Restek 10198
Rtx-1 30m x 0.32mm x 0.4 um SN450928
Max temperature: 280 'C
Nominal length: 30.0 m
Nominal diameter: 320.00 um
Nominal film thickness: 4.00 um
Mode: constant flow
Initial flow: 3.1 mL/min
Nominal init pressure: 5.83 psi
Average velocity: 50 cm/sec
Inlet: Back Inlet
Outlet: Back Detector
Outlet pressure: ambient

FRONT DETECTOR (TCD)
Temperature: 275 'C (On)
Reference flow: 25.0 mL/min (On)
Mode: Constant makeup flow
Makeup flow: 7.0 mL/min (On)
Makeup Gas Type: Helium
Filament: On
Negative polarity: On

BACK DETECTOR (FID)
Temperature: 300 'C (On)
Hydrogen flow: 40.0 mL/min (On)
Air flow: 450.0 mL/min (On)
Mode: Constant makeup flow
Makeup flow: 45.0 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
Zero: 0.0 (Off)
Range: 0
Fast Peaks: Off
Attenuation: 0

SIGNAL 2
Data rate: 20 Hz
Type: back detector
Save Data: On
Zero: 0.0 (Off)
Range: 0
Fast Peaks: Off
Attenuation: 0

method: G:\GC2011Q1\BETTY\METHODS\GC115P80.M
Modified on: 1/19/2011 at 11:25:12 AM

COLUMN COMP 1
Derive from front detector

COLUMN COMP 2
Derive from back detector

THERMAL AUX 1
Use: Valve Box Heater
Description:
Initial temp: 150 'C (On)
Initial time: 0.00 min

#	Rate	Final temp	Final time
1	0.0	(Off)	

VALVES
Valve 1 Gas Sampling
Description:
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Back Inlet
Valve 2 Gas Sampling
Description:
Loop Volume: 0.250 mL
Load Time: 0.10 min
Inject Time: 0.50 min
Inlet: Front Inlet

POST RUN
Post Time: 0.00 min

TIME TABLE

Time	Specifier	Parameter & Setpoint
1.60		Front Detector Polarity: Off

GC Injector

Front Injector:
Injector not configured, use these parameters if it becomes configured

Sample Washes	0
Sample Pumps	0
Injection Volume	1.00 microliters
Syringe Size	10.0 microliters
PostInj Solvent A Washes	0
PostInj Solvent B Washes	0
Viscosity Delay	0 seconds
Plunger Speed	Fast

Back Injector:
Injector not configured, use these parameters if it becomes configured

Sample Washes	0
Sample Pumps	0
Injection Volume	1.00 microliters
Syringe Size	10.0 microliters
PostInj Solvent A Washes	0
PostInj Solvent B Washes	0
Viscosity Delay	0 seconds
Plunger Speed	Fast

Sequence: G:\gc2011q1\Betty\sequence\gc115p80.txt
Sequence Table (Front Injector):

Line	Vial	Sample Name	Method	Inj	Type
1	Vial 14	gc115p80 #FG8 ENV(1=0,2=358.14)	GC115P025	2	Sample
2	Vial 14	gc115p80 #FG7 ENV(1=636,2=716.28)	GC115P025	2	Sample
3	Vial 14	gc115p80 #FG6 ENV(1=1271.99,2=159.17)	GC115P025	2	Sample
4	Vial 14	gc115p80 #FG5 ENV(1=4854.78,2=103.63)	GC115P025	10	Sample
5	Vial 14	gc115p80 #FG4 ENV(1=0,3=376.47)	GC115P025	2	Sample
6	Vial 14	gc115p80 #FG3 ENV(1=318,3=376.47)	GC115P025	2	Sample
7	Vial 14	gc115p80 #FG2 ENV(1=636,4=83.66)	GC115P025	2	Sample
8	Vial 14	gc115p80 #FG1 ENV(1=692.53,4=16.73)	GC115P025	8	Sample
9	Vial 1	He Blank	GC115P025	3	Sample
10	Vial 2	Pause	PAUSE	1	Sample
11	Vial 14	gc115p075 #FGA C ENV(1,358.71,377.39,0)	GC115P025	2	Sample
12	Vial 2	Pause	PAUSE	1	Sample
13	Vial 16	100% Nitrogen	GC115P025	2	Sample
14	Vial 2	Pause	PAUSE	1	Sample

Sequence: G:\gc2011q1\Betty\sequence\gc115p80.txt
Sequence Table (Back Injector):

