

Laboratory Central Laboratory, Reliance Industries Limited, Refinery & Petrochemical Division, Village: Meghpar/ Padana, Taluka: Lalpur, District: Jamnagar, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7092 (in lieu of T-0572)

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Validity 01.07.2018 to 30.06.2020

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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.	Kerosene, Aviation Turbine, Naphtha, Motor Gasoline, Fuel, High Speed Diesel Oil,	Distillation of Petroleum Products	ASTM D86 IS 1448 (P 18)	Boiling Range : 30°C to 390°C
2.	High Speed Diesel Oil	Flash point by PMC	ASTM D93 IS 1448 (P 21)	40°C to 100°C
	Carbon Black Feed Stock, Fuel Oil, HO (Industrial)			40°C to 360°C
3.	High Speed Diesel Oil	Pour Point of Petroleum Products	ASTM D97 IS 1448 (P 10) Sec I & Sec II	Minus 33°C to 60°C
	Carbon Black Feed Stock, Heating Oil (Industrial)			Minus 33°C to 60°C
4.	Aviation Turbine Fuel, Kerosene, Motor Gasoline, High Speed Diesel Oil	Detection of Copper Corrosion from Petroleum Products	ASTM D130 IS 1448 (P 15)	1 to 4c of ASTM Cu corrosion standard
5.	Superior Kerosene, Aviation Turbine Fuel, Naphtha	Saybolt Colour	ASTM D156 IS 1448 (P 14)	White Oils Saybolt Color range from (-)16 to +30
6.	Motor Gasoline, Aviation Turbine Fuel	Gum Content in Fuels	ASTM D381 IS 1448 (Part 29)	0 to 100 mg/100ml
7.	High Speed Diesel Oil, Aviation Turbine Fuel,	Kinematic Viscosity High Speed Diesel @ 40°C	ASTM D445 IS 1448 (Part 25)	1.0 mm ² /s to 7.0 mm ² /s

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Convenor

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	Carbon Black Feed Stock, Fuel Oil, Heating Oil (Industrial)	ATF @ -20°C CBFS @ 50°C & 100°C Fuel Oil @ 50°C Heating Oil @ 50°C		0.2 mm ² /s to 300 000 mm ² /s
8.	High Speed Diesel Oil, Fuel Oil, Crude Oil	Sediment in Crude Oils and Fuel Oils	ASTM D473 IS 1448 (Part 30)	0.00 to 0.40 mass%
9.	High Speed Diesel Oil, Carbon Black Feed Stock	Ash from Petroleum Products	ASTM D482 IS 1448 (Part 4)	0.001 mass% to 0.180 mass%
10.	High Speed Diesel Oil,	RCR of Petroleum Products	ASTM D524 IS 1448 (Part 8)	0.01%wt. to 30.0 %wt.
11.	Gasoline	Oxidation Stability - Induction Period Method	ASTM D525 IS 1448 (Part 28), IP 40	0 to 480 minutes
12.	High Speed Diesel Oil	Cetane Number	ASTM D613 IS 1448 (Part 9)	30 CN to 65 CN
13.	High Speed Diesel Oil, Superior Kerosene	Acidity	ASTM D664 IS 1448 (Part 2)	0.1 mg/g KOH to 150 mg/g KOH
14.	Ortho Xylene, Naphtha, Benzene, Para Xylene,	Acidity	ASTM D847	0 to 1 mg NaOH/100ml
15.	Benzene, Para Xylene, Ortho Xylene,	Acid Wash Colour	ASTM D848	0 to 14 Colour Number
16.	Para Xylene	Copper Strip Corrosion	ASTM D849	1a to 4c ASTM Cu corrosion rating
17.	Para Xylene, Ortho Xylene, Benzene,	Distillation of Industrial Aromatics	ASTM D850	30°C to 250°C
18.	Benzene	Solidification point of Benzene	ASTM D852	4.00°C to 6.00°C

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19.	Motor Gasoline	Potential Gum	ASTM D873, IS 1448 (Part 147)	0 to 20 mg/100ml
20.	Motor Gasoline, Naphtha	Bromine Numbers	ASTM D1159, IS 1448 (Part 44)	0 to 165 g/100g
21.	Benzene, Para Xylene, Ortho Xylene, Naphtha	Colour of clear liquids	ASTM D1209	0 to 60 Pt-Co Color
22.	Polypropylene (PP)	Melt Flow Index	ASTM D1238	Upto 55 g/10 min
23.	Crude Oil, CBFS, HSD, Reduced Crude, Gas Oil Streams, Fuel Oil, Kerosene, Gasoline Streams, Vacuum Residue, Raw Oil, Methanol, Caustic Samples,	Density, Relative Density(Specific Gravity), or API Gravity	ASTM D 1298 IS 1448 (Part 16)	Density 600 kg/m ³ to 1100 kg/m ³ Relative Density 0.6 to 1.1 API Gravity (-)1 to +101
24.	Motor Gasoline, Aviation Turbine Fuel	Hydrocarbon type (FIA)	ASTM D1319 IS 1448 (Part 23)	Arom : 5.0%vol to 99.0 %vol Olefins : 0.3%vol to 55.0 %vol
25.	Aviation Turbine Fuel, Kerosene,	Smoke Point	ASTM D1322 IS 1448 (Part 31), ISO 3014	5 mm to 45mm 15 mm to 30 mm
26.	Naphtha, Ortho Xylene,	Nonvolatile residue in solvents	ASTM D1353 IS 1448 (Part 64)	2.0 wt.ppm to 15 wt.ppm
27.	High Speed Diesel Oil	ASTM Color	ASTM D1500 IS 1448 (Part 12)	0 to 8.0 ASTM Color unit
28.	Petroleum coke	Sulphur	ASTM D 1552	0.5 mass% to 10 mass%
29.	Liquefied Petroleum Gases,	Volatility of Liquefied Petroleum Gases	ASTM D1837, IS 1448 (Part 72)	(-)3.0°C to 5.0°C

