

Laboratory	Quality Assurance Laboratory, BPCL (Mumbai Refinery), Mahul, Mumbai, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	13.04.2016
Certificate Number	T-0534	Valid Until	12.04.2018
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S. No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I.	PETROLEUM AND PRODUCTS			
1.	HSD, SK, LDO, FO, LSHS	Acidity: Inorganic, mg KOH/g	IS IS 1448 (Part 2C): (2013)	0 to 0.5
2.	HSD	Acidity: Total, mg KOH/g	IS 1448 (Part 2B): (2013)	0.001 to 0.5
3.	ATF	Acidity: Total, mg KOH/g	IS 1448 (Part 113): (2011)	0.001 to 0.02
4.	ATF, Naphtha, MT, FGH, SBP, MS	Aromatics, Olefins, Saturates % V	IS 1448 (Part 23): (2011)	A:0.2 % V to 42 % V, 0:0.2 % V to 21 % V
5.	HSD, LDO, FO, LSHS	Ash Content, % W	IS 1448 (Part 4): (2013)	0.001 to 0.25
6.	MS	Benzene Content, % V	IS 1448 (Part 104): (2008) ASTM D 3606: 2010 ASTM D 5580: 2015	0.1 to 5.0
7.	FGH	Bromine Number	IS 1448 (Part 44): (2013)	0.1 to 2
8.	SK	Burning Quality, mg/Kg	IS 1448 (Part 5): (2013)	5 to 25
9.	HSD, LDO	Carbon Residue: Ramsbottom, % W	IS 1448 (Part 8): (2012) ASTM D 524: 2010	0.01 to 5.0
10.	LSHS	Carbon Residue: CCR, % W	ASTM D 189: 2014	0.1 to 25
11.	HSD, LDO, FO, LSHS	Carbon Residue: Micro Carbon Residue, % W	ASTM D 4530: 2011	0.1 to 30
12.	HSD	Cetane Index (Cal)	ASTM D 4737: 2010	30 to 65

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13.	HSD	CFPP, °C	IS 1448 (Part 110): (2013)	(-)20 to (+)30
14.	SBP, ATF, MS, LDO, SK, HSD, FGH, MT	Copper Corrosion Test	IS 1448 (Part 15): (2011) ASTM D 130: 2012	1 a to 4 c
15.	LPG	Copper Corrosion Test	ASTM D 1838: 2014A	1 a to 4 c
16.	SK, FGH, SBP, MT, Naphtha	Colour: Saybolt	IS 1448 (Part 14): (2013) ASTM D 156: 2012	(-)16 to (+)30
17.	HSD	Colour: ASTM	IS 1448 (Part 12): (2013) IP 196 ASTM D 1500: 2012	0.5 to 8.0
18.	ATF, MS, HSD, SK, FO, LDO, FGH, MT, Naphtha, LSHS, SBP	Density: Relative Density & Density by Hydrometer, g/ml	IS 1448 (Part 16): (2013) ASTM D 1298: 2012	0.60 to 1.0
19.	FGH, SBP, SK Naphtha, MS, HSD	Distillation: IBP/FBP °C, Rec, % V	IS 1448 (Part 18): (2011) ASTM D 86: 2012	15 to 300
20.	ATF, FGH	Doctor Test	IS 1448 (Part 19): (2013)	(+)ve / (-)ve
21.	MS	Existent Gum, g/m3,	IS 1448 (Part 29): (2011) ASTM D 381: 2012	1 to 100
22.	ATF, SBP, Naphtha, MT	Existent Gum, mg/100ml	IS 1448 (Part 29): (2011) ASTM D 381: 2012	0.2 to 10

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23.	ATF	Electrical Conductivity, ps/m	ISO 6297: 1997 IP 274 ASTM D 2624: 2009	5 to 1000
24.	ATF	Freezing Point, °C	IS 1448 (Part 11): (2011)	(-)70 to (+)20
25.	ATF	Freezing Point, °C: Laser Method	ASTM D 7153: 2015	(-)70 to 20
26.	ATF, HSD, SK, MT	Flash Point: Abel, °C	IS 1448 (Part 20): (2013)	10 to 70
27.	HSD, LDO, FO, LSHS	Flash Point: PMCC, °C	IS 1448 (Part 21): (2012)	10 to 270
28.	Bitumen	Flash Point: COC, °C	IS 1448 (Part 69): (2013)	110 to 370
29.	ATF	Viscosity: Kinematic Viscosity @ -20°C	IS 1448 (Part 25): (2007)	1 to 10
30.	HSD, LDO	Viscosity: Kinematic Viscosity @ 40°C	ASTM D 7042: (2014)	1 to 18
31.	FO	Viscosity: Kinematic Viscosity @ 50°C	IS 1448 (Part 25): (2013)	40 to 1000
32.	LSHS	Viscosity: K V @ 100°C	IS 1448 (Part 25): (2013)	4 to 500
33.	Bitumen	Viscosity: K V @ 135°C	IS 1206: (1978) IS 1206: (1978)	30 to 2000

