

JET – A1 PRODUCT SPECIFICATION

TEST	UNITS	SPECIFICATIONS	METHOD
		D1655	
		Degree C (F)	
Say bolt Color	Number	Report	D156
Total Acid, Max	MGk OH/g	0.10	D3242
Aromatic Content, Max.	vol %	25	D1319
Naphthalenes, Max	vol %	3	D1840
Mercaptan Sulfur, Max.	wt. %	0.003	D3227
Total Sulfur, Max	wt. %	0.30	D4294
Initial Boiling Point	Celsius	Report	D86
10% Recovery Point, Max	Celsius	205 (401)	D86
20% Recovery Point	Celsius	Report	D86
50% Recovery Point	Celsius	Report	D86
90% Recovery Point	Celsius	Report	D86
Final Boiling Point, Max	Celsius	300 (572)	D86
Residual, Max.	vol %	1.5	D86
Loss, Max.	vol %	1.5	D86
Flash Point, Min.	Celsius	38.0 (100)	D56
Viscosity @-20C, Max.	cSt	8.0	D445
Gravity	API	37 - 51	D4052
Density @15 C,	kg/m3	775 - 840	D4052
Freeze Point, Max.	Celsius	-45.5(-50) Jet A	D5972
Freeze Point, Max	Celsius	-47 (-53) Jet A - 1	D5972
Heat Content, Min.	Btu/lb	18,400	D3338
Net Heat of Combustion, Min	MJ/kg	42.8	D3338
Smoke Point, Min.	mm	18.00	D1322
Copper Corrosion, Max	Code	1	D130
Stability, P, Max. @ 260C	mm HG	25	D3241
Preheat Code, Max	Code	<3	D3241
Existent Gum, Max	mg/100ml	7	IP540
Water Separation	MSEP	85	D3948

DIESEL EN590 PRODUCT SPECIFICATION

No	CHARACTERISTICS	Unit	TEST RESULT		TEST METHOD	
			Min	Max	EN STANDRADS	ASTM STANDARDS
1	Cetane number	n°	51,0		EN ISO 5165 EN 15195	D 613
2	Cetane Index	Index	46,0		EN ISO 4264	D 4737
3	Density at 15°C	kg/m'	820	845	EN ISO 3675 EN ISO 12185	D 4052 D 1298
4	Polycyclic aromatic hydrocarbons	% m/m		11,0	EN 12916	
5	Sulphur content	mg/kg		10	EN ISO 20846 EN ISO 20884	
6	Distillation - Recovered @150 65 °C - Recovered @250 85 °C - Recovered @350 95 °C - Recovered @95	% Vol % Vol % Vol °C	85,0	2,0 65,0 360	EN ISO 3405;2000	D86
7	Kinematic viscosity at 40°C	mm²/s	2,00	4,50	EN ISO 3104	D 445
8	Flash point	°C	55		EN ISO 2719	D93
9	Cold filter plugging point (CFPP): (CFPP) Summer (CFPP) Winter	°C °C	50,0	-5 -15	EN116:1997	
10	Cloud point:				EN23015:1994	D 2500 D 5772
	Summer (1 April to 30 September)	cc	Report			
	Winter (1 October to 31 March)	cc		+0		
11	Carbon residue (on 10% distillation residue)	% m/m		0,15	EN ISO 10370	D 4530
12	Lubricity, corrected wear scar diameter (corrected WSD 1,4) at 60'C	µm		460	EN ISO 12156-1	
13	Water content	mg/kg		200	EN ISO 12937	
14	Total contamination (Solid particles)	mg/kg		24	EN 12662	
15	Ash content	% m/m		0,01	EN ISO 6245	D 482
16	Corrosion to copper (3h at 50°C)	Indice	1st	Class	EN ISO 2160	D 130
17	Oxidation stability	g/m3		25	EN ISO 12205	D 2274
18	Oxidation stability (9)	hours	20		EN 15751	
19	FAME Content (10)	% VN		0	EN 14078	
20	Colour	ASTM scale		2,0		D 1500 D 6045
21	Aspect		Clear		Visual Inspection	D 4176
22	Biodiesel content	% Vol	4,5	7,0		
23	Electrical Conductivity	% m/m			ISO6297 IP274	D 2624
24	Total Acidity	MgKOH/g				D 974-06

