Deer Park Technical Center Laboratory
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Certificate of Analysis

Job Reference: US785-0074083
Job Location: Deer Park, TX, USA
Date Job Created: 09-Mar-2022
Job Description: Crude Assay of Medanito Crude Oil at Deer Park, TX, USA on January 21, 2022

Client: Intertek Testing Services Argentina S.A.
Contact: Intercompany Accountant - ARG05
Address: Piso 3
Cerrito 1136
Frente. Ciudad Autonoma de Buenos Aires
Buenos Aires, CF C1010AAX
Argentina

Customer Reference:
Medanito Crude Oil

Sample Summary

Sample Number	Date Completed	Description
2022-DRPK-000960-001	17-Feb-2022	Medanito Crude Oil (1 of 5 gallon can)
2022-DRPK-000960-002	17-Feb-2022	Medanito Crude Oil (2 of 5 gallon can)
2022-DRPK-000960-003	17-Feb-2022	Medanito Crude Oil (3 of 5 gallon can)
2022-DRPK-000960-004	17-Feb-2022	Medanito Crude Oil (4 of 5 gallon can)
2022-DRPK-000960-005	17-Feb-2022	Medanito Crude Oil (5 of 5 gallon can)
2022-DRPK-000960-006	24-Feb-2022	Medanito Crude Oil Comp
2022-DRPK-000960-009	11-Feb-2022	Medanito Crude Oil Comp (IBP-21C) IBP-70F
2022-DRPK-000960-010	08-Mar-2022	Medanito Crude Oil Comp (21-65C) 70-149F
2022-DRPK-000960-011	11-Mar-2022	Medanito Crude Oil Comp (65-100C) 149-212F
2022-DRPK-000960-012	11-Mar-2022	Medanito Crude Oil Comp (100-150C) 212-302F
2022-DRPK-000960-013	09-Mar-2022	Medanito Crude Oil Comp (150-200C) 302-392F
2022-DRPK-000960-014	09-Mar-2022	Medanito Crude Oil Comp (200-250C) 392-482F
2022-DRPK-000960-015	09-Mar-2022	Medanito Crude Oil Comp (250-300C) 482-572F
2022-DRPK-000960-016	09-Mar-2022	Medanito Crude Oil Comp (300-350C) 572-662F
2022-DRPK-000960-017	09-Mar-2022	Medanito Crude Oil Comp (350-370C) 662-698F
2022-DRPK-000960-018	09-Mar-2022	Medanito Crude Oil Comp (370+C) 698+F
2022-DRPK-000960-019	09-Mar-2022	Medanito Crude Oil Comp (370-450C) 698-842F
2022-DRPK-000960-020	09-Mar-2022	Medanito Crude Oil Comp (450-500C) 842-932F
2022-DRPK-000960-021	09-Mar-2022	Medanito Crude Oil Comp (500-550C) 932-1022F
2022-DRPK-000960-022	09-Mar-2022	Medanito Crude Oil Comp (550+C) 1022+F

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Vessel/Sample Point: Argentina
Sample Representing: Medanito Crude Oil (1 of 5 gallon can)
Customer Product Description: Crude Oil
Drawn By: Client
Sample ID: 2022-DRPK-000960-001
Date Sampled: 09-January-2022
Date Submitted: 21-January-2022
Date Tested: 17-February-2022

Method	Property	Result	Unit
[f] ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	42.1	°API
	Relative Density @ 60/60°F	0.8152	
	Density 15°C/ 59°F	0.8149	g/mL

Vessel/Sample Point: Argentina
Sample Representing: Medanito Crude Oil (2 of 5 gallon can)
Customer Product Description: Crude Oil
Drawn By: Client
Sample ID: 2022-DRPK-000960-002
Date Sampled: 09-January-2022
Date Submitted: 21-January-2022
Date Tested: 17-February-2022

Method	Property	Result	Unit
[f] ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	42.1	°API
	Relative Density @ 60/60°F	0.8152	
	Density 15°C/ 59°F	0.8148	g/mL

Vessel/Sample Point: Argentina
Sample Representing: Medanito Crude Oil (3 of 5 gallon can)
Customer Product Description: Crude Oil
Drawn By: Client
Sample ID: 2022-DRPK-000960-003
Date Sampled: 09-January-2022
Date Submitted: 21-January-2022
Date Tested: 17-February-2022

Method	Property	Result	Unit
[f] ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	42.1	°API
	Relative Density @ 60/60°F	0.8150	
	Density 15°C/ 59°F	0.8146	g/mL

Vessel/Sample Point: Argentina
Sample Representing: Medanito Crude Oil (4 of 5 gallon can)
Customer Product Description: Crude Oil
Drawn By: Client
Sample ID: 2022-DRPK-000960-004
Date Sampled: 09-January-2022
Date Submitted: 21-January-2022
Date Tested: 17-February-2022

Method	Property	Result	Unit
[f] ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	42.1	°API
	Relative Density @ 60/60°F	0.8151	
	Density 15°C/ 59°F	0.8147	g/mL

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-005
Sample Representing:	Medanito Crude Oil (5 of 5 gallon can)	**Date Sampled:**	09-January-2022
Customer Product Description:	Crude Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	17-February-2022

Method	Property	Result	Unit
[f] ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	42.1	°API
	Relative Density @ 60/60°F	0.8150	
	Density 15°C/ 59°F	0.8146	g/mL

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-006
Sample Representing:	Medanito Crude Oil Comp	**Date Sampled:**	09-January-2022
Customer Product Description:	Crude Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	24-February-2022

