



Gas Analysis Report

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 Attn: John Whitehead

AAL Number: 37954-1
 Received On: 08 Sept 15
 Report Date: 11 Sept 15

PO Number: 5642

Sample ID.: Exhaust Gas; 1 PSI
 Comments: 1 of 2 samples rec'd in a 300 cc AAL cyl # 0306.

Sampled on: 04 Sept 15
 Location: Tarpon Springs, FL

<u>Non-Condensable Gases (Normalized Results)</u>	<u>Result</u>	
	<u>% v/v</u>	<u>D.L.</u>
Hydrogen: -----	nd	0.01
Nitrogen: -----	83.4	0.01
Oxygen: -----	6.04	0.01
Argon: -----	0.60	0.05
Carbon Monoxide: -----	nd	0.01
Carbon Dioxide: -----	9.95	0.05
Water Vapor: -----	2.95	0.001

<u>Hydrocarbons (Normalized Results)</u>	<u>% v/v</u>	<u>D.L.</u>
Methane: -----	0.004	0.001
Ethylene: -----	0.003	0.001
Acetylene: -----	0.010*	0.001
Ethane: -----	nd	0.001
Propylene: -----	0.001	0.001
Propane: -----	0.001	0.001
Isobutane: -----	nd	0.001
n-Butane: -----	0.003	0.001
Butene: -----	0.001	0.001
Isopentane: -----	nd	0.001
n-Pentane: -----	nd	0.001
Pentenes: -----	nd	0.001
Hexanes+: -----	nd	0.001

Comments: *Semi-quantitated amount. Acetylene calculated with 1% standard.

D.L. = report detection limit. nd = indicates the concentration is less than the report detection limit. -- = test not performed.
 L.T. = less than the amount specified. ppm = parts per million. ppb = parts per billion. v/v = volume analyte/volume sample.

Elemental Composition (Normalized, % w/w)

<u>Element</u>	<u>Result</u>
Carbon Content (% C, w/w):	4.02
Hydrogen Content (% H, w/w):	0.003
Oxygen Content (% O, w/w):	17.15
Nitrogen Content (% N, w/w):	78.82

Heat of Combustion & Physical Properties (by ASTM D 3588-91)

I. @ ASTM Base Conditions; 14.696 psia, 60°F, dry gas format **Result**

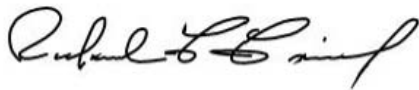
Net Heat of Combustion	(Lower Heating Value, Btu/ft ³):	0
Gross Heat of Combustion	(Higher Heating Value, Btu/ft ³):	0
Gross Heat of Combustion	(<u>Water Saturated</u> Gas Format, Btu/ft ³):	0
Net Heat of Combustion	(Lower Heating Value, Btu/lb):	4
Gross Heat of Combustion	(Higher Heating Value, Btu/lb):	5
Molecular Weight:		29.85
Density (lb/ft ³):		0.0787
Specific Gravity (vs dry/normal air):		1.0306
Compressibility Factor (z):		0.9995

II. @ ASME Base Conditions; 14.73 psia, 60°F, dry gas format **Result**

Net Heat of Combustion	(Lower Heating Value, Btu/ft ³):	0
Gross Heat of Combustion	(Higher Heating Value, Btu/ft ³):	0
Gross Heat of Combustion	(<u>Water Saturated</u> Gas Format, Btu/ft ³):	0
Net Heat of Combustion	(Lower Heating Value, Btu/lb):	4
Gross Heat of Combustion	(Higher Heating Value, Btu/lb):	5

DL = instrumental detection limit for the reported analyte. nd = indicates the concentration is less than the accompanying report detection limit. -- = test not performed. % = parts per hundred (percent). ppm = parts per million. w/w = weight analyte/weight sample format. v/v = volume analyte/volume sample format (equivalent to mole fraction for normalized, ideal gas mixtures). Conversions: 0.0001% = 1 ppm.

Reviewed By,



Richard F. Frisch
President, Analytical Services

Attachments: --None
 Addendum: --Chromatograms and notebook data on-file



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