



PANAIR LABORATORY, INC.

4301 N.W. 72 AVE. MIAMI, FL 33166 (305) 594-9055

FUEL OIL ANALYSIS

ORIGIN Grand Cayman	FUEL TYPE Diesel	LABORATORY NO. 3196F-1
DATE SAMPLED 11/16/16	RECEIVED AT LAB 11/18/16	AWB NO. 378-05132982
REFINER --	REFINER'S DESIGNATION ULS Diesel #2	CUSTOMER CIG Petroleum
		TEST COMPLETED 11/23/16
		SAMPLED FROM M01

This report relates to the sample tested and does not guarantee the bulk of the material to be of equal

DISTILLATION (D 86)

APPEARANCE, VISUAL

Clear

ASH, % WGT. (D 482)

ASPHALTENES, % WGT. (IP 143)

CARBON RESIDUE CONRADSON, % WGT. (D 189)

CARBON RESIDUE RAMSBOTTOM (ON 10% B), WGT. (D524)

CETANE INDEX (D 976)

56.0

CETANE NUMBER (D 613)

CLOUD POINT F/C (D 2500)

COPPER CORROSION (3 HRS 122 F/ 212 F) (D 130)

COLOR, ASTM (D 1500)

FLASH POINT PENSKY-MARTENS F /C (D 93)

GROSS CALORIFIC VALUE, BTU/LB (D240)

NET CALORIFIC VALUE (CALCULATED)

38.91

GRAVITY, API @ 60 F (D 4052)

0.8304

SPECIFIC GRAVITY @ 60 F/ 60 F

0.8299

DENSITY @ 15 C

6.90

POUNDS PER GALLON @ 60 F

COMPATABILITY SPOT RATING (D4740)

CCAI CALCULATION

POUR POINT F /C(D 97)

SEDIMENT BY EXTRACTION, % MASS (D 473)

SEDIMENT BY HOT FILTRATION, % MASS (D4870)

SULFUR, % WGT., XRAY (D 4294)

6

SULFUR, mg / Kg (ppm), XRAY, (D 2622)

VISCOSITY, KINEMATIC @ 50 C mm2/sec. (D 445)

2.980

VISCOSITY, KINEMATIC @ 40C mm2/sec. (D 445)

WATER BY DISTILLATION, % WGT. (D 95)

WATER AND SEDIMENT, % VOL. (D 1796)

0

WATER AND SEDIMENT, % VOL (D 2709)

NITROGEN, % WGT.

HYDROGEN, %, WGT.

% RECOVERY	C
IBP	164.4
10	211.2
20	236.6
30	254.4
40	267.3
50	278.6
60	289.7
70	300.9
80	314.8
90	335.2
95	353.6
END POINT	365.7

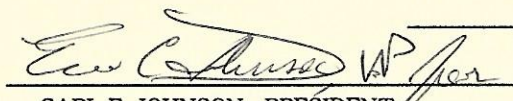
RECOVERY	98.6	%
RESIDUE	1.0	%
LOSS	0.4	%

ELEMENTS BY ATOMIC ABSORPTION, PPM

ALUMINUM (Al)	
CALCIUM (Ca)	
CHROMIUM (Cr)	
COPPER (Cu)	
IRON (Fe)	
LEAD (Pb)	
MAGNESIUM (Mg)	
MANGANESE (Mn)	
NICKEL (Ni)	
POTASSIUM (K)	
SILICON (Si)	
SODIUM (Na)	
Sodium+ Potassium	
VANADIUM (V)	
ZINC (Zn)	
LITHIUM (Li)	
PHOSPHORUS (P)	

ND = NONE DETECTED

(by ICP method)


CARL E. JOHNSON, PRESIDENT
PAL-0206, Issued 10-17-14, Revision 1



PANAIR LABORATORY, INC.

4301 N.W.72 AVE., MIAMI, FL 33166 (305) 594-9055 FAX (305) 477-9137

GASOLINE ANALYSIS REPORT

LABORATORY NO.

13002G-1

AWB NO.

378-0513 2982

ORIGIN Grand Cayman	FUEL TYPE Mogas	CUSTOMER CIG Petroleum
DATE SAMPLED 11-16-16	RECEIVED AT LAB 11-18-16	TEST COMPLETED 11-23-16
REFINER -----	REFINER'S DESIGNATION Mogas	SAMPLED FROM M01

THIS REPORT RELATES ONLY TO THE SAMPLE TESTED AND DOES NOT GUARANTEE THE BULK OF THE MATERIAL TO BE OF EQUAL QUALITY.