Method	Property	Result	Unit
ASTM D2892	Distillation of Crude Petroleum (15-Theoretical Plate Column)		
	Distillation Summary	See Attached Report	
[f] ASTM D5002	Density and Relative Density of Crude Oils		
	API Gravity @ 60°F	42.0	°API
	Relative Density @ 60/60°F	0.8156	
	Density 15°C/ 59°F	0.8153	g/mL
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Endpoint Used	Inflection Point	
	Acid Number Average	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 68 ºF/ 20 ºC	5.350	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity at 104 ºF/40 ºC	3.244	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	2.839	mm²/s
[f] ASTM D7900	Light Hydrocarbons in Stabilized Crude Oils by Gas Chromatography		
	Methane	<0.01	Vol %
	Ethane	0.02	Vol %
	Propane	0.35	Vol %
	Isobutane	0.38	Vol %
	n-Butane	1.71	Vol %
	Neopentane	0.02	Vol %
	Isopentane	1.84	Vol %
	n-Pentane	2.59	Vol %
	Cyclopentane	0.16	Vol %
	Cyclohexane	0.94	Vol %
	Methylcyclopentane	0.78	Vol %
	Benzene	0.17	Vol %
	Total Light Ends C1 - nC9	32.06	Vol %
[f] ASTM D7169	Boiling Point Distribution of Samples with Residues by High Temperature GC		
	Boiling Point Distribution	See Attached Report	
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.145	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	7	ppm Wt
ASTM D5853	Pour Point of Crude Oils		
	Procedure Used	A	
	Maximum Pour Point	-18	°C
	Maximum Pour Point	-0.4	°F
[f] ASTM D4530	Determination of Carbon Residue (Micro Method)		
	Average Micro Method Carbon Residue	0.97	Wt %
[f] ASTM D524	Ramsbottom Carbon Residue of Petroleum Products		
	Ramsbottom Carbon Residue	0.99	Wt %
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0101	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-006
Sample Representing:	Medanito Crude Oil Comp	**Date Sampled:**	09-January-2022
Customer Product Description:	Crude Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	24-February-2022

Method	Property	Result	Unit
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	101	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	420	mg/kg
ITM 1051	Metals in Organic Matrix by ICP-MS		
	Arsenic	18	ppb Wt
ASTM D5708 MOD	Metals in Crude Oils and Residual Fuels by ICP-AES		
	Method	B	
	Copper	<0.500	mg/kg
	Iron	2.19	mg/kg
	Nickel	0.751	mg/kg
	Vanadium	1.58	mg/kg
	Zinc	<0.500	mg/kg
UOP 938	Determination of Mercury and Mercury Species in Liquid Hydrocarbons		
	Mercury	3.93	ppb Wt
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.19	
ASTM D6377	Determination of Vapor Pressure of Crude Oil: VPCRx (Expansion Method)		
	VPCR 4 (37.8 ° C)	6.62	psi
ASTM D6560	Asphaltenes (Heptane Insolubles)		
	Asphaltene Content	<0.50	Wt %
ASTM D4007	Water and Sediment in Crude Oil		
	Total Percent Water and Sediment	0.00	Vol %
UOP 46	Paraffin Wax Content of Petroleum Oils and Asphalts		
	Wax Content	6.7	Wt %
AD HOC	Various Methodology		
	Method Name	IP 389	
	Wax Appearance Temperature	24.1	°C

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-009
Sample Representing:	Medanito Crude Oil Comp (IBP-21C) IBP-70F	**Date Sampled:**	09-January-2022
Customer Product Description:	LPG	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	11-February-2022

Method	Property	Result	Unit
ASTM D2598	Standard Test Method for Calculation of Certain Physical Properties of Liquefied Petroleum (LP) Gases from Compositional Analysis		
	Relative Density @ 60° F	0.5719	
ASTM D2163	Analysis of Liquefied Petroleum (LP) Gases and Propene Concentrates by Gas Chromatography		
	Methane	<0.01	Vol %
	Ethylene	<0.01	Vol %
	Ethane	0.32	Vol %
	Propylene	<0.01	Vol %
	Propane	15.06	Vol %
	Isobutane	16.01	Vol %
	Isobutylene	<0.01	Vol %
	1-Butene	<0.01	Vol %
	1,3-Butadiene	<0.01	Vol %
	n-Butane	60.50	Vol %
	trans-2-Butene	<0.01	Vol %
	Neopentane	0.40	Vol %
	cis-2-Butene	0.01	Vol %
	Isopentane	5.83	Vol %
	n-Pentane	1.65	Vol %
	Butanes & Heavier	84.62	Vol %
	Pentanes & Heavier	8.10	Vol %
	Hexanes & Heavier	0.20	Vol %
	Other C5s	0.02	Vol %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-010
Sample Representing:	Medanito Crude Oil Comp (21-65C) 70-149F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	08-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.6434	g/mL
	Relative Density @ 60/60°F	0.6436	
	API Gravity @ 60°F	88.4	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
[1]	Sulfur Content	0.000500	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	<0.2	ppm Wt
ASTM D6730	Individual Components in Spark Ignition Fuels by 100-Metre Capillary Gas Chromatography		
	Paraffins	50.519	Vol %
	Iso-paraffins	44.404	Vol %
	Olefins	<0.010	Vol %
	Naphthenes	4.412	Vol %
	Aromatics	0.665	Vol %
	C14+	<0.010	Vol %
	Unknowns	<0.010	Vol %
	Calculated Octane Number	75.1	
[f] ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	<0.3	mg/kg
ASTM D2699	Octane Number - Research (RON)		
	Note	There was insufficient sample produced during distillation for analysis. The calculated octane number from the D6730 analysis was reported instead.	
ASTM D2700	Octane Number - Motor (MON)		

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-010
Sample Representing:	Medanito Crude Oil Comp (21-65C) 70-149F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	08-March-2022

Method	Property	Result	Unit
ASTM D2700	Octane Number - Motor (MON)		
	Note	There was insufficient sample produced during distillation for analysis. The calculated octane number from the D6730 analysis was reported instead.	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Note	Sample too light to run on instrument.	

