



Date: 19-Aug-2014

Certificate of Analysis: DP14-10827.001

F430101 SGS ARGENTINA S.A.
Panamericana Plaza Building
Tronador 4890 – Floors 3° & 6°
Saavedra
BUENOS AIRES
ARGENTINA
C1430DNN

The results shown in this test report specifically refer to the sample(s) tested as received unless otherwise stated. All tests have been performed using the latest revision of the methods indicated, unless specifically marked otherwise on the report. Precision parameters apply in the determination of the below results. Users of the data shown on this report should refer to the latest published revisions of ASTM D3244; IP 367 and ISO 4259 and when utilising the test data to determine conformance with any specification or process requirement. With respect to the UOP methods listed in the report below the user is referred to the method and the statement within it specifying that the precision statements were determined using UOP Method 999. This Test Report is issued under the Company's General Conditions of Service (copy available upon request or on the company website at www.sgs.com). Attention is drawn to the limitations of liability, indemnification and jurisdictional issues defined therein. This report shall not be reproduced except in full, without the written approval of the laboratory.

Please note in the below test report that the scope of the method UOP 938 limits the range of the lower detectable limit as follows: "lower limit of quantitation is 0.3 ng/mL (m/v-ppb)". Additionally, the precision of the method is not fully established; specifically, no reproducibility has yet been published.

CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Crude Oil - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	12-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
API at 60°F §	ASTM D5002	24.4 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D5002	0.9079 ---	--	--
Density at 15°C	ASTM D5002	907.0 kg/m³	--	--
Light Hydrocarbons in Stabilized Crude Oils by GC	IP 344			
Ethane C2		<0.01 % (m/m)	--	--
Propane C3		<0.01 % (m/m)	--	--
Isobutane iC4		<0.01 % (m/m)	--	--
n-Butane nC4		<0.01 % (m/m)	--	--
Isopentane iC5		0.01 % (m/m)	--	--
n-Pentane nC5		0.02 % (m/m)	--	--
Cyclopentane cycC5		<0.01 % (m/m)	--	--
Total Sulfur Content	ASTM D4294	0.191 % (m/m)	--	--
Hydrogen Sulfide Content	UOP 163	<1 ppm (m/m)	--	--
Mercaptan Sulfur Content	UOP 163	10 ppm (m/m)	--	--
Acid Number (Inflection end-point)	ASTM D664 (Method A)	0.66 mg KOH/g	--	--
Pour Point	ASTM D97	0 °C	--	--
Kinematic Viscosity at 40°C	ASTM D445	253.5 cSt	--	--
Kinematic Viscosity at 50°C	ASTM D445	208.1 cSt	--	--
Kinematic Viscosity at 60°F	ASTM D445	143.7 cSt	--	--
Vanadium	ASTM D5863 (Method A)	3.8 ppm	--	--
Nickel	ASTM D5863 (Method A)	1.8 ppm	--	--
Mercury (Hg)	UOP 938	26.0 ppb (m/m)	--	--
Ni, V and Fe in Crude Oils and Residual Fuels by ICP	ASTM D5708 (Method B)			

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Crude Oil - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	12-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Calcium §		3.91 mg/kg	--	--

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SGS North America Inc.

Oil, Gas & Chemicals Services 1201A West 8th Street, Deer Park, TX, 77536, U.S.A. Tel: +1-(281)
-479-7170



Date: 19-Aug-2014

Certificate of Analysis: DP14-10827.002

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante LPG
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	0.13 % (m/m)	--	--
Gas Fraction	ASTM D2892	0.21 % (v/v)	--	--
API at 60°F <i>(very little sample, number is estimated)</i>	ASTM D4052	125.2 °API	--	-- #
Relative Density (SG) at 60/60°F <i>(very little sample, number is estimated)</i>	ASTM D4052	0.5512 ---	--	--
Hydrocarbons in LPG and Propane/Propene Mixtures by GC	ASTM D2163			
Ethane		2.01 % (v/v)	--	--
Propane		39.99 % (v/v)	--	--
n-Butane		35.71 % (v/v)	--	--
Isobutane (2-Methylpropane)		16.63 % (v/v)	--	--
Isopentane (2-methyl butane)		3.60 % (v/v)	--	--
n-pentane		1.82 % (v/v)	--	--
Neopentane (2,2-dimethyl propane)		0.12 % (v/v)	--	--

