SPECIFICATIONS FOR MURBAN CRUDE OIL

		Crude **MURBAN**									
		Country United Arab Emirates									
Density at 15°C, kg/m3	822.4				°C		wt%	vol%	°C		
°API	40.5				080		8.09	10.36	460		
Bbl/mt	7.660				090		9.54	12.05	480		
Acidity, mg KOH/g	0.05				100		11.19	13.94	500		
Sulphur, wt%	0.743				120		15.06	18.27	520		
Hydrogen Sulphide, mg/kg	0				140		19.48	23.11	540		
Mercaptan Sulphur, mg/kg	56				160		24.15	28.11	560		
Viscosity, cSt at 10 °C	6.5				180		28.80	33.01	580		
50 °C	2.5				200		33.37	37.77			
Pour Point, °C	-9				220		37.90	42.43			
Total Nitrogen, wt%	0.042				240		42.34	46.93			
Wax, wt%	-		wt%	vol%	260		46.50	51.09			
Wax Appearance Temperature, °C	-				280		50.32	54.85			
RVP at 37.8 °C, kPa	39	Ethane	0.00	0.01	300		54.08	58.49			
Water, vol%	-	Propane	0.17	0.28	320		58.22	62.45			
NaCl, mg/kg	-	Iso-Butane	0.19	0.28	340		62.69	66.68			
Nickel, mg/kg	1.6	n-Butane	0.69	0.97	360		65.76	69.57			
Vanadium, mg/kg	2.4				380		68.46	72.10			
Iron, mg/kg	-				400		71.62	75.04			
Mercury, µg/kg	-				420		74.89	78.06			
					440		78.03	80.93			

SPECIFICATIONS FOR GAS OIL 500 PPM MAX. SULPHUR

PROPERTY/TEST	TEST METHOD	SPECIFICATIONS
APPEARANCE		CLEAR, BRIGHT AND FREE FROM WATER & VISIBLE IMPURITIES
DENSITY AT 15 ^{0}C kg/m^3	ASTM D 1298/ASTM D 4052	820 - 860
COLOUR	ASTM D 1500	MAX. 1.5
DISTILLATION	ASTM D 86	
IBP ^{0}C		REPORT
T10 ^{0}C		REPORT
T50 ^{0}C		REPORT
T85 ^{0}C		MAX. 350
T95 ^{0}C		MAX. 370
CETANE INDEX OR	ASTM D 976 / ASTM D 4737	MIN. 46 (NOTE 1)
CETANE NUMBER	ASTM D 613	MIN. 49
CLOUD POINT ^{0}C	ASTM D 2500	MAX. 15
CFPP ^{0}C	ASTM D 6371	MAX. 5
SULPHUR CONTENT mg/kg	ASTM D 4294/ ASTM D 2622	MAX. 500
FLASH POINT ^{0}C	ASTM D 93	MIN. 55
VISCOSITY KIN AT 40 ^{0}C, cSt	ASTM D 445	2 - 4.5
WATER CONTENT (mg/kg)	ASTM D 6304	MAX. 200
CU - STRIP CORROSION 3 hrs AT 50 ^{0}C	ASTM D 130	MAX. 1
ASH % m/m	ASTM D 482	MAX. 0.01
CARBON RESIDUE, % m/m	ASTM D 524 / ASTM D 4530	MAX. 0.3
PARTICULATE CONTAMINANTS, TOTAL mg/l	ASTM D 6217	MAX. 10
TOTAL ACID NO. mg KOH/g	ASTM D 664	MAX. 0.08
CALORIFIC VALUE GROSS kcal/kg	ASTM D 240	MIN. 10500
OXIDATION STABILITY g/m^3	ASTM D 2274	Max. 25
DSEP RATING	ASTM D 7261	50 – 100
FAME	ASTM D 7371	NON DETECTABLE (NOTE 2)
LUBRICITY (HFRR wear scar dia.@60^{0}c) micron	ASTM D 6079	MAX. 460

IMPORTANT:

NOTE 1 : NOT APPLICABLE IF ANY CETANE IMPROVER ADDITIVE IS PRESENT

NOTE 2 : ADDITION OF BIO DIESEL OR BIODIESEL BLENDS ARE NOT PERMITTED

SPECIFICATIONS FOR GAS OIL 10 PPM MAX. SULPHUR

PROPERTY/TEST	**TEST METHOD**	**SPECIFICATIONS**
APPEARANCE		CLEAR, BRIGHT AND FREE FROM WATER & VISIBLE IMPURITIES
DENSITY AT 15 ^{0}C kg/m^3	ASTM D 1298 / ASTM D 4052	820 - 845
COLOUR	ASTM D 1500	MAX. 1.5
DISTILLATION	ASTM D 86	
E250 Vol % MAX		<65
E350 Vol % MIN		85
T95 ^{0}C		MAX. 360
CETANE INDEX OR	ASTM D 976 / ASTM D 4737	MIN. 50 (NOTE 1)
CETANE NUMBER	ASTM D 613	MIN. 51
CFPP ^{0}C	ASTM D 6371	MAX. +5
SULPHUR CONTENT mg/kg	ASTM D 5453 ASTM D 2622	MAX. 10
FLASH POINT ^{0}C	ASTM D 93	MIN. 55
VISCOSITY KIN AT 40 ^{0}C, cSt	ASTM D 445	2 - 4
WATER CONTENT mg/kg	ASTM D 6304	MAX. 200
CU - STRIP CORROSION 3 hrs AT 50 ^{0}C	ASTM D 130	MAX. 1
ASH % m/m	ASTM D 482	MAX. 0.01
CARBON RESIDUE, % m/m	ASTM D 524 / ASTM D 4530	MAX. 0.2
PARTICULATE CONTAMINANTS, TOTAL mg/l	ASTM D 6217	MAX. 10
TOTAL ACID NO. mg KOH/g	ASTM D 664	MAX. 0.08
CALORIFIC VALUE GROSS kcal/kg	ASTM D 240	MIN. 10600
OXIDATION STABILITY g/m^3	ASTM D 2274	MAX. 25
DSEP RATING	ASTM D 7261	50 – 100
FAME	ASTM D 7371	NON DETECTABLE (NOTE 2)
LUBRICITY (HFRR wear scar dia.@60^{0}c) micron	ASTM D 6079	MAX. 400
POLYCYCLIC AROMATIC HYDROCARBONS % m/m	ASTM D 5186 / ASTM D 6591	MAX. 11

IMPORTANT:

NOTE 1 : NOT APPLICABLE IF ANY CETANE IMPROVER ADDITIVE IS PRESENT.
NOTE 2 : ADDITION OF BIO DIESEL OR BIODIESEL BLENDS ARE NOT PERMITTED.

SPECIFICATIONS FOR GASOLINE (92 UNL)

PROPERTY/TEST	TEST METHOD	SPECIFICATIONS
APPEARANCE		BRIGHT, CLEAR AND FREE FROM WATER, VISIBLE IMPURITIES & DYES (NOTE 1)
DENSITY @ 15 ^{0}C kg/m^3	ASTM D 1298 / ASTM D 4052	720 – 785
REID VAPOUR PRESSURE @ 37.8 ^{0}C kPa	ASTM D 323	45 – 60
RESEARCH OCTANE NUMBER (RON)	ASTM D 2699	MIN. 92
MOTOR OCTANE NUMBER (MON)	ASTM D 2700	MIN. 82
DISTILLATION	ASTM D 86	
IBP ^{0}C		REPORT
T 10 ^{0}C		45 – 70
T 50 ^{0}C		80 – 125
T 90 ^{0}C		MAX. 180
FBP ^{0}C		MAX. 210
RESIDUE, vol. %		MAX. 2.0
E150 vol. %		MIN 70
DOCTOR TEST	IP 30 /ASTM D 4952	SWEET OR LESS THAN 15 ppm RSH
SULPHUR CONTENT mg/kg	ASTM D 4294 / ASTM D 5453 / ASTM D 2622	MAX. 300
LEAD CONTENT g/l	ASTM D 5059 / ASTM D 3237	MAX. 0.013 (NOTE 2)
UNWASHED GUMS mg/100 ml	ASTM D 381	MAX. 30
WASHED GUMS mg/100 ml	ASTM D 381	MAX. 5
OXYGENATE % v/v	ASTM D 4815	MAX. 15
OXYGEN CONTENT % m/m (CALCULATED)		MAX. 2.7
OXIDATION STABILITY, Minutes	ASTM D 525	MIN. 480
OLEFINES CONTENT (%v/v)	ASTM D 1319/ASTM D 6730	MAX. 18
COPPER CORROSION 3 h @ 50 ^{0}C	ASTM D 130	MAX. 1
BENZENE % v/v	ASTM D 3606 / ASTM D 5580	MAX. 2.5
TOTAL AROMATICS % v/v	ASTM D 5580	MAX 40

NOTE 1 : SPECIFY TAGGING COMPONENTS, IF ANY

NOTE 2 : NO INTENTIONAL ADDITION OF LEAD COMPOUNDS.

IMPORTANT:

- THERE SHALL BE NO INTENTIONAL ADDITION OF METAL COMPOUNDS CONTAINING FERROUS, MANGANESE & PHOSPHOROUS.
- ADDITION OF ALCOHOLS ARE NOT PERMITTED.

SPECIFICATIONS FOR GASOLINE (95 UNL)