Line	Vial	Sample Name	Method	Inj	Type
1	Vial 30	gc115p80 #FG8 ENV(1=0,2=358.14)	GC115P025	2	Sample
2	Vial 30	gc115p80 #FG7 ENV(1=636,2=716.28)	GC115P025	2	Sample
3	Vial 30	gc115p80 #FG6 ENV(1=1271.99,2=159.17)	GC115P025	2	Sample
4	Vial 30	gc115p80 #FG5 ENV(1=4854.78,2=103.63)	GC115P025	10	Sample
5	Vial 30	gc115p80 #FG4 ENV(1=0,3=376.47)	GC115P025	2	Sample
6	Vial 30	gc115p80 #FG3 ENV(1=318,3=376.47)	GC115P025	2	Sample
7	Vial 30	gc115p80 #FG2 ENV(1=636,4=83.66)	GC115P025	2	Sample
8	Vial 30	gc115p80 #FG1 ENV(1=692.53,4=16.73)	GC115P025	8	Sample
9	Vial 17	He Blank	GC115P025	3	Sample
10	Vial 18	Pause	PAUSE	1	Sample
11	Vial 30	gc115p075 #FGA C ENV(1,358.71,377.39,0)	GC115P025	2	Sample
12	Vial 18	Pause	PAUSE	1	Sample
13	Vial 32	100% Nitrogen	GC115P025	2	Sample
14	Vial 18	Pause	PAUSE	1	Sample

Sequence: G:\gc2011q1\Betty\sequence\gc115p82.txt
Sequence Table (Front Injector):

Line	Vial	Sample Name	Method	Inj	Type
1	Vial 6	99.0% Carbon Monoxide	GC115P025	2	Sample
2	Vial 7	99.0% Carbon Dioxide	GC115P025	2	Sample
3	Vial 9	100% Oxygen	GC115P025	2	Sample
4	Vial 6	99.0% Methane	GC115P025	2	Sample
5	Vial 6	99.0% Methane	GC115P025	2	Sample
6	Vial 9	100% Hydrogen	GC115P025	2	Sample
7	Vial 9	100% Hydrogen	GC115P025	1	Sample
8	Vial 9	100% Hydrogen	GC115P025	1	Sample
9	Vial 2	Pause	PAUSE	1	Sample
10	Vial 14	gc115p82 #C5 ENV(1=0,2=601.2)	GC115P025	3	Sample
11	Vial 14	gc115p82 #C5 ENV(1=0,2=601.2)	GC115P025	3	Sample
12	Vial 14	gc115p82 #C4 ENV(1=424,2=400.68)	GC115P025	3	Sample
13	Vial 14	gc115p82 #C3 ENV(1=636,2=100.17)	GC115P025	3	Sample
14	Vial 14	gc115p82 #C2 ENV(1=1342.66,2=100.17)	GC115P025	3	Sample
15	Vial 14	gc115p82 #C1 ENV(1=2755.99,2=100.17)	GC115P025	3	Sample
16	Vial 2	Pause	PAUSE	1	Sample
17	Vial 14	gc115p82 #C4 ENV(1=848,2=801.36)	GC115P025	3	Sample
18	Vial 14	gc115p82 #C4 ENV(1=848,2=801.36)	GC115P025	1	Sample
19	Vial 14	gc115p82 #C4 ENV(1=848,2=801.36)	GC115P025	1	Sample
20	Vial 2	Pause	PAUSE	1	Sample
21	Vial 14	gc115p82 #C8 ENV(1=0,2=422.12)	GC115P025	3	Sample
22	Vial 14	gc115p82 #C7 ENV(1=848,2=844.24)	GC115P025	3	Sample
23	Vial 14	gc115p82 #C6 ENV(1=636,2=105.53)	GC115P025	3	Sample
24	Vial 2	Pause	PAUSE	1	Sample
25	Vial 14	gc115p82 #C10 ENV(1=0,3=468.44)	GC115P025	3	Sample
26	Vial 14	gc115p82 #C9 ENV(1=848,3=936.88)	GC115P025	3	Sample
27	Vial 14	gc115p82 #C1 ENV(1=2755.99,2=100.17)	GC115P025	10	Sample
28	Vial 2	Pause	PAUSE	1	Sample

Sequence: G:\gc2011q1\Betty\sequence\gc115p82.txt
Sequence Table (Back Injector):