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Date: 19-Aug-2014

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante IBP - 203F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	1.98 % (m/m)	--	--
Gas Fraction	ASTM D2892	2.63 % (v/v)	--	--
API at 60°F	ASTM D4052	75.6 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.6832 ---	--	--
Density at 15°C	ASTM D4052	683.0 kg/m³	--	--
Total Sulfur Content	ASTM D2622	0.0016 % (m/m)	--	--
Hydrogen Sulfide Content	UOP 163	<1 ppm (m/m)	--	--
Mercaptan Sulfur Content	UOP 163	<1 ppm (m/m)	--	--
Research Octane Number of Spark-Ignition Engine Fuel	ASTM D2699			
Research Octane Number (Calculated from GC PNA Data.)		57 Rating	--	--

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 203 - 300F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	4.14 % (m/m)	--	--
Gas Fraction	ASTM D2892	5.11 % (v/v)	--	--
API at 60°F	ASTM D4052	61.0 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.7351 ---	--	--
Density at 15°C	ASTM D4052	734.8 kg/m³	--	--
Total Sulfur Content	ASTM D2622	0.0009 % (m/m)	--	--
Hydrogen Sulfide Content	UOP 163	<1 ppm (m/m)	--	--
Mercaptan Sulfur Content	UOP 163	<1 ppm (m/m)	--	--
Detailed Analysis of Petroleum Naphtha through n-Nonane by GC	ASTM D5134			
n-Paraffins		37.58 % (m/m)	--	--
Isoparaffins		25.76 % (m/m)	--	--
Paraffins		63.33 % (m/m)	--	--
Olefins		<0.01 % (m/m)	--	-- #
Naphthenes		29.35 % (m/m)	--	--
Aromatics		7.31 % (m/m)	--	--
Nitrogen	ASTM D4629	<1 ppm (m/m)	--	--

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 300 - 347F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	2.31 % (m/m)	--	--
Gas Fraction	ASTM D2892	2.74 % (v/v)	--	--
API at 60°F	ASTM D4052	53.4 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.7653 ---	--	--
Density at 15°C	ASTM D4052	765.0 kg/m³	--	--
Total Sulfur Content	ASTM D2622	0.0021 % (m/m)	--	--
Hydrogen Sulfide Content	UOP 163	<1 ppm (m/m)	--	--
Mercaptan Sulfur Content	UOP 163	<1 ppm (m/m)	--	--
Detailed Analysis of Petroleum Naphtha through n-Nonane by GC	ASTM D5134			
n-Paraffins		36.64 % (m/m)	--	--
Isoparaffins		27.31 % (m/m)	--	--
Paraffins		63.95 % (m/m)	--	--
Olefins		<0.01 % (m/m)	--	-- #
Naphthenes		17.70 % (m/m)	--	--
Aromatics		18.34 % (m/m)	--	--
Nitrogen	ASTM D4629	<1 ppm (m/m)	--	--

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Date: 19-Aug-2014

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 347 - 450F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	5.36 % (m/m)	--	--
Gas Fraction	ASTM D2892	6.08 % (v/v)	--	--
API at 60°F	ASTM D4052	45.2 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.8006 ---	--	--
Density at 15°C	ASTM D4052	800.0 kg/m ³	--	--
Total Sulfur Content	ASTM D4294	0.0102 % (m/m)	--	--
Hydrogen Sulfide Content	UOP 163	<1 ppm (m/m)	--	--
Mercaptan Sulfur Content	UOP 163	<1 ppm (m/m)	--	--
Nitrogen	ASTM D4629	<1 ppm (m/m)	--	--