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-011
Sample Representing:	Medanito Crude Oil Comp (65-100C) 149-212F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	11-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.7148	g/mL
	Relative Density @ 60/60°F	0.7150	
	API Gravity @ 60°F	66.4	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
[1]	Sulfur Content	0.000650	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	<0.2	ppm Wt
ASTM D6730	Individual Components in Spark Ignition Fuels by 100-Metre Capillary Gas Chromatography		
	Paraffins	31.913	Vol %
	Iso-paraffins	30.083	Vol %
	Olefins	<0.010	Vol %
	Naphthenes	33.441	Vol %
	Aromatics	3.571	Vol %
	C14+	<0.010	Vol %
	Unknowns	0.992	Vol %
[f] ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	0.4	mg/kg
[f] ASTM D2699	Octane Number - Research (RON)		
	PROCEDURE USED	Bracketing-EFL	
	Engine Room Barometric Pressure	29.92	in_Hg
	Intake Air Temperature	125	°F
	Research Octane Number	60	
[f] ASTM D2700	Octane Number - Motor (MON)		
	PROCEDURE USED	Bracketing-EFL	
	Engine Room Barometric Pressure	29.89	in_Hg
	Mixture Temperature	300	°F
	Motor Octane Number	58	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	16.11	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-012
Sample Representing:	Medanito Crude Oil Comp (100-150C) 212-302F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	11-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.7488	g/mL
	Relative Density @ 60/60°F	0.7490	
	API Gravity @ 60°F	57.4	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	56.00	°C
[f] ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
	[1] Sulfur Content	0.000850	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	4	ppm Wt
ASTM D6730	Individual Components in Spark Ignition Fuels by 100-Metre Capillary Gas Chromatography		
	Paraffins	24.127	Vol %
	Iso-paraffins	30.805	Vol %
	Olefins	<0.010	Vol %
	Naphthenes	31.087	Vol %
	Aromatics	10.217	Vol %
	C14+	<0.010	Vol %
	Unknowns	3.764	Vol %
[f] ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	0.8	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.93	
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	Instrument (Automatic or Manual)	Automatic	
	Barometric Pressure	768.8	mm Hg
	Initial Boiling Point	110.6	°C
	5% Recovery	114.0	°C
	10% Recovery	114.6	°C
	20% Recovery	117.1	°C
	30% Recovery	118.5	°C
	40% Recovery	120.2	°C
	50% Recovery	122.1	°C
	60% Recovery	124.4	°C
	70% Recovery	127.1	°C
	80% Recovery	130.5	°C
	90% Recovery	135.8	°C
	95% Recovery	140.6	°C
	Final Boiling Point	149.2	°C
	Recovery	98.3	Vol %
	Residue	1.0	Vol %
	Total Recovery	99.3	Vol %
	Loss	0.7	Vol %
	Corrected Loss	0.7	Vol %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-012
Sample Representing:	Medanito Crude Oil Comp (100-150C) 212-302F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	11-March-2022

Method	Property	Result	Unit
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	Corrected Recovery	98.3	Vol %
	Corrected Total Recovery	99.3	Vol %
[f] ASTM D2699	Octane Number - Research (RON)		
	PROCEDURE USED	Bracketing-EFL	
	Engine Room Barometric Pressure	29.92	in_Hg
	Intake Air Temperature	125	°F
	Research Octane Number	47	
[f] ASTM D2700	Octane Number - Motor (MON)		
	PROCEDURE USED	Bracketing-EFL	
	Engine Room Barometric Pressure	29.89	in_Hg
	Mixture Temperature	300	°F
	Motor Octane Number	45	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	15.44	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-013
Sample Representing:	Medanito Crude Oil Comp (150-200C) 302-392F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.7776	g/mL
	Relative Density @ 60/60°F	0.7780	
	API Gravity @ 60°F	50.4	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 68 ºF/ 20 ºC	1.205	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity at 104 ºF/40 ºC	0.9284	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	57.00	°C
[f] ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
	[1] Sulfur Content	0.00325	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	3	ppm Wt
ASTM D2386	Freezing Point of Aviation Fuels		
	Freezing Point	<-70.0	°C
	Freezing Point	<-94	°F
ASTM D6730	Individual Components in Spark Ignition Fuels by 100-Metre Capillary Gas Chromatography		
	Paraffins	25.442	Vol %
	Iso-paraffins	28.174	Vol %
	Olefins	<0.010	Vol %
	Naphthenes	9.145	Vol %
	Aromatics	23.923	Vol %
	C14+	<0.010	Vol %
	Unknowns	13.316	Vol %
	Calculated Octane Number	76.1	
[f] ASTM D1840	Naphthalene Hydrocarbons in Aviation Turbine Fuels		
	Naphthalenes	0.05	Mass %
[f] ASTM D1322	Smoke Point of Kerosine and Aviation Turbine Fuel		
	Smoke Point (Automated)	28.7	mm
[f] ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	0.6	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.91	
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	Instrument (Automatic or Manual)	Automatic	
	Barometric Pressure	768.8	mm Hg
	Initial Boiling Point	155.0	°C
	5% Recovery	160.2	°C
	10% Recovery	161.1	°C
	20% Recovery	162.5	°C
	30% Recovery	164.0	°C
	40% Recovery	165.7	°C

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-013
Sample Representing:	Medanito Crude Oil Comp (150-200C) 302-392F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	50% Recovery	167.7	°C
	60% Recovery	169.9	°C
	70% Recovery	172.6	°C
	80% Recovery	176.2	°C
	90% Recovery	181.7	°C
	95% Recovery	186.6	°C
	Final Boiling Point	191.6	°C
	Recovery	98.4	Vol %
	Residue	1.1	Vol %
	Total Recovery	99.5	Vol %
	Loss	0.5	Vol %
	Corrected Loss	0.5	Vol %
	Corrected Recovery	98.4	Vol %
	Corrected Total Recovery	99.5	Vol %
[f] ASTM D976	Calculated Cetane Index of Distillate Fuels		
	Cetane Index	37.9	
ASTM D2699	Octane Number - Research (RON)		
	Note	There was insufficient sample produced during distillation for analysis. The calculated octane number from the D6730 analysis was reported instead.	
ASTM D2700	Octane Number - Motor (MON)		
	Note	There was insufficient sample produced during distillation for analysis. The calculated octane number from the D6730 analysis was reported instead.	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Hydrogen Content	15.37	Wt %

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-014
Sample Representing:	Medanito Crude Oil Comp (200-250C) 392-482F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8076	g/mL
	Relative Density @ 60/60°F	0.8080	
	API Gravity @ 60°F	43.6	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity at 104 ºF/40 ºC	1.599	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	1.383	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	60.00	°C
[f] ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
[1]	Sulfur Content	0.00655	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	3	ppm Wt
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	-48	°C
	Pour Point	-54.4	°F
ASTM D2386	Freezing Point of Aviation Fuels		
	Freezing Point	-43.0	°C
	Freezing Point	-45	°F
[f] ASTM D2500	Cloud Point of Petroleum Products		
	Cloud Point	-44	°C
	Cloud Point	-47.2	°F
[f] ASTM D1840	Naphthalene Hydrocarbons in Aviation Turbine Fuels		
	Naphthalenes	1.90	Mass %
[f] ASTM D1322	Smoke Point of Kerosine and Aviation Turbine Fuel		
	Smoke Point (Automated)	24.5	mm
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	<0.000500	Wt %
	Basic Nitrogen	<5.00	ppm Wt
[f] ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	0.8	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.89	
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	Barometric Pressure	768.0	mm Hg
	Initial Boiling Point	201.7	°C
	5% Recovery	210.7	°C
	10% Recovery	211.7	°C
	20% Recovery	213.2	°C
	30% Recovery	214.8	°C
	40% Recovery	216.3	°C
	50% Recovery	218.2	°C
	60% Recovery	220.4	°C