Line	Vial	Sample Name	Method	Inj	Type
1	Vial 22	99.0% Carbon Monoxide	GC115P025	2	Sample
2	Vial 2	99.0% Carbon Dioxide	GC115P025	2	Sample
3	Vial 25	100% Oxygen	GC115P025	2	Sample
4	Vial 22	99.0% Methane	GC115P025	2	Sample
5	Vial 22	99.0% Methane	GC115P025	2	Sample
6	Vial 25	100% Hydrogen	GC115P025	2	Sample
7	Vial 25	100% Hydrogen	GC115P025	1	Sample
8	Vial 25	100% Hydrogen	GC115P025	1	Sample
9	Vial 18	Pause	PAUSE	1	Sample
10	Vial 30	gc115p82 #C5 ENV(1=0,2=601.2)	GC115P025	3	Sample
11	Vial 30	gc115p82 #C5 ENV(1=0,2=601.2)	GC115P025	3	Sample
12	Vial 30	gc115p82 #C4 ENV(1=424,2=400.68)	GC115P025	3	Sample
13	Vial 30	gc115p82 #C3 ENV(1=636,2=100.17)	GC115P025	3	Sample
14	Vial 30	gc115p82 #C2 ENV(1=1342.66,2=100.17)	GC115P025	3	Sample
15	Vial 30	gc115p82 #C1 ENV(1=2755.99,2=100.17)	GC115P025	3	Sample
16	Vial 18	Pause	PAUSE	1	Sample
17	Vial 30	gc115p82 #C4 ENV(1=848,2=801.36)	GC115P025	3	Sample
18	Vial 30	gc115p82 #C4 ENV(1=848,2=801.36)	GC115P025	1	Sample
19	Vial 30	gc115p82 #C4 ENV(1=848,2=801.36)	GC115P025	1	Sample
20	Vial 18	Pause	PAUSE	1	Sample
21	Vial 30	gc115p82 #C8 ENV(1=0,2=422.12)	GC115P025	3	Sample
22	Vial 30	gc115p82 #C7 ENV(1=848,2=844.24)	GC115P025	3	Sample
23	Vial 30	gc115p82 #C6 ENV(1=636,2=105.53)	GC115P025	3	Sample
24	Vial 18	Pause	PAUSE	1	Sample
25	Vial 30	gc115p82 #C10 ENV(1=0,3=468.44)	GC115P025	3	Sample
26	Vial 30	gc115p82 #C9 ENV(1=848,3=936.88)	GC115P025	3	Sample
27	Vial 30	gc115p82 #C1 ENV(1=2755.99,2=100.17)	GC115P025	10	Sample
28	Vial 18	Pause	PAUSE	1	Sample

Sequence: G:\gc2011q1\Betty\sequence\gc115p89.txt
Sequence Table (Front Injector):

Line	Vial	Sample Name	Method	Inj	Type
1	Vial 14	gc115p80 #FG7 ENV(1=636,2=716.28)	GC115P80	2	Sample
2	Vial 14	gc115p80 #FG3 ENV(1=318,2=376.47)	GC115P80	2	Sample
3	Vial 14	gc115p80 #FG7 ENV(1=636,3=716.28)	GC115P80	2	Sample
4	Vial 9	gc115p82 #C5	GC115P80	3	Sample
5	Vial 2	Pause	PAUSE	1	Sample
6	Vial 16	Scotty Cylinder ST0000087933	GC115P80	2	Sample
7	Vial 2	Pause	PAUSE	1	Sample
8	Vial 3	Run 1 Can 1385 0111-58	GC115P80	3	Sample
9	Vial 3	Run 1 Can 1385 0111-58	GC115P80	2	Sample
10	Vial 4	Run 2 Can 1038 0111-58	GC115P80	3	Sample
11	Vial 6	Run 3 Can 1604 0111-58	GC115P80	3	Sample
12	Vial 7	CH4 1-5-11 Can 1173 1210-113	GC115P80	2	Sample
13	Vial 8	CH4 1-6-11 Can 1032 1210-113	GC115P80	2	Sample
14	Vial 13	CH4 1-13-11 Can 1337 1210-113	GC115P80	2	Sample
15	Vial 1	He Blank	GC115P80	2	Sample
16	Vial 9	gc115p82 #C5	GC115P80	3	Sample
17	Vial 16	Scotty Cylinder ST0000087933	GC115P80	2	Sample
18	Vial 2	Pause	PAUSE	1	Sample
19	Vial 9	gc115p82 #C5	GC115P80	3	Sample
20	Vial 2	Pause	PAUSE	1	Sample
21	Vial 14	gc115p89 #H7 ENV(1=0,3=450)	GC115P80	2	Sample
22	Vial 14	gc115p89 #H6 ENV(1=530,3=495)	GC115P80	2	Sample
23	Vial 14	gc115p89 #H5 ENV(1=563.33,3=198)	GC115P80	2	Sample
24	Vial 2	Pause	PAUSE	1	Sample
25	Vial 3	Run 1 Can 1385 0111-58	GC115P80	2	Sample
26	Vial 4	Run 2 Can 1038 0111-58	GC115P80	2	Sample
27	Vial 6	Run 3 Can 1604 0111-58	GC115P80	2	Sample
28	Vial 14	gc115p89 #H6 ENV(1=530,3=495)	GC115P80	2	Sample
29	Vial 16	Scotty Cylinder ST0000087933	GC115P80	2	Sample
30	Vial 2	Pause	PAUSE	1	Sample

Sequence: G:\gc2011q1\Betty\sequence\gc115p89.txt
Sequence Table (Back Injector):

