

**Laboratory** Central Laboratory, Indian Oil Corporation Limited (M.D), K-Oil Installation, Sewree Terminal-II, Sewree (East), Mumbai, Maharashtra

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-5095

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**CHEMICAL TESTING**

<b>I. PETROLEUM AND PRODUCTS</b>				
1.	Jet A-1, JP-5	Acidity Total	IS 1448 (Part 113): 2010 IP 354:2012 ASTM D 3242-2017	Upto 0.1mg KOH/gm
		Doctor Test	IS 1448 (Part 19): 2007 IP 30-2012 ASTM D 4952-12 (2017)	Qualitative (Positive/Negative)
		Mercaptan Sulphur (Potentiometric)	IS 1448 (Part 109): 2010 IP 342-2012 ASTM D 3227-16	0.0001 to 0.01 %m/m
		Microbiological Test (MBT)	IP 385-2012	Upto 100 Count
		Silver Strip Corrosion	IP 227-1999	Rating 0 to 4
		Particulate Contamination (Millipore)	IP 216-2012	0.01 mg/L to 0.50 mg/L
2.	HSD, HFHSD	Acidity Total	IS 1448 (Part 2): 2007 IP 1-2012 ASTM D 664-17	Upto 0.5 mg KOH/gm
		Cetane Index (Calculated)	IS 1448 (Part 9): 2013 IP 380-2012 ASTM D 4734-01(2013)	42 to 65
		Water Content by Karl Fisher	ASTM D 6304-16E1	1 to 500 mg/L
3.	FO, Lube	Acid Number	IS 1448 (Part 2) IP 177 ASTM D 664-17	Upto 150 mg KOH/gm
4.	SKO, HSD, LDO, FO	Acidity Inorganic	IS 1448 (Part 2): 2007 IP 182-2012	Upto 0.01 mgKOH/gm

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5.	Jet A-1, JP-5, AV GAS 100 LL	Aniline Point	IS 1448 (Part 3): 2007 IP 2-2012 ASTM D 611-2016	57 °C to 72 °C
		Freezing Point	IS 1448 (Part 11): 2010 IP 435-2012 ASTM D 5972-16	(-) 70 to 0 °C
6.	Jet A-1, JP-5, NAPHTHA, MTO	Aromatics	IS 1448 (Part 23): 2010 IP 156 -2012 ASTM D 1319-15	5 % to 35 % V/V aromatics
		Olefins	IS 1448 (Part 23): 2010 IP 156-2012 ASTM D 1319-15	0.3 % to 5.5 % V/V Olefins
7.	HSD, HFHSD , LDO, FO	Ash Content	IS 1448 (Part 4): 2007 IP 4-2012 ASTM D 482-13	0.001 % to 0.18 % m/m
		Ramsbottom Carbon Residue	IS 1448 (Part 8): 2012 IP 14-2012 ASTM D 524-15	0.01 % to 30 % m/m
		Micro Carbon Residue	ASTM D 4530-15	0.01 % to 20 % m/m, Max
8.	Lube Oil	Ash Content (Sulphated)	IS 1448 (Part 4): 2007 ASTM D 874-13A	0.005 % to 0.02 % m/m
		Flash Point (COC)	IS 1448 (Part 69): 2003 IP 36-2012 ASTM D 92-16B	79 °C to 400 °C
9.	Jet A-1, JP-5, AV GAS 100 LL, MS, SKO, HSD, HF HSD, LDO, MTO	Copper Strip Corr. Test	IS 1448 (Part 15): 2004 IP 154-2012 ASTM D 130-12	Rating 1a to 4c
10.	HSD, HFHSD, LUBE	Colour (ASTM)	IS 1448 (Part 12): 2004 IP 96-2012 ASTM D 1500-12 (2017)	0.5 to 8.0 scale
11.	SKO, Jet A-1, NAPHTHA	Colour-Saybolt	IS 1448 (Part 14): 2008 ASTM D 156-15	Scale Range-(-)16 to +30