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-014
Sample Representing:	Medanito Crude Oil Comp (200-250C) 392-482F	**Date Sampled:**	09-January-2022
Customer Product Description:	Naphtha	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	70% Recovery	222.9	°C
	80% Recovery	226.2	°C
	90% Recovery	230.5	°C
	95% Recovery	233.9	°C
	Final Boiling Point	239.4	°C
	Recovery	99.1	Vol %
	Residue	0.9	Vol %
	Total Recovery	100.0	Vol %
	Loss	0.0	Vol %
	Corrected Loss	0.0	Vol %
	Corrected Recovery	99.1	Vol %
	Corrected Total Recovery	100.0	Vol %
[f] ASTM D976	Calculated Cetane Index of Distillate Fuels		
	Cetane Index	48.6	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Hydrogen Content	15.16	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-015
Sample Representing:	Medanito Crude Oil Comp (250-300C) 482-572F	**Date Sampled:**	09-January-2022
Customer Product Description:	Kerosene	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8300	g/mL
	Relative Density @ 60/60°F	0.8304	
	API Gravity @ 60°F	38.9	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity at 104 ºF/40 ºC	2.828	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	2.376	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	70.00	°C
[f] ASTM D2622	Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry		
	[1] Sulfur Content	0.0156	Wt %
UOP 163	Hydrogen Sulfide and Mercaptan Sulfur in Liquid Hydrocarbons by Potentiometric Titration		
	H2S	<1	ppm Wt
	Mercaptan Sulfur	6	ppm Wt
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	-21	°C
	Pour Point	-5.8	°F
ASTM D2386	Freezing Point of Aviation Fuels		
	Freezing Point	-16.0	°C
	Freezing Point	3	°F
[f] ASTM D2500	Cloud Point of Petroleum Products		
	Cloud Point	-21	°C
	Cloud Point	-5.8	°F
[f] ASTM D1840	Naphthalene Hydrocarbons in Aviation Turbine Fuels		
	Naphthalenes	7.03	Mass %
[f] ASTM D1322	Smoke Point of Kerosine and Aviation Turbine Fuel		
	Smoke Point (Automated)	20.9	mm
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	<0.000500	Wt %
	Basic Nitrogen	<5.00	ppm Wt
[f] ASTM D4629	Trace Nitrogen in Liquid Petroleum Hydrocarbons		
	Nitrogen	6.0	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	11.93	
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	Instrument (Automatic or Manual)	Automatic	
	Barometric Pressure	766.6	mm Hg
	Initial Boiling Point	234.9	°C
	5% Recovery	260.9	°C
	10% Recovery	261.3	°C
	20% Recovery	262.3	°C
	30% Recovery	263.2	°C
	40% Recovery	264.3	°C
	50% Recovery	265.8	°C

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-015
Sample Representing:	Medanito Crude Oil Comp (250-300C) 482-572F	**Date Sampled:**	09-January-2022
Customer Product Description:	Kerosene	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D86	Distillation of Petroleum Products and Liquid Fuels at Atmospheric Pressure		
	60% Recovery	267.4	°C
	70% Recovery	269.5	°C
	80% Recovery	272.4	°C
	90% Recovery	276.7	°C
	95% Recovery	280.1	°C
	Final Boiling Point	283.6	°C
	Recovery	98.5	Vol %
	Residue	1.5	Vol %
	Total Recovery	100.0	Vol %
	Loss	0.0	Vol %
	Corrected Loss	0.0	Vol %
	Corrected Recovery	98.5	Vol %
	Corrected Total Recovery	100.0	Vol %
[f] ASTM D976	Calculated Cetane Index of Distillate Fuels		
	Cetane Index	53.8	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Hydrogen Content	14.90	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-016
Sample Representing:	Medanito Crude Oil Comp (300-350C) 572-662F	**Date Sampled:**	09-January-2022
Customer Product Description:	Diesel	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8500	g/mL
	Relative Density @ 60/60°F	0.8504	
	API Gravity @ 60°F	34.9	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity at 104 ºF/40 ºC	5.853	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	4.535	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	76.00	°C
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.0909	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	0	°C
	Pour Point	32.0	°F
[f] ASTM D2500	Cloud Point of Petroleum Products		
	Cloud Point	2	°C
	Cloud Point	35.6	°F
[f] ASTM D1840	Naphthalene Hydrocarbons in Aviation Turbine Fuels		
	Naphthalenes	9.53	Mass %
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.00120	Wt %
	Basic Nitrogen	12.0	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	44	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.03	
[f] ASTM D2887	Boiling Range Distribution of Petroleum Fractions by GC (Simulated Distillation)		
	Boiling Point Distribution	See Attached Report	
[f] ASTM D976	Calculated Cetane Index of Distillate Fuels		
	Cetane Index	56.0	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	14.62	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-017
Sample Representing:	Medanito Crude Oil Comp (350-370C) 662-698F	**Date Sampled:**	09-January-2022
Customer Product Description:	Diesel	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8639	g/mL
	Relative Density @ 60/60°F	0.8644	
	API Gravity @ 60°F	32.2	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity at 104 ºF/40 ºC	10.24	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	7.567	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	83.00	°C
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.152	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	15	°C
	Pour Point	59.0	°F
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.00295	Wt %
	Basic Nitrogen	29.5	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	110	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.08	
[f] ASTM D2887	Boiling Range Distribution of Petroleum Fractions by GC (Simulated Distillation)		
	Boiling Point Distribution	See Attached Report	
[f] ASTM D976	Calculated Cetane Index of Distillate Fuels		
	Cetane Index	54.6	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	14.10	Wt %