Line	Vial	Sample Name	Method	Inj	Type
1	Vial 30	gc115p80 #FG7 ENV(1=636,2=716.28)	GC115P80	2	Sample
2	Vial 30	gc115p80 #FG3 ENV(1=318,2=376.47)	GC115P80	2	Sample
3	Vial 30	gc115p80 #FG7 ENV(1=636,3=716.28)	GC115P80	2	Sample
4	Vial 25	gc115p82 #C5	GC115P80	3	Sample
5	Vial 18	Pause	PAUSE	1	Sample
6	Vial 32	Scotty Cylinder ST0000087933	GC115P80	2	Sample
7	Vial 18	Pause	PAUSE	1	Sample
8	Vial 19	Run 1 Can 1385 0111-58	GC115P80	3	Sample
9	Vial 19	Run 1 Can 1385 0111-58	GC115P80	2	Sample
10	Vial 20	Run 2 Can 1038 0111-58	GC115P80	3	Sample
11	Vial 22	Run 3 Can 1604 0111-58	GC115P80	3	Sample
12	Vial 23	CH4 1-5-11 Can 1173 1210-113	GC115P80	2	Sample
13	Vial 24	CH4 1-6-11 Can 1032 1210-113	GC115P80	2	Sample
14	Vial 29	CH4 1-13-11 Can 1337 1210-113	GC115P80	2	Sample
15	Vial 17	He Blank	GC115P80	2	Sample
16	Vial 25	gc115p82 #C5	GC115P80	3	Sample
17	Vial 32	Scotty Cylinder ST0000087933	GC115P80	2	Sample
18	Vial 18	Pause	PAUSE	1	Sample
19	Vial 25	gc115p82 #C5	GC115P80	3	Sample
20	Vial 18	Pause	PAUSE	1	Sample
21	Vial 28	gc115p89 #H7 ENV(1=0,3=450)	GC115P80	2	Sample
22	Vial 28	gc115p89 #H6 ENV(1=530,3=495)	GC115P80	2	Sample
23	Vial 28	gc115p89 #H5 ENV(1=563.33,3=198)	GC115P80	2	Sample
24	Vial 18	Pause	PAUSE	1	Sample
25	Vial 19	Run 1 Can 1385 0111-58	GC115P80	2	Sample
26	Vial 20	Run 2 Can 1038 0111-58	GC115P80	2	Sample
27	Vial 22	Run 3 Can 1604 0111-58	GC115P80	2	Sample
28	Vial 28	gc115p89 #H6 ENV(1=530,3=495)	GC115P80	2	Sample
29	Vial 32	Scotty Cylinder ST0000087933	GC115P80	2	Sample
30	Vial 18	Pause	PAUSE	1	Sample

MATHESON TRI•GAS
ask. . .The Gas Professionals™

Certified Mixture Grade

Matheson Tri-Gas Inc.
6874 S. Main Street
Morrow GA 30260
Phone: 770-961 4606
Fax: 770-968 1268

TO: Enthalpy Analytical
2202 Ellis Rd Suite A
Durham, NC 27703

PHONE:
FAX:

TO AVOID BACKFILL, CYLINDER PRESSURE MUST BE GREATER THAN PROCESS PRESSURE

SALES ORDER NUMBER: 534738
P.O. NUMBER: C715KMJCB
LOT NUMBER: 1050616843

PRODUCT:

CYLINDER NUMBER: AH50255
SIZE: 1A
CGA/DISS OUTLET: 590
CONTENT: 210.1 cu. ft.
PRESSURE: 2000 psig

FILL DATE: Jul 20, 2010
CERTIFICATION DATE: Jul 20, 2010
EXPIRATION DATE: Jul 20, 2013

COMPONENT	REQUESTED CONCENTRATION	BLEND TOLERANCE (+/-)	CERTIFIED CONCENTRATION	CERTIFICATION ACCURACY
Oxygen	10 %	5 %	9.8 %	+/- 2%
Carbon Dioxide	10 %	5 %	9.8 %	+/- 2%
Helium, Balance				

TRACEABLE TO REFERENCE STANDARD SOURCE/NUMBER:
TRACEABLE TO NIST TRACEABLE WEIGHT CERTIFICATE: 513987

SPECIAL INFORMATION / ADDITIONAL COMMENTS

The product listed above and furnished under the referenced purchase order has been tested and found to contain the component concentration listed above. All values in mole/mole basis gas phase unless otherwise indicated. Matheson Tri-Gas Inc. warrants that the above product(s) conform at the time of shipment to the above description. Matheson Tri-Gas Inc. liability does not exceed the value of the product purchased.