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12.	FO, LDO, HSD, HFHSD, MS, NAPHTHA	Calorific Value (Calculated)	IS 1448 (Part 7): 2010	10100 cal/gm to 11510 cal/gm
13.	FO	CCAI - Calculated Carbon Aromaticity Index	ISO 8217-2017 Annexure F	800 to 1200
		Asphaltene	IP 143-2012 ASTM D 6560-12	0.1 % to 30 % m/m
14.	Jet A-1, JP-5	Density by Hydrometer	IS 1448 (Part 16): 2007	0.775 g/cm <sup>3</sup> to 0.840 g/cm <sup>3</sup>
15.	AV GAS 100LL, MS, NAPHTHA		IP 160-2012	0.650 g/cm <sup>3</sup> to 0.750 g/cm <sup>3</sup>
16.	SKO, HSD, HFHSD, LDO, MTO		ASTM D 1298-12B (2017)	0.750 g/cm <sup>3</sup> to 0.850 g/cm <sup>3</sup>
17.	FO, LSHS			0.900 g/cm <sup>3</sup> to 0.950 g/cm <sup>3</sup>
18.	Jet A-1, JP-5, AV GAS 100LL, MS, NAPHTHA, SKO, HSD		Density by Density Meter (Auto)	IP 365-2012 D 4052-16
19.	Jet A-1, JP-5, AV GAS 100 LL, MS, SKO, NAHPHTHA, HSD & HFHSD	Distillation (Auto / Manual)	IS 1448 (Part 18): 2006 IP 123-2012 ASTM D 86-17	<b>Distillation Temp.</b> 35 °C to 400 °C <b>Distillation Recovery</b> 1 to 100 vol %
20.	Jet A-1, JP-5, AV GAS 100LL, NAPHTHA	Existent Gum	IS 1448 (Part 29): 2010 IP 131-2012 ASTM D 381-12 (2017)	Upto 10 mg/100ml
	MS	Gum Content		2 gm/m <sup>3</sup> to 100 gm/m <sup>3</sup>
		Research Octane Number (RON)	IS 1448 (Part 27): 2013 D 2699-18	80 to 100
21.	Jet A-1	Electrical Conductivity	IS 1448 (Part 148): 2002 IP 274-2012 ASTM D 2624-15	50 ps/m to 600 ps/m

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		Naphthalene in ATF	IS 1448 (Part 118): 2007 ASTM D 1840-07 (2017)	0.01 to 3.5 % by Vol
		Water Detecting Capsule (WDC)	DGCA Approved method-5-465/2011-A1 (2) Dt. 30.09.2016	5 mg/L to 30 mg/L
22.	Jet A-1, JP-5, SKO, HSD, MTO	Flash Point (Abel)	IS 1448 (Part 20): 2008 ISO 170-2012	(-) 5 to 66.5° C
23.	LDO, HSD, HFHSD, FO, LSHS, MTO, JP 5	Flash Point (PMCC)	IS 1448 (Part 21): 2012 IP 34-2012 ASTM D 93-16A	40 to 150 °C
24.	HSD, Jet A-1, JP-5	Kinematic Viscosity	IS 1448 (Part 25): 2007 IP 71-2012 ASTM D 445-17A	1.5cSt to 8 cSt @ 40° C
25.	LDO, FO			1 cSt to 10 cSt @ (-20)°C
26.	Lube Oil			2.5 cSt to 15.7 cSt @50°C 80 cSt -180 cSt @ 50°C 25 to 150 @ 40 °C 2.0 to 20 @ 100 °C
27.	HSD, HFHSD, LDO, FO, LSHS	Pour Point	IS 1448 (Part 10): 2013 IP 15-2012 ASTM D 97-17B	-18 °C to 45 ° C
28.	HSD, LDO, FO	Sediments by Extraction	IS 1448 (Part 30): 2013 IP 53-2012 ASTM D 473 -07(2017) E1	0.01 % to 0.25 % M
		Water Content by Dean & Starke	IS 1448 (Part 40): 2010 IP 74-2012 ASTM D 95-13E1	Upto 0.05 10 % V / V
29.	Jet A-1, JP-5, SKO	Smoke Point	IS 1448 (Part 31): 2008 IP 57-2012 ASTM D 1322-15e1	15 to 30 mm
30.	MS , NAPHTHA/ AV GAS 100 LL/ HSD/ HF HSD/ SKO /Jet A-1/ LDO/ FO	Sulphur By XRF	IP 336-2012 ISO 20847 ASTM D 4294	0.0017 % to 4.6 % m

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31.	Jet A-1,JP-5, AVG 100LL, K-60	Specific Energy	IS 1448 (Part 6): 2007 ASTM D 3338/D 3338 M-09 (2014) e2	40 MJ/kg to 65 MJ/kg
		Water Reaction of Aviation Fuel	IS 1448 (Part 42): 2010 IP 289-2012 ASTM D 1094-07 (2013)	Interface Rating 1 to 3
32.	MS, AVG100LL	Vapour Pressure Manual Method	IS 1448 (Part 39): 2012	20 kPa to 70 kPa

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