



Date:

No:

Attachment:

Apafeed petrochemical trading LLC

Light Crude Oil

Properties	Unit	Spec 1	Spec 2	Test Method
Sp. Gr. 15.6/15.6 °C		0.8575	0.8488	ASTM D 5002
API Gravity	°API	33.5	35.21	ASTM D 5002
Sulfur content	%Wt	1.45	1.69	ASTM D 4294
H ₂ S Content	ppm	61	15	IP 570
Mercaptan Content	ppm	118	243	UOP 163
Nitrogen Content	%Wt	0.18	0.08	ASTM D 5762
Water & Sediment	%Vol	< 0.05	< 0.05	ASTM D 4007
Water Content	%Vol	< 0.025	< 0.025	ASTM D 4006
Salt Content	PTB	9	4	ASTM D 3230
Kinematic Viscosity @10°C	mm ² /s	16.51	11.02	ASTM D 445
Kinematic Viscosity @20°C	mm ² /s	10.78	7.51	ASTM D 445
Kinematic Viscosity @40°C	mm ² /s	5.735	4.4	ASTM D 445
Pour Point	°C	-9	-30	ASTM D 5853
RVP	psi	8.15	8.5	ASTM D 3230
Asphaltene Content	%Wt	1.3	1.1	IP 143
Wax Content	%Wt	6.2	6.7	BP 237
Drop Melting Point of Wax	°C	54	52	IP 133
CCR	%Wt	4.24	3.4	ASTM D 189
Total Acid Number	mgKOH/g	0.1	<0.05	UOP 163
Nickel Content	ppm	8	5	ASTM D 5863
Vanadium Content	ppm	41	11	ASTM D 5863
Iron Content	ppm	1	1	ASTM D 5863
Lead Content	ppm	< 1	<1	ASTM D 5863
Sodium Content	ppm	7	3	ASTM D 5863
Zinc Content	ppm	< 1	<1	ASTM D 5863
Copper Content	ppm	< 1	<1	ASTM D 5863



Date:

No:

Attachment:

Apafeed petrochemical trading LLC

Heavy Crude Oil

Properties	Unit	Spec 1	Spec 2	Test Method
Sp. Gr. 15.6/15.6 °C		0.875	0.941	ASTM D 5002
API Gravity	°API	30.2	18.87	ASTM D 5002
Sulfur content	%Wt	1.92	3.95	ASTM D 4294
H ₂ S Content	ppm	121	<1	IP 570
Mercaptan Content	ppm	185	25	UOP 163
Nitrogen Content	%Wt	0.23	0.19	ASTM D 5762
Water & Sediment	%Vol	< 0.05	0.05	ASTM D 4007
Water Content	%Vol	< 0.025	0.05	ASTM D 4006
Salt Content	PTB	10	25	ASTM D 3230
Kinematic Viscosity @10°C	mm ² /s	29.07	1610	ASTM D 445
Kinematic Viscosity @20°C	mm ² /s	18.4	607.7	ASTM D 445
Kinematic Viscosity @40°C	mm ² /s	9.218	179.7	ASTM D 445
Pour Point	°C	-12	-27	ASTM D 5853
RVP	psi	6.25	3.5	ASTM D 3230
Asphaltene Content	%Wt	3.4	8.9	IP 143
Wax Content	%Wt	5.7	4.1	BP 237
Drop Melting Point of Wax	°C	55	64	IP 133
CCR	%Wt	6.2	12.4	ASTM D 189
Total Acid Number	mgKOH/g	0.15	0.7	UOP 163
Nickel Content	ppm	14	30	ASTM D 5863
Vanadium Content	ppm	73	116	ASTM D 5863
Iron Content	ppm	<1	2	ASTM D 5863
Lead Content	ppm	<1	<1	ASTM D 5863
Sodium Content	ppm	5	13	ASTM D 5863
Zinc Content	ppm	<1	<1	ASTM D 5863
Copper Content	ppm	<1	<1	ASTM D 5863



Date:

No:

Attachment:

Apafeed petrochemical trading LLC

Iraq Light Crude Oil

Properties	Unit	Specification	Test Method
Density at 15°C	kg/L	0.901	ASTM D 1298
API Gravity at 60f	°AP	25.44	ASTM D 287
Water by Distillation	%Vol	0.05	ASTM D 4006
Sediment by Extraction	%Wt	0.015	ASTM D 473
Sulfur	%Wt	3.705	IP336
Pour Point	°C		ASTM D5853
Salt Content	lb/1000bbl	4.6	ASTM D3230
Water KF	%Wt	1053	ASTM D4928
H2S Content	ppm	0.63	UOP 163
Acidity	mgKOH/g	0.075	ASTM D664
Mercaptan Sulfur	ppm	88.9	ASTM D3227
Kinematic Viscosity at 50°C	cSt	11.5581	ASTM D445
Asphaltenes	%Wt	5.5	IP143
IBP	°C	48	ASTM D86
Distillation at 5%	°C	82	ASTM D86
Distillation at 10%	°C	108	ASTM D86
Distillation at 20%	°C	169	ASTM D86
Distillation at 30%	°C	231	ASTM D86
Distillation at 40%	°C	282	ASTM D86
Distillation at 50%	°C	317	ASTM D86
Distillation at 60%	°C	332	ASTM D86
Distillation at 70%	°C	339	ASTM D86
Distillation at 80%	°C	350	ASTM D86
Distillation at 89%	°C	353	ASTM D86
FBP	°C	355	ASTM D86



Date:
 No:
 Attachment:

Apafeed petrochemical trading LLC

Iraq Heavy Crude Oil Assays

Properties	Unit	T-1A	T-2	T-4	Test Method
Density @15°C	kg/L	0.9097	0.9153	0.9135	ASTM D 5002
Sp. Gr. @ 15.6/15.6°C		0.9102	0.9158	0.914	Conversion
API Gr. @15.6°C	°API	23.96	23.01	23.31	Calculated
Sulfur Content	%Wt	3.34	3.34	3.25	ASTM D 4294
Carbon Residue, Micro	%Wt	7.65	8.31	8.74	ASTM D 4530
Bottom Sediment & Water	%Vol	0.1	1.35	0.6	ASTM D 4007
Salt as NaCl	mg/L	5.04	15	6.3	ASTM D 3230
Ash Content @550°C	%Wt	0.013	0.049	0.012	ASTM D 482
Total Nitrogen	ppm	0.14		0.13	ASTM D 5762-01
Copper	ppm	<1	<1	<1	IP 501 (Mod.)
Iron	ppm	1	1	<1	IP 501 (Mod.)
Nickel	ppm	12	13	12	IP 501 (Mod.)
Vanadium	ppm	36	37	36	IP 501 (Mod.)
Lead	ppm	<1	<1	<1	IP 501 (Mod.)
Chromium	ppm	<1	<1	<1	IP 501 (Mod.)
Zinc	ppm	<1	1	<1	IP 501 (Mod.)
Calcium	ppm	5	63	1	IP 501 (Mod.)
Magnesium	ppm	1	<1	<1	IP 501 (Mod.)
Sodium	ppm	1	5	<1	IP 501 (Mod.)
Total Acid Number	mgKOH/g	0.302	0.026	0.748	ASTM D 664
Vapor Pressure (DVPE)	kPa	11.2	20.7	6.6	ASTM D 5191
Pour Point (max/Upper)	°C	-39	-24	< -42	ASTM D 5853
Pour Point (min/Upper)	°C	< -42		< -42	ASTM D 5853
Flash Point	°C	< -5	< -5	< -5	ASTM D 93 (Mod.)
Asphaltenes	%Wt	5.2	4.82	5.5	ASTM D 3279
Wax Content	%Wt		0.5	0.7 max	UOP 46
Kinematic Viscosity @26.7°C	cSt	31.03	40.11	31.97	ASTM D 445
Kinematic Viscosity @37.8°C	cSt	19.32	25.09	19.55	ASTM D 446