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34.	Bitumen	Viscosity: Absolute Viscosity@60°C		50 to 5000
35.	Bitumen	Viscosity: Absolute Viscosity@60°C on RTFOT residue	IS 1206: (1978)	5000 to 15000
36.	MS	Lead Content Lead by XRF, g Pb/litre	IP 352	0.001 to 0.01
37.	FGH	Lead, Pb g/litre	IS 3470: (1966) Appendix C	0.02 to 0.1
38.	ATF	Naphthalene Content, %V	IS (Part 118): (2013)	0.1 to 5
39.	FGH	Non Volatile Matter, g/100ml	IS 3470: (1966) Appendix E	0.0001 to 0.1
40.	MS	Octane Number: RON	IS 1448 (Part 27): (2013)	60 to 100
41.	MS	Octane Number: MON	IS 1448 (Part 26): (2013)	60 to 100
42.	HSD,LDO	Pour Point, °C	ASTM D 5950: (2014)	(-)15 to (+)60
43.	HSD, LDO, FO, LSHS	Pour Point, °C	IS 1448 (Part 10): (2013)	(-)15 to (+)90
44.	HSD, LDO, FO, LSHS	Sediments: Sediments by Extraction, % W	IS 1448 (Part 30): (2013)	0.001 to 1.0
45.	ATF	Silver Corrosion Test	IP 227	0 to 4

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46.	ATF, SK	Smoke Point, mm	IS 1448 (Part 31): (2013) ISO 3014: 1993 ASTM D 1322: 2012	10 to 30
47.	ATF	Specific Energy (Cal) MJ/Kg	ASTM D 3338: 2010	41 to 45
48.	MS, Naphtha	RVP, psi Reid	IS 1448 (Part 39): (2012) ASTM D 323: 2008	0.1 to 16 psi
49.	LPG	Vapour Pressure, Kpa	ASTM D 1267: 2012	300 to 1400
50.	MS, Naphtha	RVP, kpa Mini Method	ASTM D 5191: 2012	(1 psi to 18.6 psi) 7 kPa to 130 kPa
51.	ATF, SK, MS, HSD, LDO, FO, LSHS, Naphtha, MT	Sulphur: Sulphur by EDXRF, %W	IS 1448 (Part 153): (2012) ISO 20847: 2004 ASTM D 4294: 2010	0.001 to 5
52.	LPG / C3	Sulphur: Mercaptan, %W	IP 272: 2012	0.0001 to 0.01
53.	ATF, Naphtha	Sulphur: Sulphur Mercaptans (Potentiometric), %W	IS 1448 (Part 109): (2011) IP 342: 2000	0.0004 to 0.01
54.	MS	Sulphur: Total Sulphur, mg/Kg	ASTM D 5453: 2012	1 to 300
55.	FGH	Sulphur: Total Sulphur, mg/Kg	IS 3470: 1966 Appendix.B	1 to 75