Derek Stuck
ANALYST

SIGNATURE

Jul 20, 2010
DATE SIGNED

MATHESON TRI•GAS
ask. . .The Gas Professionals™

Certified Mixture Grade

Matheson Tri-Gas Inc.
6874 S. Main Street
Morrow GA 30260
Phone: 770-961 4606
Fax: 770-968 1268

TO: Enthalpy Analytical
2202 Ellis Rd Suite A
Durham, NC 27703

PHONE:
FAX:

TO AVOID BACKFILL, CYLINDER PRESSURE MUST BE GREATER THAN PROCESS PRESSURE

SALES ORDER NUMBER: 534738
P.O. NUMBER: C715KMJCB
LOT NUMBER: 1050616842

PRODUCT:

CYLINDER NUMBER: AH16330
SIZE: 1A
CGA/DISS OUTLET: 350
CONTENT: 175.1 cu. ft.
PRESSURE: 1667 psig

FILL DATE: Jul 20, 2010
CERTIFICATION DATE: Jul 20, 2010
EXPIRATION DATE: Jul 20, 2012

COMPONENT	REQUESTED CONCENTRATION	BLEND TOLERANCE (+/-)	CERTIFIED CONCENTRATION	CERTIFICATION ACCURACY
Nitrogen	10 %	5 %	10.0 %	+/- 2%
Hydrogen	8 %	10 %	8.0 %	+/- 2%
Carbon Monoxide	10 %	5 %	10.0 %	+/- 2%
Methane	8 %	10 %	8.0 %	+/- 2%
Helium, Balance				

TRACEABLE TO REFERENCE STANDARD SOURCE/NUMBER:
TRACEABLE TO NIST TRACEABLE WEIGHT CERTIFICATE: 513987

SPECIAL INFORMATION / ADDITIONAL COMMENTS

The product listed above and furnished under the referenced purchase order has been tested and found to contain the component concentration listed above. All values in mole/mole basis gas phase unless otherwise indicated. Matheson Tri-Gas Inc. warrants that the above product(s) conform at the time of shipment to the above description. Matheson Tri-Gas Inc. liability does not exceed the value of the product purchased.

Derek Stuck
ANALYST

SIGNATURE

Jul 20, 2010
DATE SIGNED

Air Liquide America Specialty Gases LLC | Scott

CERTIFIED MASTER CLASS

Single-Certified Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Project No.: 01-19380-001
Item No.: 0102N802890PA
P.O. No.: CMD1204STGJCB

Cylinder Number: A019379
Cylinder Size: A
Certification Date: 15Dec2009
Expiration Date: 15Dec2011

Customer

ENTHALPY ANALYTICAL, INC.
2202 ELLIS ROAD
DURHAM, NC 27703-5518

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
N-BUTANE	100.	PPM	2
ETHANE	99.9	PPM	2
N-HEPTANE	97.0	PPM	2
N-HEXANE	103.	PPM	2
METHANE	99.8	PPM	2
N-PENTANE	98.9	PPM	2
PROPANE	99.8	PPM	2
NITROGEN		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: GENYA KOGOT

DATE: 12/15/09

SPECIFICATIONS

Component Name	Requested Concentration (Moles)		Certified Concentration (Moles)		Blend Tolerance Result (+/- %)	Certified Accuracy Result (+/- %)
N-BUTANE	100.	PPM	100.	PPM	.0	2.00
ETHANE	100.	PPM	99.9	PPM	.1	2.00
N-HEPTANE	100.	PPM	97.0	PPM	3.0	2.00
N-HEXANE	100.	PPM	103.	PPM	3.0	2.00
METHANE	100.	PPM	99.8	PPM	.2	2.00
N-PENTANE	100.	PPM	98.9	PPM	1.1	2.00
PROPANE	100.	PPM	99.8	PPM	.2	2.00
NITROGEN		BAL		BAL		

TRACEABILITY

Traceable To
Scott Reference Standard

PHYSICAL PROPERTIES

Cylinder Size: A

Pressure: 2000 PSIG
Expiration Date: 15Dec2011

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.

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:
Enthalpy Analytical, Inc.
2202 Ellis Road, Suite A
Durham, NC 27703-5518

Tel: (919) 850-4392

Cylinder Number SG9127449BAL
Cylinder Size/CGA: AL150/350
Fill Pressure: 1400 PSIA
Gas Volume: 2634 liters
Date of Mfg: 3/26/09
Expiration Date: 3/26/12

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	032609-001	CMD030909CJCB	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
Methane	1 %	1.002 % +/- 0.02 %	Gravimetric Master Gas
Ethane	1 %	0.999 % +/- 0.02 %	
Propane	1 %	1.002 % +/- 0.02 %	
n-Butane	1 %	0.999 % +/- 0.02 %	
Nitrogen	balance	balance	

NOTES:
Blend Tolerance: +/-2%
Analytical Tolerance: +/-2%
Traceability: NIST by weight set / 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.