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-018
Sample Representing:	Medanito Crude Oil Comp (370+C) 698+F	**Date Sampled:**	09-January-2022
Customer Product Description:	ATB	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
ASTM D5236	Distillation of Heavy Hydrocarbon Mixtures (Vacuum Potstill Method)		
	Distillation Summary	See Attached Report	
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.9116	g/mL
	Relative Density @ 60/60°F	0.9121	
	API Gravity @ 60°F	23.6	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Endpoint Used	Inflection Point	
	Acid Number Average	0.20	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	129.0	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 140 ºF/ 60 ºC	78.87	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 212 ºF/ 100 ºC	18.79	mm²/s
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.345	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	15	°C
	Pour Point	59.0	°F
[f] ASTM D4530	Determination of Carbon Residue (Micro Method)		
	Average Micro Method Carbon Residue	2.88	Wt %
[f] ASTM D524	Ramsbottom Carbon Residue of Petroleum Products		
	Ramsbottom Carbon Residue	1.36	Wt %
	Adjusted Sample Size	0.0000	g
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0259	Wt %
	Basic Nitrogen	259	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	1100	mg/kg
ASTM D5708 MOD	Metals in Crude Oils and Residual Fuels by ICP-AES		
	Method	B	
	Copper	<0.500	mg/kg
	Iron	4.90	mg/kg
	Nickel	2.10	mg/kg
	Vanadium	4.86	mg/kg
	Zinc	<0.500	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.12	
ASTM D6560	Asphaltenes (Heptane Insolubles)		
	Average Asphaltene Content	<0.50	% m/m
UOP 46	Paraffin Wax Content of Petroleum Oils and Asphalts		
	Wax Content	17.0	Wt %

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-019
Sample Representing:	Medanito Crude Oil Comp (370-450C) 698-842F	**Date Sampled:**	09-January-2022
Customer Product Description:	Gas Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8831	g/mL
	Relative Density @ 60/60°F	0.8835	
	API Gravity @ 60°F	28.7	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	<0.10	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	18.14	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 140 ºF/ 60 ºC	12.92	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 212 ºF/ 100 ºC	4.716	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	92.00	°C
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.173	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	27	°C
	Pour Point	80.6	°F
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.00565	Wt %
	Basic Nitrogen	56.5	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	260	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.02	
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	14.14	Wt %
UOP 46	Paraffin Wax Content of Petroleum Oils and Asphalts		
	Wax Content	13.4	Wt %

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Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-020
Sample Representing:	Medanito Crude Oil Comp (450-500C) 842-932F	**Date Sampled:**	09-January-2022
Customer Product Description:	Gas Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.8961	g/mL
	Relative Density @ 60/60°F	0.8966	
	API Gravity @ 60°F	26.3	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	0.15	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 122 ºF/ 50 ºC	45.30	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 140 ºF/ 60 ºC	29.91	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 212 ºF/ 100 ºC	8.702	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	99.00	°C
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.222	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	39	°C
	Pour Point	102.2	°F
[f] ASTM D4530	Determination of Carbon Residue (Micro Method)		
	Average Micro Method Carbon Residue	<0.10	Wt %
[f] ASTM D524	Ramsbottom Carbon Residue of Petroleum Products		
	Ramsbottom Carbon Residue	0.16	Wt %
	Adjusted Sample Size	0.0000	g
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0115	Wt %
	Basic Nitrogen	115	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	500	mg/kg
ASTM D5708 MOD	Metals in Crude Oils and Residual Fuels by ICP-AES		
	Method	B	
	[1] Copper	<0.500	mg/kg
	[1] Iron	0.412	mg/kg
	[1] Nickel	<0.100	mg/kg
	[1] Vanadium	<0.100	mg/kg
	[1] Zinc	<0.500	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.10	
ASTM D6560	Asphaltenes (Heptane Insolubles)		
	Asphaltene Content	<0.50	Wt %
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	14.03	Wt %
UOP 46	Paraffin Wax Content of Petroleum Oils and Asphalts		
	Wax Content	15.3	Wt %

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-021
Sample Representing:	Medanito Crude Oil Comp (500-550C) 932-1022F	**Date Sampled:**	09-January-2022
Customer Product Description:	Gas Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
[f] ASTM D4052	Density, Relative Density, and API Gravity of Liquids by Digital Density Meter		
	Density @ 15°C/59°F	0.9062	g/mL
	Relative Density @ 60/60°F	0.9067	
	API Gravity @ 60°F	24.6	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Acid Number	0.20	mg KOH/g
ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity@ 122°F/50°C	Sample is not applicable to the method due to the sample being solid at specified temperature.	
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 140 ºF/ 60 ºC	68.32	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 212 ºF/ 100 ºC	16.04	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Test Temperature	130.0	°C
	Kinematic Viscosity @ Specified Temp	8.022	mm²/s
ASTM D611	Aniline Point and Mixed Aniline Point of Petroleum Products & Hydrocarbon Solvents		
	Test Method	Method E in °C	
	Aniline Point	102.00	°C
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.272	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	51	°C
	Pour Point	123.8	°F
[f] ASTM D4530	Determination of Carbon Residue (Micro Method)		
	Average Micro Method Carbon Residue	0.36	Wt %
[f] ASTM D524	Ramsbottom Carbon Residue of Petroleum Products		
	Ramsbottom Carbon Residue	0.46	Wt %
	Adjusted Sample Size	0.0000	g
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0170	Wt %
	Basic Nitrogen	170	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	750	mg/kg
ASTM D5708 MOD	Metals in Crude Oils and Residual Fuels by ICP-AES		
	Method	B	
	[1] Copper	<0.500	mg/kg
	[1] Iron	0.133	mg/kg
	[1] Nickel	<0.100	mg/kg
	[1] Vanadium	<0.100	mg/kg
	[1] Zinc	<0.500	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.18	

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-021
Sample Representing:	Medanito Crude Oil Comp (500-550C) 932-1022F	**Date Sampled:**	09-January-2022
Customer Product Description:	Gas Oil	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
ASTM D6560	Asphaltenes (Heptane Insolubles)		
	Asphaltene Content	<0.50	Wt %
ASTM D5291	Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Petroleum Products and Lubricants		
	Average Hydrogen Content	13.90	Wt %
UOP 46	Paraffin Wax Content of Petroleum Oils and Asphalts		
	Wax Content	17.2	Wt %