PROPERTY/TEST	TEST METHOD	SPECIFICATIONS
APPEARANCE		BRIGHT ,CLEAR AND FREE FROM WATER, VISIBLE IMPURITIES & DYES (NOTE 1)
DENSITY @ 15 ^{0}C kg/m^3	ASTM D 1298	720 – 775
REID VAPOUR PRESSURE @ 37.8 ^{0}C kPa	ASTMD 323	45-60
RESEARCH OCTANE NUMBER (RON)	ASTM D 2699	MIN. 95
MOTOR OCTANE NUMBER (MON)	ASTM D 2700	MIN. 85
DISTILLATION	ASTM D 86	
IBP ^{0}C		REPORT
E100, Vol % MIN-MAX		46-71
E150, Vol % MIN		75
FBP ^{0}C , MAX		210
RESIDUE vol. %		MAX. 2.0
DOCTOR TEST	IP 30 / ASTM D 4952	SWEET OR LESS THAN 15 ppm RSH
SULPHUR CONTENT mg/kg	ASTM D 2622 / ASTM D 5453	MAX. 50
LEAD CONTENT g/l	ASTM D 5059 / ASTM D 3237	MAX. 0.005 (NOTE 2)
TOTAL AROMATICS % v/v	ASTM D 5580	MAX 35
WASHED GUMS mg/100 ml	ASTM D 381	MAX. 5
OXYGENATE % v/v	ASTM D 4815	MAX. 15
OXYGEN CONTENT % m/m (CALCULATED)		MAX 2.7
OXIDATION STABILITY, Minutes	ASTM D 525	MIN. 360
COPPER CORROSION 3 hrs @ 50 ^{0}C	ASTM D 130	MAX. 1
BENZENE % v/v	ASTM D 3606 / ASTM D 5580	MAX. 1
OLEFINS CONTENT % v/v	ASTM D 1319 / ASTM D 6730	MAX. 18

NOTE 1 : SPECIFY TAGGING COMPONENTS, IF ANY
NOTE 2 : NO INTENTIONAL ADDITION OF LEAD COMPOUNDS.

IMPORTANT:

- THERE SHALL BE NO INTENTIONAL ADDITION OF METAL COMPOUNDS CONTAINING FERROUS, MANGANESE & PHOSPHOROUS.
- ADDITION OF ALCOHOLS ARE NOT PERMITTED.

SPECIFICATION OF JET A-1

PROPERTY/TEST

JET A-1 SHOULD CONFORM TO LATEST AFQRJOS CHECKLIST (CURRENTLY AFQRJOS ISSUE 32 – NOVEMBER 2020) AND SHOULD BE COLOURLESS.

IN ADDITION TO THE SHORE TANK QUALITY CERTIFICATE ISSUED AT THE LOAD PORT, THE SUCCESSFUL SUPPLIER/BIDDER SHALL REQUIRE TO FURNISH MANUFACTURE'S (REFINERY) CERTIFICATES FOR JET-A-1 CARGO LOADED ON TO THE NOMINATED VESSEL. THE PARAMETER "PARTICULATE CONTAMINATION" SPECIFIED UNDER THE SPECIFICATIONS OF AFQRJOS ISSUE 32 – NOVEMBER 2020 SHOULD BE LESS THAN 1.00 mg/L AT THE PORT OF DISCHARGE AT COLOMBO.

IN ADDITION TO THE SHORE TANK QUALITY CERTIFICATES, THE SUCCESSFUL SUPPLIER/BIDDER SHALL REQUIRED TO FURNISH MANUFACTURE'S (REFINERY) CERTIFICATES FOR JET-A-1 CARGO LOADED ON TO THE NOMINATED VESSEL.

THE SUCCESSFUL SUPPLIER/BIDDER SHALL BE RESPONSIBLE TO PROVIDE MINIMUM THREE (03) NUMBER OF **STADIS** CANS ALONG WITH JET A-1 CARGO TO MAINTAIN THE CONDUCTIVITY PARAMETER OF THE PRODUCT.

SPECIFICATIONS FOR FUEL OIL 180 CSt (MAX. 1.8% SULPHUR)

PROPERTY / TEST	TEST METHOD IP	ASTM D	CEYPETCO SPECS
DENSITY @ 15 DEG C kg/m³	160	1298	900 - 970
FLASH POINT PM CC, DEG C	34	93	MIN 60
POUR POINT DEG C	15	97	MAX 24
TOTAL SULPHUR CONTENT % (w/w)	61	4294/ 2622	MAX 1.8
VISCOSITY KINEMATIC @ 50 DEG C, cSt	71	445	90 – 175
WATER CONTENT % (v/v)	74	95	MAX 0.5
ASH % (w/w)	4	482	MAX 0.1
CONDRADSON CARBON % (w/w)	398	189/ 4530	MAX 12
SEDIMENT BY EXTRACTION % wt	53	473	MAX 0.1
ASPHALTENES m/m %	143	6560	MAX 4.0
TOTAL SEDIMENT POTENTIAL % m/m	375	4870	MAX 0.1
CALORIFIC VALUE GROSS, Kcal/kg	12	240	MIN 10,300
STRONG ACID KOH mg/g	1	974 /664	NIL
HYDROGEN SULFIDE (H2S), mg/kg	570	-	MAX 2.0
METAL CONTAMINANTS			
V	288/501	3605	MAX 65 ppm
Pb		3605	MAX 1 ppm
Al + Si	501/377		MAX 80 ppm
Na + K	501	3605	MAX 30 ppm
Zn	501/470	-	MAX 15 ppm
Ca	501/470	-	MAX 10 ppm
PHOSPHORUS	501/500	-	MAX 15 ppm
IRON (Fe)	501	3605	MAX 30 ppm
VANADIUM (V) : SODIUM (Na) RATIO	By Calculation		Less than 2.5 or Greater than 3.5