CUSTOMGAS
SOLUTIONS

1750 East Club Boulevard
Durham, NC 27704
Phone: (919) 220-2570
Fax: (919) 220-4540

Certificate of Analysis

Customer:
Enthalpy Analytical, Inc.
2202 Ellis Road, Suite A
Durham, NC 27703-5518

Tel: (919) 850-4392

Cylinder Number 2777164Y
Cylinder Size/CGA: ST300/350
Fill Pressure: 450 PSIA
Gas Volume: 1500 liters
Date of Mfg: 2/10/09
Expiration Date: 2/10/11

Customer Number	Ship VIA	Job No.	Customer PO	Mixture Type
00127703NC	Pick up	021009-010	CMD012709DMB JCB	Gravimetric

Component	Nominal Concentration	Actual Concentration*	Mixture Type
n-Heptane	500 ppm	500.4 ppm +/- 10 ppm	Gravimetric Master Gas
n-Hexane	1000 ppm	998 ppm +/- 20 ppm	
n-Pentane	2000 ppm	2004 ppm +/- 40 ppm	
n-Butane	1%	1.02% +/- 0.02%	
Propane	5%	5.00% +/- 0.10%	
Ethane	5%	5.02% +/- 0.10%	
Nitrogen	Balance	Balance	

NOTES: **Blend Tolerance:** +/-2%
Analytical Tolerance: +/-2%

Authorized Signature: Stephen Vaughan (electronic)

Stephen Vaughan, PhD

*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.

MATHESON
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Analysis Report

To: MIDAC CORPORATION
2202 ELLIS RD
DURHAM , NC 27703

MTG Customer No: 120674

Manufacturing Location
6874 JONESBORO RD.
MORROW, GA 30260

Product: OXYGEN

Grade: ZERO GAS 99.8%
MTG Part No: G2060112

Cylinder Size: 1L
Valve: CGA 540 BR

Contents:
Net: 337 ft³; 9.54 m³

Pressure: 2640 psig @ 70°F; 18303 kPa @ 21°C

CYLINDER NUMBER(S)
1015101

	Specification	Certified Concentration	Units
Oxygen	≥ 99.8	≥ 99.8	%
THC as Methane	< 0.5	ND < 0.5	ppm

Lot No: 1059413064
Fill Date: 02/11/2009

COMMENTS

The provision of this certificate is expressly subject to and governed by Matheson Tri-Gas' Terms and Conditions of Sale available on our web site, www.matheson-trigas.com. This document was issued electronically and data validated by electronic signature.

Derek Stuck - Analyst — 02/12/2009 Date

Derek Stuck - QA Approval — 01/21/2011 Date

Airgas Merchant Gases

Certificate of Analysis

All Nitrogen delivered from an Airgas Merchant Gases ASU, when used in a medical application or by medical customers properly registered with the FDA, is classified as NF Nitrogen

Shipped From:
Airgas Merchant Gases Chester
13501 Allied Road
Chester, VA 23836
Phone: 8045303252

Company Name: **Airgas Merchant Gases**

Product:	Nitrogen, NF	Operator:	SRG
Driver:	D. Jones	Tractor No: 47	Product Code: 104009
Load No:	82061	Certificate No: 102862	Trailer No: 7469
Time In:	7:47:17 am	Time Out: 8:17:08 am	Loaded From Tank: 7310
Tare Weight:	36,040 lbs	Gross Weight: 78,680 lbs	Certificate Date: 1/7/2011 8:15:24AM
			Net Weight: 43,640 lbs

Airgas Lot Number: **7951-N-7310-17-10-7469** Produced By: **Air Liquefaction**

Assay per NF requirements is by difference of O2 only

	Results	Units	USP / NF Specifications	AMG Specifications
Purity Pre-Fill:	Pass *		Pass *	Pass *
Purity Post-Fill: (Assay, By Difference)	99.999990	%	>= 99.0%	>= 99.999%
O2: O2 Tested By: teledyne 3000TA-XI Electrochemical	0.10	ppmV	<= 1.0%	<= 5.0 ppm
CO: CO Tested By: Servomex 4100 Gfx transducer	0.20	ppmV	<= 10.0 ppm	<= 10.0 ppm
Odor: Odor Tested By: Organoleptic	None		None	None
Identity: Identity Tested By: N/A N/A MGIF 315 AMG1	Nitrogen		Nitrogen	Nitrogen
Moisture: Moisture Tested By: Meeco Aquamatic Electrolytic	0.100000	ppmV	N/A	N/A
Dew Point:	-130.00	deg. F	N/A	N/A

** The Pre-Fill is tested against AMG and USP / NF specifications and a Pass indicated that the results met and exceeded the applicable specifications. The results of the Pre-Fill tests are kept on file.*