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Certificate of Analysis

Vessel/Sample Point:	Argentina	**Sample ID:**	2022-DRPK-000960-022
Sample Representing:	Medanito Crude Oil Comp (550+C) 1022+F	**Date Sampled:**	09-January-2022
Customer Product Description:	VTB	**Date Submitted:**	21-January-2022
Drawn By:	Client	**Date Tested:**	09-March-2022

Method	Property	Result	Unit
ASTM D70	Density / Relative Density /API (Pycnometer Method)		
	Density @ 60 deg F	0.948	g/mL
	Sp Gr @ 60/60 deg F	0.949	
	API Gravity	17.6	°API
ASTM D664	Acid Number of Petroleum Products by Potentiometric Titration		
	Procedure Used	A	
	Endpoint Used	Inflection Point	
	Acid Number Average	0.25	mg KOH/g
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Kinematic Viscosity @ 212 ºF/ 100 ºC	169.6	mm²/s
[f] ASTM D445	Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)		
	Test Temperature	130.0	°C
	Kinematic Viscosity @ Specified Temp	54.00	mm²/s
[f] ASTM D4294	Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-ray Fluorescence Spectrometry		
	Sulfur Content	0.584	Wt %
[f] ASTM D97	Pour Point of Petroleum Products		
	Pour Point	21	°C
	Pour Point	69.8	°F
[f] ASTM D4530	Determination of Carbon Residue (Micro Method)		
	Average Micro Method Carbon Residue	7.50	Wt %
ASTM D524	Ramsbottom Carbon Residue of Petroleum Products		
	Note	Sample is not applicable to the method due to the sample being too heavy to shoot into the bulb.	
UOP 269	Nitrogen Bases in Hydrocarbons by Potentiometric Titration		
	Basic Nitrogen	0.0490	Wt %
	Basic Nitrogen	490	ppm Wt
[f] ASTM D5762	Nitrogen in Petroleum Products by Boat-Inlet Chemiluminescence		
	Nitrogen Content	2300	mg/kg
ASTM D5708 MOD	Metals in Crude Oils and Residual Fuels by ICP-AES		
	Method	B	
	Copper	<0.500	mg/kg
	Iron	14.0	mg/kg
	Nickel	5.83	mg/kg
	Vanadium	12.8	mg/kg
	Zinc	<0.500	mg/kg
UOP 375	UOP Characterization Factor of Petroleum Oils		
	UOP Characterization Factor (K)	12.05	
ASTM D6560	Asphaltenes (Heptane Insolubles)		
	Average Asphaltene Content	0.50	% m/m

¹ Out of Scope of the Method

f - Denotes analysis results which are ISO/IEC 17025 accredited by ANSI National Accreditation Board.

Results are only representative of the sample tested. All tests have been performed using the latest version unless otherwise indicated. This report shall not be reproduced except in full without written approval of Intertek. Report is subject to our standard Terms and Conditions which can be obtained at our website : http://www.intertek.com/terms

The sample was submitted for testing purposes. Intertek cannot accept liability for the representativeness of the sample.

For Intertek:

Jason Carlton, Supervisor

Intertek

WinAssay '95

Version 1.00

Final Reports

Client Name:	**Intertek Argentina**
Sample ID:	**Medanito Crude Oil Comp**
Laboratory ID:	**2022-DRPK-000960**
Date:	**2-4-2022**
Operator:	**JPD/Biggs**

WinAssay '95
ASTM TBP And Potstill Distillation

Quality Control Report

Sample ID: Medanito Crude Oil Comp
Lab ID: 2022-DRPK-000960
Client: Intertek Argentina **Date:** 2-4-2022

Material Balance Parameters:

ASTM D2892 Distillation

D2892 Material Balance:	100.00	Passes Material Balance Per D2892

ASTM D5236 Distillation

D5236 Material Balance:	100.00	Passes Material Balance Per D5236

API Balance Parameters:

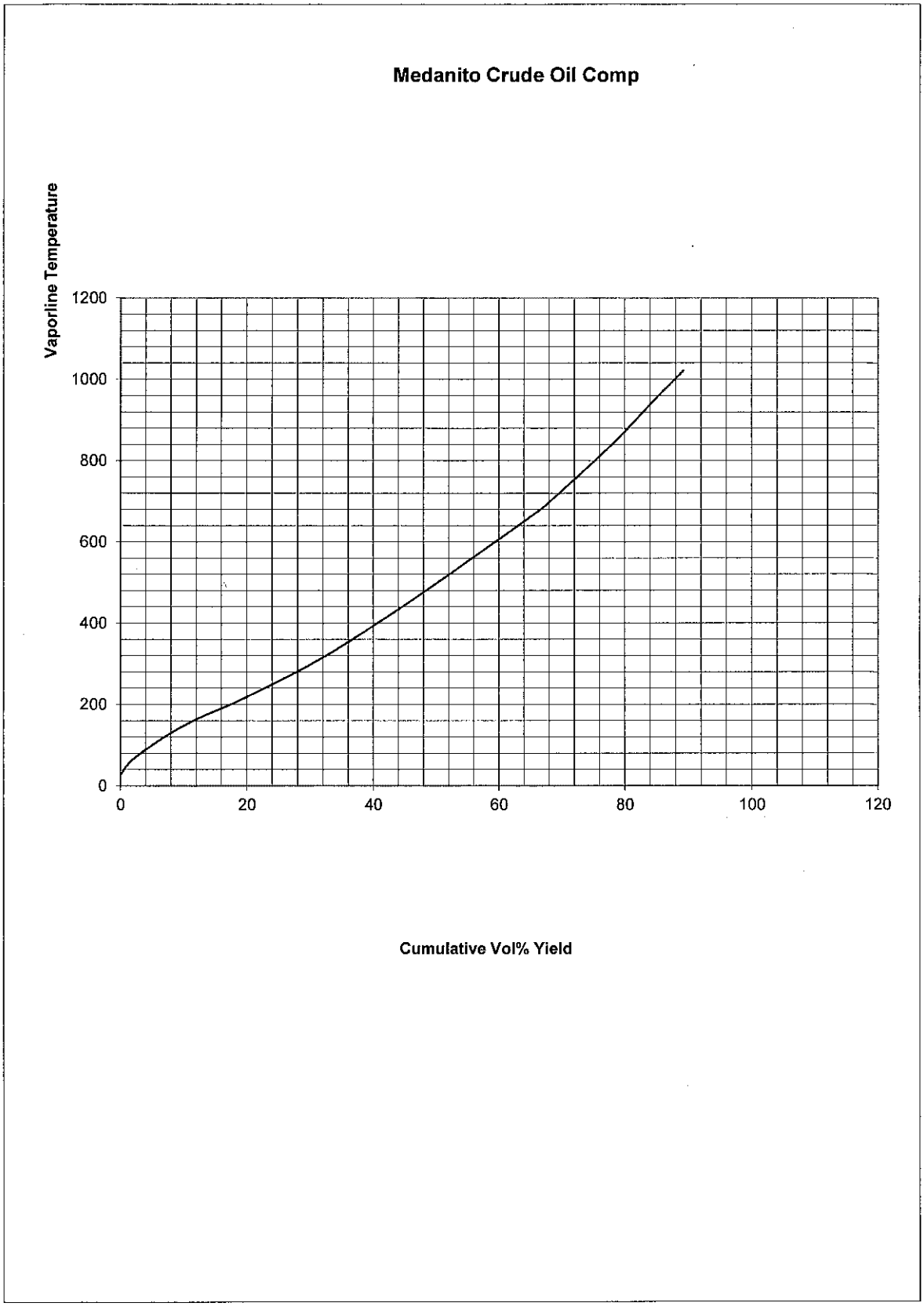
D2892 Measured API:	42.0 °	
D2892 Calc API:	42.6 °	
API Delta (Meas-Calc):	-0.7 °	Passes API Test