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Date: 19-Aug-2014

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C1430DNN

CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 450 - 648F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX	
Gas Fraction	ASTM D2892	14.62 % (m/m)	--	--	
Gas Fraction	ASTM D2892	15.62 % (v/v)	--	--	
API at 60°F	ASTM D4052	35.0 °API	--	--	
Relative Density (SG) at 60/60°F	ASTM D4052	0.8499 ---	--	--	
Density at 15°C	ASTM D4052	849.4 kg/m ³	--	--	
Total Sulfur Content	ASTM D4294	0.0790 % (m/m)	--	--	
Acid Number (Inflection end-point)	ASTM D664 (Method A)	0.17 mg KOH/g	--	--	
Nitrogen Content	ASTM D5762	81 ppm	--	--	
Refractive Index at 20°C	ASTM D1747	1.4692 Refractive Index	--	--	
Naphthalene Content (Procedure A)	ASTM D1840 (Procedure A)	4.40 % (v/v)	--	--	#

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Date: 19-Aug-2014

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 648 - 696F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	3.76 % (m/m)	--	--
Gas Fraction	ASTM D2892	3.90 % (v/v)	--	--
API at 60°F	ASTM D4052	30.0 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.8761 ---	--	--
Density at 15°C	ASTM D4052	875.7 kg/m ³	--	--
Total Sulfur Content	ASTM D4294	0.158 % (m/m)	--	--
Nitrogen Content	ASTM D5762	448 ppm	--	--

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalane 696 - 948F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Vacuum Distillation (Potstill method)	ASTM D5236			
Yield		21.72 % (m/m)	--	--
Yield		21.61 % (v/v)	--	--
API at 60°F	ASTM D4052	23.6 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.9126 ---	--	--
Density at 15°C	ASTM D4052	912.4 kg/m³	--	--
Total Sulfur Content	ASTM D4294	0.193 % (m/m)	--	--
Nitrogen Content	ASTM D5762	1407 ppm	--	--
Refractive Index at 20°C	ASTM D1747	1.5041 Refractive Index	--	--

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 948 - 1022F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Vacuum Distillation (Potstill method)	ASTM D5236			
Yield		2.32 % (m/m)	--	--
Yield		2.28 % (v/v)	--	--
API at 60°F	ASTM D4052	21.4 °API	--	--
Relative Density (SG) at 60/60°F	ASTM D4052	0.9255 ---	--	--
Density at 15°C	ASTM D4052	924.9 kg/m ³	--	--
Total Sulfur Content	ASTM D4294	0.253 % (m/m)	--	--
Nitrogen Content	ASTM D5762	2500 ppm	--	--
Conradson Carbon Residue	ASTM D189	1.01 % (m/m)	--	--

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CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 696+F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Gas Fraction	ASTM D2892	67.70 % (m/m)	--	--
Gas Fraction	ASTM D2892	63.74 % (v/v)	--	--
API at 60°F §	ASTM D70	15.2 °API	--	--
SG (Relative Density) at 60/60°F	ASTM D70	0.964 ---	--	--
Density at 15°C	ASTM D70	963 kg/m ³	--	--
Total Sulfur Content	ASTM D4294	0.244 % (m/m)	--	--
Kinematic Viscosity at 80°C	ASTM D445	2093 cSt	--	--
Kinematic Viscosity at 100°C	ASTM D445	564.5 cSt	--	--
Kinematic Viscosity at 120°C	ASTM D445	224.8 cSt	--	--
Nitrogen Content	ASTM D5762	5820 ppm	--	--
Conradson Carbon Residue	ASTM D189	12.7 % (m/m)	--	--
Asphaltenes of Petroleum Products	ASTM D6560	0.75 % (m/m)	--	--
Vanadium	ASTM D5863 (Method A)	4.7 ppm	--	--
Nickel	ASTM D5863 (Method A)	3.3 ppm	--	--
Iron	ASTM D5863 (Method A)	14.1 ppm	--	--

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SGS North America Inc.

