

Laboratory **Quality Control Laboratory, Numaligarh Refinery Limited, Golaghat, Assam**

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

Certificate Number **TC-7044 (in lieu of T-0752)**

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Validity **11.03.2018 to 10.03.2020**

Last Amended on **16.03.2018**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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CHEMICAL TESTING

I.	PETROLEUM AND PRODUCTS			
1.	HSD, Kerosene	Acidity, Inorganic	IS 1448 P:2 RA 2013 IP 182 (2006)	0 to 0.5 mg KOH/g
2.	HSD	Acidity, Total	IS 1448 P:2 RA 2013 IP 1 (2004)	0 to 0.5 mg KOH/g
3.	ATF	Acidity, Total	IS 1448 P:113 RA 2016 IP 354 (2009) ASTM D 3242 (2011) RA 2017	0.001 mg KOH/g to 0.5 mg KOH/g
4.	Naphtha, MS, ATF	Aromatics	IS 1448 P:23 RA 2016 IP 156 (2008) ASTM D 1319 (2015)	2.0%V to 45 %V
5.	MS	Benzene Content	ASTM D 3606 (2010)	0.1%V to 5 %V
6.	Kerosene	Burning Quality	IS 1448 P:5 RA 2013 IP 10 (2012)	1 mg/kg to 50 mg/kg
7.	LPG	Copper Corrosion Test	IS 1448 P:152 (2004) ASTM D 1838 (2016)	1a to 4b
8.	ATF, MS, Kerosene, HSD	Copper Corrosion Test	IS 1448 P:15 RA 2016 IP 154 RA 2013 ASTM D 130 (2012)	1a to 4b
9.	Kerosene, ATF	Colour (Saybolt)	IS 1448 P:14 RA 2013 ASTM D 156 (2015)	-16 to + 30
10.	ATF, MS, HSD, Kerosene, Naphtha, Crude Oil	Density by Hydrometer	IS 1448 P:16 (2014) IP 160 (1999) ASTM D 1298 (2012) RA 2017	0.680 gm/cc to 1.000 gm/cc
11.	Naphtha, MS ATF, Kerosene, HSD	Distillation a) Temperature b) Volume	IS 1448 P:18 RA 2016 IP 123 (2014) ASTM D 86 (2017)	30°C to 400 °C 0 to 100%

Sangeeta Negi
Convenor

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Program Director

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12.	ATF, Naphtha, MS	Existent Gum	IS 1448 P:29 RA 2016 IP 131 (1999) ASTM D 381 (2012) RA 2017	0.2 mg/100ml to 100 mg/100ml
13.	ATF	Electrical Conductivity	IS 1448 P:148 RA 2013 IP 274 (2009) ASTM D 2624 (2015)	1 pS/m to 1000 pS/m
14.	ATF, HSD, Kerosene	Flash Point (Abel)	IS 1448 P:20 RA 2013 IP 170 (2014)	19°C to 70 °C
15.	Naphtha	C/H Ratio	IS 1448 P:7 RA 2016	5.0 to 6.0
		Calorific value	IS 1448 P:7 RA 2016	10,500 cal/gm to 12,000 cal/gm
16.	ATF	Kinematic Viscosity @ -20°C	IS 1448 P:25 RA 2013 IP 71(1995) RA 2004 ASTM D 445 (2017A)	1 cSt to 10 cSt
17.	HSD	Kinematic Viscosity @ 40°C	BIS IS 1448 P:25 RA 2013 IP 71(1995) RA 2004 ASTM D 445 (2017A)	1 cSt to 15 cSt
18.	ATF	Naphthalene Content	IS 1448P:118 RA 2013 ASTM D 1840 (2013)	0.1%V to 5 %V
19.	MS	Research Octane Number, RON	IS 1448 P:27 (2013) IP 237 (2014) ASTM D 2699 (2017)	60 to 100
		Oxidation stability	IS 1448 P : 28 RA 2013 IP 40 (2014) ASTM D 525 (2012A)	Upto 300 minutes
20.	HSD	Pour Point	IS 1448 P:10 (2013) IP 15 (2014) ASTM D 97 (2017A)	-18°C to +18 °C
		Sediments	IS 1448 P:30 (2013) IP 53 (2014) ASTM D 473 (2014)	0.01%w to 10 %w