D5236 Measured API:	23.6 °	
D5236 Calc API:	23.6 °	
API Delta (Meas-Calc):	0.0	Passes API Test

Note: Review the API vs Mid-Vol% Plot For Outliers along the curve. Points lying off the curvature should be reviewed for accuracy in density determination.

WinAssay '95
True Boiling Point Curve vs Cumulative Vol% Yield

Sample ID



ASTM D2892/D5236 CHARGE INFORMATION

Lab ID:	2022-DRPK-000960
Client Name:	Intertek Argentina
Sample ID:	Medanito Crude Oil Comp
Date:	2-4-2022

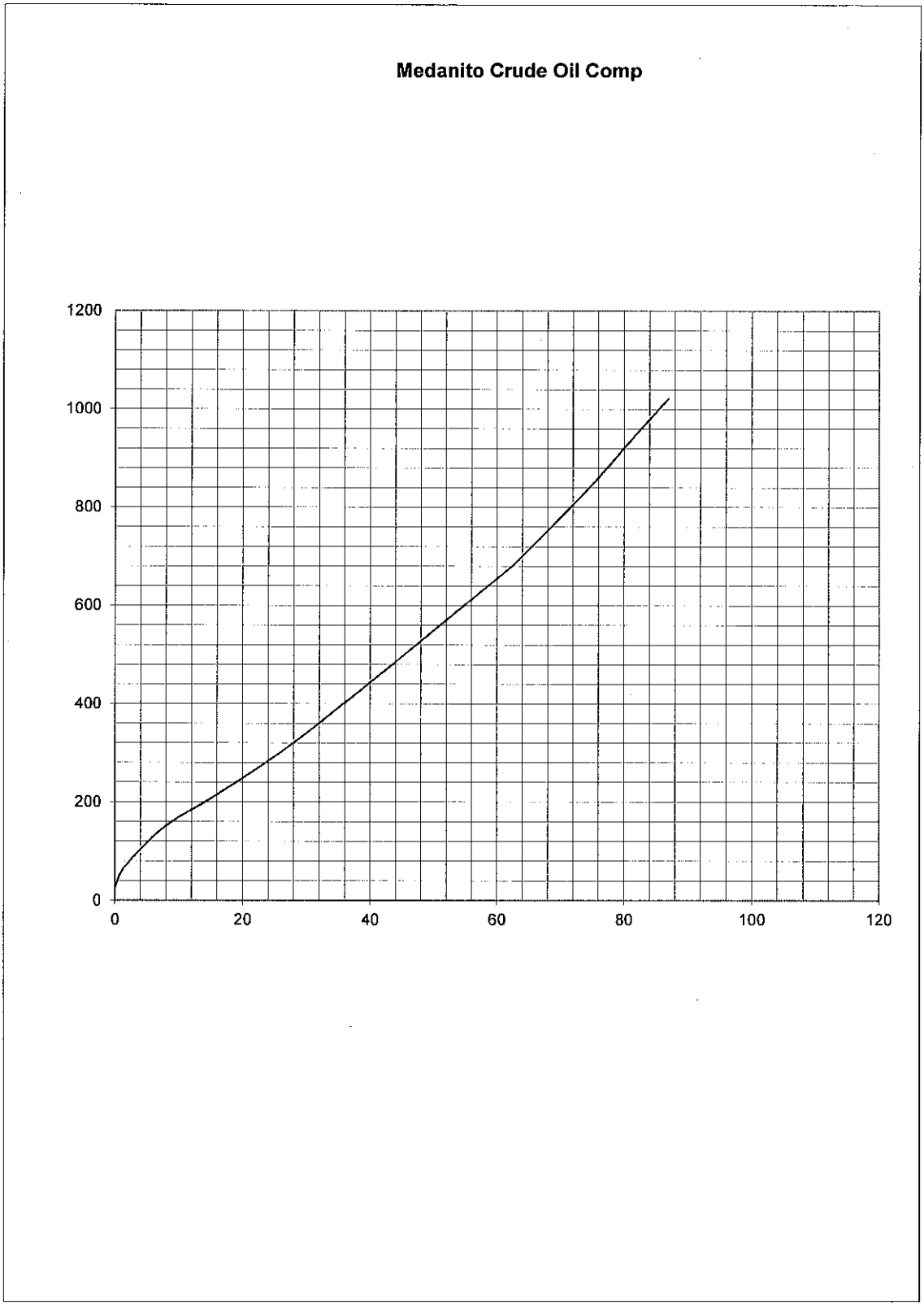
Operator JPD/Biggs

Charge Mass D2892(g):	8750.0
Charge S.G D2892 (60/60F):	0.8156
Charge Mass D5236(g):	2660.0
Charge S.G. D5236 (60/60F):	0.9121