Oil, Gas & Chemicals Services 1201A West 8th Street, Deer Park, TX, 77536, U.S.A. Tel: +1-(281)
-479-7170



Date: 19-Aug-2014

Certificate of Analysis: DP14-10827.013

F430101 SGS ARGENTINA S.A.
Panamericana Plaza Building
Tronador 4890 – Floors 3° & 6°
Saavedra
BUENOS AIRES
ARGENTINA
C1430DNN

CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 1022+F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	As Submitted	COMPLETED :	19-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014 - 19-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Vacuum Distillation (Potstill method)	ASTM D5236			
Yield		43.66 % (m/m)	--	--
Yield		39.86 % (v/v)	--	--
API at 60°F §	ASTM D70	10.8 °API	--	--
SG (Relative Density) at 60/60°F	ASTM D70	0.995 ---	--	--
Density at 15°C	ASTM D70	994 kg/m³	--	--
Total Sulfur Content	ASTM D4294	0.273 % (m/m)	--	--
Kinematic Viscosity at 120°C	ASTM D445	14640 cSt	--	--
Kinematic Viscosity at 150°C (302°F)	ASTM D445	2087 cSt	--	--
Kinematic Viscosity at 180°C (356°F)	ASTM D445	657.4 cSt	--	--
(Viscosity ran at 170 DegC, not 180 DegC)				
Nitrogen Content	ASTM D5762	6856 ppm	--	--
Conradson Carbon Residue	ASTM D189	19.6 % (m/m)	--	--
Vanadium	ASTM D5863 (Method A)	9.8 ppm	--	--
Nickel	ASTM D5863 (Method A)	4.4 ppm	--	--
Iron	ASTM D5863 (Method A)	23.4 ppm	--	--

§ - Analyte not in published method scope

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AUTHORISED SIGNATORY

Arden Strycker
Fuel Oil Supervisor

190820141638000091432



Date: 19-Aug-2014

Certificate of Analysis: DP14-10827.015

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Please note in the below test report that the scope of the method UOP 938 limits the range of the lower detectable limit as follows: "lower limit of quantitation is 0.3 ng/mL (m/v-ppb)". Additionally, the precision of the method is not fully established; specifically, no reproducibility has yet been published.

CLIENT ORDER NUMBER :		SGS ORDER NO.:		3548406	
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante		
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 59 - 347F		
SAMPLE SOURCE :	As Supplied				
SAMPLE TYPE :	Laboratory Hand Blend	RECEIVED	01-Aug-2014		
SAMPLED :	--	COMPLETED :	18-Aug-2014		
ANALYSED :	18-Aug-2014				
PROPERTY	METHOD	RESULT	UNITS	MIN	MAX
Mercury (Hg)	UOP 938	7.00	ppb (m/m)	--	--

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Date: 19-Aug-2014

Certificate of Analysis: DP14-10827.016

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Saavedra
BUENOS AIRES
ARGENTINA
C1430DNN

CLIENT ORDER NUMBER :		SGS ORDER NO.:	3548406
CLIENT ID :	SGS Argentina	PRODUCT DESCRIPTION :	Distillate - Crudo Escalante
LOCATION :	Deer Park, TX	SOURCE ID :	Crudo Escalante 300 - 450F
SAMPLE SOURCE :	As Supplied	RECEIVED	01-Aug-2014
SAMPLE TYPE :	Laboratory Hand Blend	COMPLETED :	18-Aug-2014
SAMPLED :	--		
ANALYSED :	18-Aug-2014		

PROPERTY	METHOD	RESULT UNITS	MIN	MAX
Refractive Index at 20°C	ASTM D1747	1.4379 Refractive Index	--	--
Freezing Point	ASTM D5972	-56.8 °C	--	--
** End of Analytical Results **				

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Member of the SGS Group (Société Générale de Surveillance)