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21.	ATF, Kerosene	Smoke Point	IS 1448 P:31 2017 IP 57 (2013) ASTM D 1322 2015e1	1mm to 50 mm
22.	HSD	Oxidation stability	IS 1448 P:154 (2012) IP 388 (2004) ASTM D 2274 (2014)	1 g/m ³ to 30 g/m ³
23.	MS, Naphtha	Vapour Pressure Reid	IS 1448 P:39 (2012) IP 69 (2014) ASTM D 323 2015a	0.1 kg/cm ² to 8 kg/cm ²
24.	HSD	Water content by Dean & Stark	IS 1448 P:40 (2015) IP 74 (2000)RA 2014 ASTM D 95 2013e	0.05 %V to 10 %V
25.	ATF	Water Reaction	IS 1448 P:42 (2015) IP 289 (2006) ASTM D 1094 (2013)	1 to 4
		Micro Separometer rating	IS 1448P:142 RA 2016 ASTM D 3948 (2014)	50 to 100
		JFTOT (Tube Rating)	IS 1448 P:97 (2015) IP 323 (2016) ASTM D 3241 2016a	Upto 4
		Pressure Differential mm Hg		Upto 50
26.	LPG	Vapour Pressure	IP 69 (2014) ASTM D 1267 (2012)	10 kPa to 900 kPa
		Volatility	IP 410 (2008) ASTM D 1837 (2011)	-30 °C to 50 °C
27.	ATF	Lubricity of ATF	ASTM D 5001 (2014)	0.50 mm to 0.90 mm
28.	HSD	Lubricity of Diesel	IS 1448 P:149 (2017) IP 450 (2000) ASTM D 6079 (2011) RA 2016	200 µm to 800 µm
29.	Crude Oil	Water content	IP 358 (2003) ASTM D 4006 (2012) 2016e1	0.05 v% to 5.00 v%

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30.	ATF	Silver Corrosion Test	IP 227 (1999)	Upto 4
		Particulate Contamination	IP 423 (2010) ASTM D 5452 (2012)	0.01 mg/l to 10 mg/l
31.	HSD	Cetane Number	IS 1448 P : 9 (2013) IP 41 2017 ASTM D 613 2017b	30 to 70
		Total Contaminants	IP 440 (2014)	1 mg/kg to 30 mg/kg
32.	HSD, MS, Naphtha	Sulphur by EDXRF	IS 1448 P:153 (2012)/ ISO 13032 IP 336 (2014) ASTM D 4294 (2010) 2016e1	17 mg/kg to 1.0 %wt. 2.0 mg/kg to 50 mg/kg
		Sulphur by WDXRF	IP 447 (2008) RA 2013 ASTM D 2622 2016	3 mg/kg to 1.0 %wt.
33.	ATF	Freezing point by Laser method	IP 529 2016 ASTM D 7153 2015e1	-80 °C to 20 °C
34.	HSD	Ash Content	IS 1448 P:4 RA 2013 IP 4 (2012) ASTM D 482 (2013)	0 to 1.0 %W
II.	POLLUTION & ENVIRONMENT			
1.	Industrial Effluent	pH	IS 3025, P:11, 2002	2 to 13
		Oil and Grease	IS 3025, P:39, 2003	0.1 mg/L to 100 mg/L
		Sulphide	IS 3025, P:29, 2003	0.01 mg/L to 2.0 mg/L
		Phenol	IS 3025, P:43, 2003	0.05 mg/L to 2.0 mg/L
		Total suspended solids	IS 3025, P:17, 2002	1 mg/L to 100 mg/L
		Bio chemical Oxygen Demand	IS 3025, P:44, 2003	1 mg/L to 50 mg/L
		Chemical Oxygen Demand	IS 3025, P:58, 2006	25 mg/L to 500 mg/L