Water Weight Removed (g):	2.9
Initial Vapor Temp:	27
Whole Crude Sulfur Wt%:	

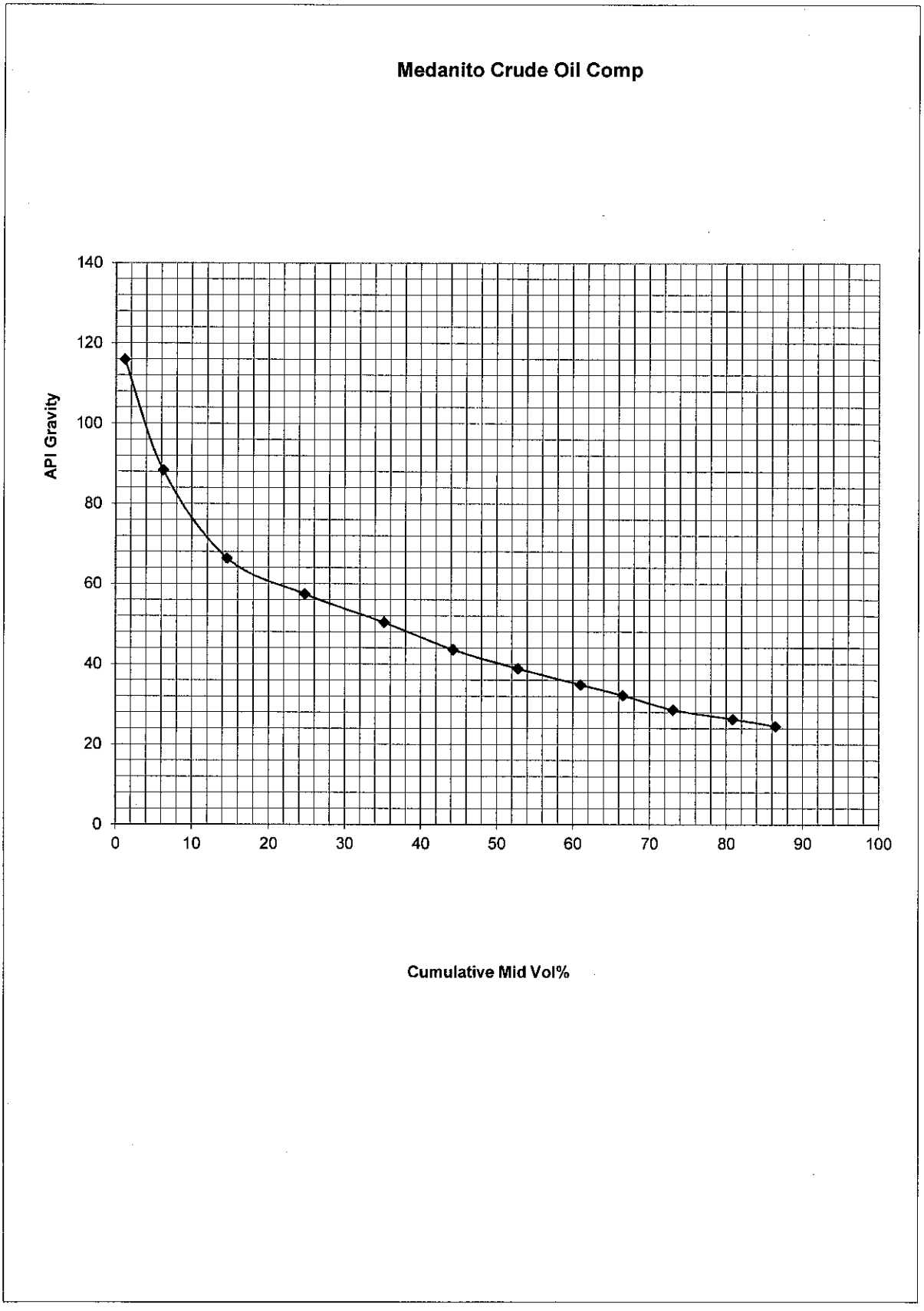
WinAssay '95
True Boiling Point Curve
Vaporline Temperature v. Cumulative Wt% Yield

Sample ID



WinAssay '95 Quality Control Applications

Cum. Mid Vol% v. API Gravity



2022-DRPK-000960 Medanito Crude Oil Comp

WinAssay '95
Final TBP Distillation Yield Report

Prepared For: Intertek Argentina
Sample ID: Medanito Crude Oil Comp
Date: 2-4-2022

Cut Temp	Degrees F TO	DUMP WT(g)	Specific Gravity	MLS	LIQ VOL%	CUM. LIQ VOL%	WT%	CUM WT%	API GRAVITY	MID LIQ VOL%
ASTM D2892 Distillation Yields										
IBP	70	143.10	0.5719	250.22	2.33	2.33	1.64	1.64	115.92	1.17
70	149	535.70	0.6436	832.35	7.76	10.09	6.12	7.76	88.36	6.21
149	212	687.60	0.7150	961.68	8.97	19.06	7.86	15.62	66.40	14.58
212	302	914.90	0.7490	1221.50	11.39	30.45	10.46	26.08	57.42	24.76
302	392	785.40	0.7780	1009.51	9.41	39.86	8.98	35.06	50.38	35.16
392	482	754.40	0.8080	933.66	8.71	48.57	8.62	43.68	43.62	44.22
482	572	739.70	0.8304	890.78	8.31	56.87	8.46	52.14	38.90	52.72
572	662	744.60	0.8504	875.59	8.16	65.04	8.51	60.65	34.89	60.96
662	698	275.00	0.8644	318.14	2.97	68.01	3.14	63.80	32.20	66.52
698+		3166.70	0.9121	3471.88	32.37	100.38	36.20	100.00	23.64	
ASTM D5236 Distillation Yields										
698	842	800.70	0.8835	906.28	10.06	78.07	10.90	74.69	28.66	73.04
842	932	446.10	0.8966	497.55	5.52	83.59	6.07	80.77	26.32	80.83
932	1022	458.20	0.9067	505.35	5.61	89.20	6.24	87.00	24.56	86.39
1022+		955.00	0.9491	1006.22	11.17	100.37	13.00	100.00	17.59	