VIRGIN FUEL OIL – D6 PRODUCT SPECIFICATION

METHOD UNITS	TEST	RESULTS	UNIT
ASTMD5002	Density and Relative Density of Crude Oil and Average API Gravity	29.7(29.7)Min	API
ASTMD1298-99	Density @ 15 DegC	0.87(0.775)	Kg/t
ASTMD97	Pour Point of Petroleum Pour Point Pour Point	<-33(-36)BELOWZERO <-27.4(-	°C °F
ASTMD93-IP34	Pensky-Martens Closed cup Flash Point Corrected Flash Point	117(137)Min	°F
ASTMD4294	Sulfur content in petroleum Product by EDXRF Sulfur content	0.38(0.358)Max	W1%
ASTMD445	Kinematic/Dynamic viscosity Kinematic viscosity @122°F/50°C	17.83(18.12)Max	Mm2%
ASTMD6304	Water content by coulometric Karl Fisher Titration Water content	0.20(0.7)Max	W1%
ASTMD482	Ash from petroleum product Average Ash	0.279(1.007)Max	W1%
ASTMD2161	Conversion of kinematic viscosity To SUS/SFS I Sayboltfurol Viscosity122°F	10.9SFS	Max
ASTMD5184	Aluminum and Silicon in Fuel Oils By KP-AES or AAS	102(max) 93(max)	Mg/kg Mg/kg
ASTMD95	Water by Distillation Vol%	0.70(Max)	Vol%
ASTMD4530.06	Carbon Residue	1.11(max)	W1%
Method Test Result Unit			
IP 143 Asphaltenes Heptane Insoluble			
	Asphaltene content	0.08	W1%
IP 501 Determination of AL, Si, V, Ni, Fe, Na, Ca, Zn, P in Fuel Oil			
	Aluminum	372	Mg/kg
	Silicon	187	Mg/kg
	Sodium	117	Mg/kg
	Vanadium	1	Mg/kg
	Calcium	779	Mg/kg
	Zinc	298	Mg/kg
	Phosphorus	4176	Mg/kg
	Iron	545	Mg/kg

JP-54 PRODUCT SPECIFICATION

TEST	MEAN UNIT	METHOD	RESULT
Density at 15°C	g / ml	ASTM_D4052	0.8 / 0.83
DIST_D86 / I.B.P.	°C	ASTM_D86	159.8
DIST_D86 / 10% recovered	°C	ASTM_D86	187.4
DIST_D86 / 20% recovered	°C	ASIM_D86	194.8
DIST_D86 / 50% recovered	°C	ASTM_D86	208.8
DIST_D86 / 90% recovered	°C	ASTM_De6	232.7
DIST_D86 / F.B.P.	°C	ASTM_D86	244.1
DIST_D86 / Residue	% vol	ASTM_D86	1.2
DIST_D86 / Loss	% vol	ASTM_D86	1.4
Say bolt Color	---	ASTM_D156	28
Appearance	---	---	Clear & Bright
Flash Point	°C	ASTM_D56	51.5
Copper Strip Corrosion 2h@100°C	---	ASTM_D130	Class 1
Acid number	mg KOH / g	ASTM_D3242	0.004
Total Sulphur	% w / w	ISO8754	0.12
Mercaptan Sulphur	% w / w	ASTM_D3227	0.0005
Existent Gum	mg / 100 MI	ASTM_D381	1
FIA / Aromatics	% vol	D1319_95	16.5
Water Reaction : Interface Rating	---	---	1
Net Heat of Specific Energy	MI / kg	ASTM_D3338	43.222
Freezing Point	°C	ASTM_D2386	-43.5
Kinematics Viscosity @ - 20°C	CST	ISO3104	6.86
Smoke point	Mm	ASTM_D1322	25
Naphthalene's	% vol	ASTM_D1840	1.2
JFTOT / Change in pressure drop	mm Hg	ASTM_D3241	1
JFTOT / Filter Tube Deposit	---	ASTM_D3241	1
JFTOT / Tube Appearance	---	ASTM_D3241	No peacock or abnormal deposits
MSEP – A	---	ASTM_D3948	97
Hydrogen Content	% w / w	ASTM_D3701	13.96
Hydro processed fuel in botch	% w / w	---	300

D2 GASOIL PRODUCT SPECIFICATION

COMPONENT	UNIT	MIN	MAX
Density@ 20 deg C	Kg / m ³	0.82	0.870
Color		0.5	1.0
Flash point, PMCC	Deg C (°C)	57	62
Kinematic viscosity @20 deg C	CST	3.0	6.0
Pour point	Deg C (°C)	(*)	-10.0
Cloud point	Deg C (°C)	(*)	-5.0
Mercaptan sulfur			0.004
Acidity, mg / 1000 cm ³			5
Iodine number	g/100g		6
Ash	%wt		0.01
Total Sulphur	%wt		0.02
Copper corrosion	3hrs@50 deg C	(typical)	1 A
CCR on 10% Residues	%wt		0.20
Cetane index		45	
Distillation range :			
- 50% Recovered Volume	deg C (°C)		280
- 90% Recovered Volume	deg C (°C)		360
- Bacteria MBC	Fiber / it		500
- Bacteria CFU	Fiber / it		1000

Summer from March to October (PP – 5.0 degrees C)
Summer from March to October (CP – 0.0 degrees C)
Winter from November to February (PP – 10.0 degrees C)
Winter from November to February (CP – 5.0 degrees C)