HAZARDOUS MATERIAL SHIPPING INFORMATION

HM XX Nitrogen, Refrigerated Liquid (Cryogenic Liquid) 2.2 UN1977

Quantity: 43,640 Gallons: 6,483.08 Cubic Feet: 602,362.92

NON-FLAMMABLE GAS

Spill, Leak, Fire, Exposure, or accident:
Chemical Emergency: Call Chemtrec 800-424-9300

Airgas Analyst: *I declare that this analysis was completed within all AMG policy and procedures and that the product meets all AMG and USP/NF specifications.*

Signed: _____ Date: 1/7/2011

Product Release Specialist / Released By: *I declare that this certificate is accurate, complete and compliant with all applicable policies and procedures and that the product meets all AMG and USP/NF specifications.*

Signed: _____ Date: 1/7/2011

Picked Up By: *I declare that I have received the required documentation for shipment of this product.*

Signed: _____ Date: 1/7/2011

Rev #: 1.0 - Jan 1 2010 12:00AM

AIR LIQUIDE | Air Liquide America Specialty Gases LLC | Scott

Shipped From:	6141 EASTON ROAD, BLDG 1 PLUMSTEADVILLE Phone: 800-331-4953	PA 18949-0310	PO BOX 310 Fax: 215-766-7226

C E R T I F I C A T E O F A N A L Y S I S

ENTHALPY ANALYTICAL
JANET BROWN/CMD32609DBJCB
2202 ELLIS ROAD
STE A
DURHAM NC 27703

PROJECT #: 01-90542-002
PO#: 59239
ITEM #: 0104234 HPI
CUST ITEM #: 34512-PI
DATE: 01Apr2009

CYLINDER #: ST0000087933
FILL PRESSURE: 450 PSI
SCOTT LOT#: 9091012

ANALYTICAL ACCURACY: +/- 2%
PRODUCT EXPIRATION: 01Apr2011

COMPONENT	REQUESTED GAS CONC MOLES	ANALYSIS (MOLES)
CARBON DIOXIDE	5. %	4.99 %
CARBON MONOXIDE	5. %	5.16 %
HYDROGEN	4. %	4.0 %
METHANE	4. %	4.17 %
NITROGEN	5. %	5.00 %
OXYGEN	5. %	5.00 %
HELIUM	BALANCE	BALANCE

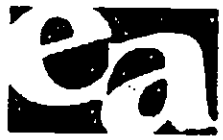
RESTEK P/N 34512-PI

MANUFACTURED DATE: 01Apr2009

SCOTTY SIZE: HPI

APPROVED BY: JAKE SENKOW

This Is The Last Page Of This Report.



Compound	Molecular Weight (g/mole)	Net Heat of Combustion (Btu/lb**)	Net Heat of Combustion (kcal/g-mole)
Methane	16.04	21,510	191.68
Ethane	30.07	20,425	341.21
Ethene	28.05	20,269	315.86
Propane	44.10	19,920	488.04
Propene	42.08	19,682	460.12
Butanes	58.12	19,657	634.70
Butenes	56.11	19,470	606.92
Pentanes	72.15	19,495	781.42
Pentenes	70.14	19,341	753.65
Hexanes***	86.18	19,391	928.40
Hydrogen	2.02	51,625	57.93
Hydrogen Sulfide	34.08	6,537	123.77
Nitrogen	28.01	---	---
Oxygen	32.00	---	---
Carbon Dioxide	44.01	---	---
Toluene	92.14	17,620	901.95
Propylene Oxide	58.08	13,000	419.47
Isopropanol	60.10	12,960	432.72
Benzene	78.11	17,448	757.14
Octane	114.23	19,098	1,211.98
Heptane	100.21	19,157	1,066.51

* As hexane.

** At 25° C, Table 10, " Gas Tables - Thermodynamic Properties of Air Products of Combustion and Component Gases, Second Edition".

(Btu/lb)(0.252 kcal/Btu)(1 lb/453.6 g)(MW g mole) = kcal/gmole

Example for methane:

(21,510 Btu/lb)(0.252 kcal/Btu)(1 lb/453.6 g)(16.04 g mole) = 191.68 kcal/gmole

APPENDIX F

Visible Emissions Data

FUGITIVE OR SMOKE EMISSION INSPECTION
OUTDOOR LOCATION

COMPANY Deltech Corp. OBSERVER Pilgrim

LOCATION Baton Rouge, LA AFFILIATION Metco

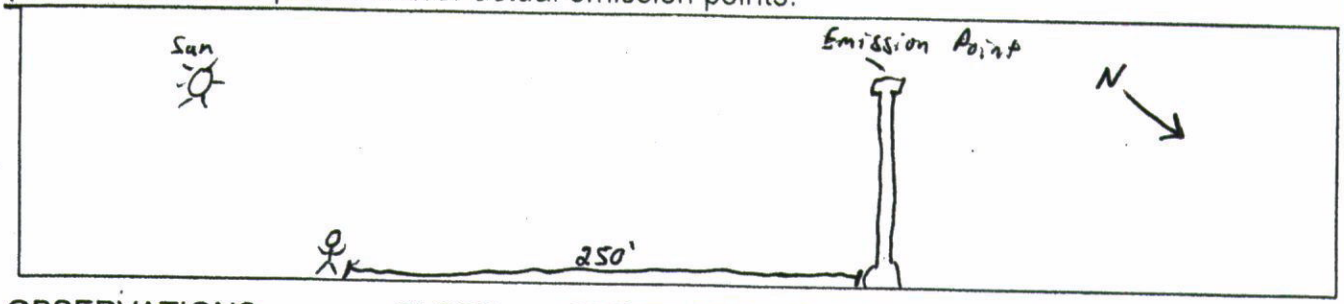
COMPANY REPRESENTATIVE Karen Brignac DATE 1/20/11

Sky Conditions Cloudy Wind Direction ESE

Precipitation 0 Wind Speed 8 mph

INDUSTRY Chemical PROCESS UNIT De-hydrogeneration Reactor Vent Flare

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	1120	15:00	00:00
	1140	15:00	00:00
	1200	15:00	00:00
	1220	15:00	00:00
	1240	15:00	00:00
	1300	15:00	00:00
	1320	15:00	00:00
	1340	15:00	00:00
	END 1355	-	-
End Observation	-	-	-

APPENDIX G

Chain of Custody

METCO Environmental ©

CHAIN OF CUSTODY RECORD

Page 1 of 1

Job No.: 09-240
Job Name: Deltech Corporation
Location: Baton Rouge, LA
Unit: De-hydrogenation Reactor Vent Flow

Project Manager: Louis Adams
Project Supervisor: David Moon

Method: 18

SAMPLE I.D.	DATE	TIME	# OF CONT.	Absorb. Solution	Initial Vol.	PART	HCL	CL2	SO2	SO3	BIU Content		Recovered by	REMARKS (Specific Compounds/Methods)
Run 1 Canister	1-20-11	1220	1								✓		David Moon	Can 1385
Run 2 Canister	1-20-11	1325	1								✓		D. Moon	Can 1028
Run 3 Canister	1-20-11	1445	1								✓		D. Moon	Can 1604

HLT 1/25/11

Samples Received for Transport/Shipment by: David Moon	Date: 1-20-11	Time: 16:00	
Samples Received for Transport/Shipment by:	Date:	Time:	
Samples Received for Transport/Shipment by:	Date:	Time:	
Samples Shipped Via:	Date:	Time:	
Samples Received at Laboratory by: Heather [illegible]	Date: 1/25/11	Time: ~~9:42AM~~ 9:42AM	HLT 1/25/11
Samples Analyzed by:	Date:	Time:	
Samples Analyzed by:	Date:	Time:	
Data Checked by: [illegible]	Date: 02/14/11	Time: 1300	

Temp = Ambient

VERSION 2
10 MARCH 2003

APPENDIX H

Resumes of Test Personnel

ROBERT M. PATTERSON; 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, Rob (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

JAMES R. MONFRIES; 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 (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

DANIEL MOORE; Project Supervisor II

Education	Process Technician, October 2000; Louisiana Technical College, River Parishes Campus.
Certifications	Certified Visible Emissions Evaluator HAZMAT certified Adult CPR certified Standard First Aid certified
Technical Experience	Participated in the sampling of over 200 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2001-present.

JASON D. PILGRIM; Environmental Scientist III

Education	B. S. in Biological Sciences, May 2007; Louisiana State University, in Baton Rouge, Louisiana.
Technical Experience	Participated in the sampling of over 100 sources, including several of which were sampled simultaneously using more than one sampling train. Thoroughly trained in all EPA testing procedures, 2007-present.

Appendix 6
Flare Vents Worksheet Explanation

Flare Vents Worksheet

The information on the composition of each stream sent to the flare was developed by a process engineer who retired a few years ago. He had extensive knowledge of the site. It is our understanding that these numbers were based on design information as well as limited sample results.

The SCP Dehydro reactor vents to the flare at all times it is operating. Dehydro reactors #4 and #5 and the alkylation reactor vent to the flare only on startup and shutdown. For permitting and emissions estimation purposes, it is assumed that they vent to the flare 12 hours per month with the remainder of operational time venting back to the furnace. The actual venting time to the flare is not documented. The Dehydro reactor #1 vent stream is piped into the vent from the #4 Dehydro reactor however the compressor going back to the #4 Dehydro furnace is only sized for the flow from one reactor with the excess going to the flare. Essentially, the entire vent stream from Dehydro reactor #1 goes to the flare. Please note that this is slightly different from what is depicted in the diagram previously provided.