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56.	HSD, MS, Naphtha	Sulphur: Sulphur by WDXRF	ISO 14596: 2007 ASTM D 2622: 2010	3 mg/kg to 5.3 % wt.
57.	HSD, MTBE	Water Content: KF Coulometric method mg/Kg	ISO 12937: 2000	0.003 % to 100 %
58.	HSD, LDO, FO, LSHS	Water Content: Dean & Stark, % V	IS 1448 (Part 40): (2011) ASTM D 95: 2013	0.05 to 10
59.	ATF	Water Reaction	IS 1448 (Part 42): (2013)	1 to 4
60.	ATF	MSEP	IS 1448 (Part 142) (2011)	50 to 100
61.	ATF	JFTOT (Tube Rating)	IS 1448 (Part 97): (2013) ISO 6294	0 to 4
62.	ATF	Pressure Differential mm Hg	IS 1448 (Part 97): (2013) ISO 6294	0 to 50
63.	FGH	Phosphates `P', mg/Kg	IS 1448 (Part 54): (2013)	1 to 25
64.	FGH	Chlorides, mg/Kg	IS 3470: (1966) Appendix D	1 to 100
65.	FGH	Reaction on Non-Volatile Residue	IS 3470: (1966) Appendix F	(-)ve/(+)ve
66.	LPG	Hydrogen Sulphide	ASTM D 2420: 2013	Qualitative (Pass/Fail)
67.	Naphtha	Paraffins/Naphthenes, % V/% W (Composition)	ASTM D 5134: 2013/6 ASTM D 730: 2011	1 to 100
68.	Bitumen	Softening Point, °C	IS 1205: (1978)	10 to 80

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69.	Bitumen	Penetration Penetration 1/10 mm	IS 1203: (1978)	5 to 400
70.	Bitumen	Ductility on RTFOT residue, cm	IS 1208: (1978) (RA 1988)	1 to 125
71.	Bitumen	Matter insoluble in Trichloroethylene, %W	IS 1216: (1978)	0.1 to 1
72.	MTBE	Purity, %W	ASTM D 5441: 2013	5 to 100
73.	C3/LPG	Composition	ASTM D 2163: 2014	0.1 to 100
74.	LPG	Volatility, °C	ASTM D 1837: 2011	(-)10 to 10
75.	ATF	Lubricity, mm BOCLE of ATF	ASTM D 5001: 2011	0.5 mm to 0.90 mm
76.	HSD	Lubricity, µm HFRR of Diesel	IS 1448 (Part 149): (2011) ISO 12156-1 ASTM D 6079: 2011	200 µm to 800 µm
77.	Naphtha & ATF	Particulate Contamination, mg/l	ASTM D 5452: 2012	0.01 mg/l to 2.0 mg/l
78.	MS	Oxygenates, %v	ASTM D 4815: 2013	0.1 to 20
79.	MS	Oxidation Stability: Minutes	IS 1448 (Part 28): (2013)	10 to 600
80.	HSD	Oxidation Stability: g/m ³	ASTM D 2274: 2010	1 to 50
81.	HSD	Cetane Number	IS 1448 (Part 9): (2013)	30 to 70

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82.	HSD	Polycyclic Aromatic Hydrocarbons (PAH), % w	IP 391: 2007	0.05 to 30
83.	HSD	Total Contaminants, mg/kg	EN 12662 ASTM D 6591: 2011	1 to 50
84.	BENZENE	Benzene, % mass	IS 534: 2007 Annexure A	0.1 to 99.999
		Non aromatic hydrocarbon S, % mass	IS 534: 2007 Annexure A	0.001 to 0.1
		Toluene, % mass	IS 534: 2007 Annexure A	0.001 to 0.05
		1,4 Dioxane, % mass	IS 534: 2007 Annexure A	0.001 to 0.02
		Density , g/ml	ASTM D 4052-11	0.85 to 0.90
		Colour, Pt-Co Scale	IS 534: 2007 Annexure B	0 to 20
		Thiophene, mg/kg	IS 534: 2007 Annexure H	0 to 2
		Acid wash colour	IS 534: 2007 Annexure J	1 to 5
		Residue on Evaporation, mg/100ml	IS 82 Clause. 8	0.2 to 1
		Bromine Index	ASTM D 5776-14a	1 to 35
85.	TOLUENE	Toluene , % mass	ASTM D 2360-11	0.1 to 99.999
		Colour, Pt-Co scale	IS 8768: 2000	0 to 20
		Density ,g/ml	ASTM D 4052-11	0.85 to 0.90

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	TOLUENE	Non aromatic hydrocarbons % mass	ASTM D 2360-11	0.001 to 0.05
		Benzene, mg/kg	ASTM D 2360-11	1 to 1000
		C8(+)Aromatics, mg/Kg	ASTM D 2360-11	1 to 2000
		Thiophene, mg/Kg	IS 534: 2007 Annexure H	0 to 2
		H ₂ S & SO ₂	IS 537: 2011 Annexure E	Qualitative
		Water content, mg/Kg	ASTM D 6304-07	10 to 10000
-X-X-X-X-X-X-X-X-X-X-X-X-				