API GRAVITY @ 60 (D4052)	56.23
SPECIFIC GRAVITY @ 60 F (CONV.)	0.7537
APPEARANCE (D4176)	
OLEFINS, % VOL. (D1319)	
AROMATICS, % VOL. (D1319)	
COLOR VISUAL	
CORROSION, COPPER STRIP (D130)	1a
DOCTOR TEST (IP 30)	
EXISTENT GUM, MG/100 ML (D381/ IP 131)	15
WASHED GUM, MG/100 ML (D381)	< 1
FREEZE POINT, C (D2386)	
VAPOR LOCK INDEX (D323)	
DRIVEABILITY (D4814)	
OCTANE NUMBER, MOTOR (D2700)	88.8
OCTANE SENSITIVITY (RON - MON)	
OCTANE NUMBER, RESEARCH (D2699)	98.7
ANTI-KNOCK INDEX (R+M/2)	93.7
OXIDATION STABILITY @ 100 C, MINUTES (D525)	
PARTICULATE MATTER, MG/L, (D5452)	1.16
FILTER MEMBRANE COLOR RATING (D5452)	B-2
THRUPUT, LITERS	0.870
PHOSPHOROUS CONTENT, MG/L (D3231)	
POTENTIAL GUM, MG/100 ML (D873)	
MANGANESE, mg/L (D3831)	<0.3
SULFUR, mg / kg (ppm) (D2622)	
TETRAETHYLLLEAD CONTENT, g/U.S. gal. (D3237/ IP 362)	
LEAD CONTENT g/Liter (D3237)	
SILVER CORROSION (D4814 annex)	
VAPOR PRESSURE (LB REID/kPa) (D5191)	9.66 / 66.5
BENZENE, % VOL. (D3606)	

ASTM (D 86)

DISTILLATION	C
IBP	32.2
10% Evaporated	47.7
50% Evap.	117.7
90% Evap.	167.1
END POINT	203.1
RECOVERY	98.1 %
RESIDUE	1.0 %
LOSS	0.9 %

☒ X

Product complies with ASTM D4814 for Mogas test results shown if box is checked

for Vapor Pressure / Distillation classes AA, A & B


CARL E. JOHNSON, PRESIDENT
PAL-0238 Issued 3-3-16, Revision 2



PANAIR LABORATORY, INC.

4301 N.W. 72 AVE., MIAMI, FL 33166 (305) 594-9055 FAX (305) 477-9137

GASOLINE ANALYSIS REPORT

LABORATORY NO.

13003G-1

AWB NO.

378-0513 2982

ORIGIN Grand Cayman	FUEL TYPE Mogas	CUSTOMER CIG Petroleum
DATE SAMPLED 11-16-16	RECEIVED AT LAB 11-18-16	TEST COMPLETED 11-23-16
REFINER -----	REFINER'S DESIGNATION Mogas	SAMPLED FROM M02

THIS REPORT RELATES ONLY TO THE SAMPLE TESTED AND DOES NOT GUARANTEE THE BULK OF THE MATERIAL TO BE OF EQUAL QUALITY.

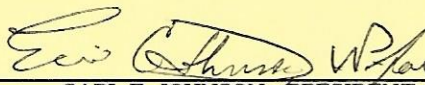
API GRAVITY @ 60 (D4052)	62.52
SPECIFIC GRAVITY @ 60 F (CONV.)	0.7293
APPEARANCE (D4176)	
OLEFINS, % VOL. (D1319)	
AROMATICS, % VOL. (D1319)	
COLOR VISUAL	
CORROSION, COPPER STRIP (D130)	1a
DOCTOR TEST (IP 30)	
EXISTENT GUM, MG/100 ML (D381/ IP 131)	16
WASHED GUM, MG/100 ML (D381)	< 1
FREEZE POINT, C (D2386)	
VAPOR LOCK INDEX (D323)	
DRIVEABILITY (D4814)	
OCTANE NUMBER, MOTOR (D2700)	84.4
OCTANE SENSITIVITY (RON - MON)	
OCTANE NUMBER, RESEARCH (D2699)	93.4
ANTI-KNOCK INDEX (R+M/2)	88.9
OXIDATION STABILITY @ 100 C, MINUTES (D525)	
PARTICULATE MATTER, MG/L, (D5452)	0.30
FILTER MEMBRANE COLOR RATING (D5452)	B-2
THRUPUT, LITERS	0.970
PHOSPHOROUS CONTENT, MG/L (D3231)	
POTENTIAL GUM, MG/100 ML (D873)	
MANGANESE, mg/L (D3831)	<0.3
SULFUR, mg / kg (ppm) (D2622)	
TETRAETHYLLLEAD CONTENT, g/U.S. gal. (D3237/ IP 362)	
LEAD CONTENT g/Liter (D3237)	
SILVER CORROSION (D4814 annex)	
VAPOR PRESSURE (LB REID/kPa) (D5191)	12.87 / 88.6
BENZENE, % VOL. (D3606)	

ASTM (D 86)

DISTILLATION	C
IBP	30.8
10% Evaporated	42.8
50% Evap.	70.0
90% Evap.	161.9
END POINT	209.4
RECOVERY	97.8 %
RESIDUE	1.0 %
LOSS	1.2 %

☐ Product complies with ASTM D4814 for Mogas test results shown if box is checked

See ASTM D 4814 for details about Distillation boiling point 50% evaporated minimum, if applicable.


CARL E. JOHNSON, PRESIDENT
PAL-0238 Issued 3-3-16, Revision 2