LNG PRODUCT SPECIFICATION

COMPONENT	SUBSTANCE PERMISSIBLE LIMITS
Gross Heating Value (GCV) range	9,340 – 10,420 Kcal/SCM (1,050 – 1,170 BTU/SCF)
Methane	not less than 85.0 Mol %
Ethane	not more than 9.2 Mol %
Propane	not more than 3.00 Mol %
Butanes and heavier	not more than 2.00 Mol %
Pentanes and heavier	not more than 0.25 Mol %
Nitrogen	1.0 molecular %
Total Sulphur	10.0 ppm (w)
Sulphur in form of Hydrogen Sulphide	10.0 ppm (w)
Maximum variation in Wobble Index (WI) [WI = LHV (Volumetric Basis / (Specific Gravity w.r.t.Air)0.5]	+/- 5.0 %
Contaminants	
(a) Trace Metals	
i. Pb + Zn	0.50 ppm (w)
ii. Na + K	0.30 ppm (w)
iii. Vanadium	0.50 ppm (w)
iv. Calcium	2.0 ppm (w)
v. Magnesium	2.0 ppm (w)
vi. Sum of heavy metals (Hg+V+Pb+Zn+Ni+Others)	1.0 ppm (w)
(b) Solids / Particulates	
i. Total for particle size up to 10 microns	20.0 ppm (w)
ii. For 2 micron < d < 10 microns	1.50 ppm (w)
iii. For particle size greater than 10 microns	0.30 ppm (w)
(c) Liquid contents	Nil
(d) Moisture	112 kg/million SCM
Hydrogen content	1.00 % (by volume)
Acetylene (C ₂ H ₂)	0.10 % (by volume)
Higher Hydrocarbons for n>=3	10.0 % (by volume)

MAZUT M100 PRODUCT SPECIFICATION

NR.	SPECIFICATIONS	RESULTS		METHOD
		TYPICAL	MAX.	
1	Relative Viscosity at 80 °C, mm ² /s (cSt)	13.5	16.0	ASTM D 445
	Kinematic Viscosity at 80 °C, mm ² /s (cSt)	101.0	118.0	ASTM D 445
2	Relative Viscosity at 100 °C, mm ² /s (cSt)	6.2	6.8	ASTM D 445
	Kinematic Viscosity at 100 °C, mm ² /s (cSt)	45.3	50.0	ASTM D 445
3	Ash Content, wt. %	0.06	0.14	ASTM D 482
4	Sediments by Extraction Method, wt. %	0.02	1.0	ASTM D 473
5	Water Content, wt. %	0.1	1.0	ASTM D 85
6	Water Soluble Acid & Alkali Content	NIL	--	GOST 8307
7	Sulphur, wt. %	1.2	1.8	ASTM D 4294
8	Flash Point (COC), °C, min.	110	180	ASTM D 92
9	Pour Point, °C,	+18	+42	GOST 20267
10	Net Heat of Combustion, KJ/kg (kcal/kg)	39900 (9530)	40717 (9726)	ASTM D 4868
11	Density, at 20 °C, kg/m ³	939.1	968	GOST 3900
12	Conradson Carbon Residue, wt. %	5.56	15	ASTM D 189
13	Water by Distillation % wt	0.36	0.8	ASTM-D 95

ESPO CRUDE OIL PRODUCT SPECIFICATION

EXPORT BLEND CRUDE OIL REBCO (SPECIFICATION GOST 9965-76)			
Density At 20 Deg C Kg/M	%	Max	0.870
Sulphur Content	%	Max	1.8
Paraffin Content	%	Max	1.8
Water and Sediment	%	Max	1.2
Ash Content	%	Max	0,05
Chloride Content	%	Max	100
DISTILATION:			
Up To 200 Degrees C.	%	Max	21
Up To 300 Degrees C.	%	Max	41
Up To 350 Degrees C.	%	Max	50
INDEX APT At 20C Degrees	%	Max	32,00
Salts Content, Mg/L	%	Max	100

EXPORT BLEND CRUDE OIL REBCO (SPECIFICATION GOST 51858-2002)			
CHARACTERISTICS	UNITS	RESULT	TEST METHOD
Density (Specific Gravity) @ 20 °C	g /sm ³	0.870	ASTM D5002
Sulphur Content max	wt. %	1.8	ASTM D4294
Paraffin Content max	%	1.8	ASTM D5443
Water & Sediment Content max	vol. %	1.2	ASTM D4007
Distillated recovered max	%		ASTM 86
@ 200°C		21.0	
@ 300°C		41.0	
@ 350°C		50.0	
Chlorine Salt Content max	mg/dm ³	100	ASTM D3230
Density API	°API	32.0	ASTM D5002
Salts Content as NaCl	mg /l	17.3	ASTM D3230
Ash Content max	wt. %	0.05	ASTM D482
Mercaptans	mg/kg	<1	ASTM D3227
Pour Point	°C	15	ASTM D5863
Kinematic Viscosity CST @ 20°C	mm ² /s	4.92	ASTM D455
Hydrogen Sulfide	mg/kg	<1	ASTM D3227
Asphaltenes	%	0.9	ASTM D6560
Nitrogen	mg /l	342	ASTM D4629
KOH Number	mg/g	0.39	ASTM D8045 -17