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30.	Liquefied Petroleum Gases,	Copper Strip Corrosion	ASTM D1838, IS 1448 (Part 15)	1a to 4c of ASTM Cu corrosion rating
31.	Aviation Turbine Fuel	Naphthalene Hydrocarbons	ASTM D1840, IS 1448 (Part 118)	0.0 to 5.0 %vol
32.	High Speed Diesel Oils	Oxidation Stability	ASTM D2274	0.0 to 15 mg/100ml
33.	Aviation Turbine Fuel	Freezing Point	ASTM D2386 IS 1448 (Part 11), IP 16/15	(-70) °C to(-20) °C
34.	High Speed Diesel Oil	Cloud Point and Pour point	ASTM D2500, IS 1448 (Part 10) Sec I & Sec II	Cloud point: Below 49°C Pour point:-33°C to 60°C
35.	Aviation Turbine Fuel	Electrical Conductivity	ASTM D2624, IP 274	0 to 800 pS/m / 1 pS/m to 2000 pS/m
36.	Motor Gasoline	Research Octane Number	ASTM D2699 IS 1448 (Part 27)	40 RON to 120 RON
37.	Motor Gasoline	Motor Octane Number	ASTM D2700, IS 1448 (Part 26)	40 MON to 120 MON
38.	High Speed Diesel Oil	Water and Sediment in Middle Distillate Fuels	ASTM D2709	0.04 ml to 0.150ml
39.	Propylene	Hydrocarbon Traces in Propylene Concentrates	ASTM D2712	5 mole.ppm to 500 mole.ppm
40.	Motor Gasoline, Naphtha,	Trace Quantities of Sulphur in Light Liquid Petroleum Hydrocarbons	ASTM D3120	3 mg/kg to 100 mg/kg
41.	Aviation Turbine Fuel, Kerosene, Naphtha,	Mercaptan	ASTM D3227 IS 1448 (Part 109)	0.0003 mass%to 0.01 mass%
42.	Gasoline	Lead	ASTM D3237	2.5 mg/L to 25 mg/L
43.	Aviation Turbine Fuel	Thermal Oxidation Stability	ASTM D3241 IS 1448 (Part 97)	Rating <3 0 to 25 mm Hg
44.	Aviation Turbine Fuel	Acidity	ASTM D3242, IS 1448 (Part 113)	0 to 0.100mgKOH/g

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45.	Liquefied Petroleum Gases,	Sulphur	ASTM D3246	1.5 wt.ppm to 100 wt.ppm
46.	Motor Gasoline	Benzene	ASTM D3606	Benzene: 0.1 vol% to 5.0 vol%
47.	Ortho Xylene,	Analysis of o-Xylene	ASTM D3797	> 95 % wt
48.	Aviation Turbine Fuel	Water Separation	ASTM D3948 IS 1448 (P 142)	60 to 100 in the MSEP scale
49.	Crude Oil, Desalted Crude,	Water and Sediment	ASTM D4007 IS 1448 (Part 41)	0.025%vol to 1.0%vol
50.	Kerosene, Aviation Turbine Fuel	Density and Relative Density	ASTM D4052	0.6800 g/ml to 0.9700 g/ml
51.	Kerosene, Aviation Turbine Fuel, Crude Oil, Carbon Black Feed Stock, High Speed Diesel Oil	Sulphur	ASTM D4294 IP 336	0.0150 mass% to 5.00 mass%
52.	Benzene,	Analysis of Benzene	ASTM D4492	99.8 wt% and above
53.	Carbon Black Feed Stock, Fuel Oil	Carbon Residue (Micro Method)	ASTM D4530	0.1 mass% to 30 mass%
54.	Naphtha Streams, Carbon Black Feed Stock, Para Xylene, Ortho Xylene, Diesel Oil, Vacuum Gas Oil, Coker Feed, Carbon Black Feed Stock(CBFS)	Trace Nitrogen	ASTM D4629	0.3 mg/kg to 100 mg/kg
55.	Naphtha, Motor Gasoline	MTBE, ETBE, TAME, DIPE, tertiary-Amyl Alcohol and C1 to C4 Alcohols	ASTM D4815	Ether : 0.2 mg/kg to 20 mass% Alcohol : 0.2 mass%to 12 mass%

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56.	Crude Oil, Naphtha, High Speed Diesel Oil	Organic Chloride	ASTM D4929	1 microgram/g to 5 microgram/g
57.	Liquefied Petroleum Gases, Gasoline(export), Kerosene Streams, Diesel Oil,	Active Sulphur Species	ASTM D4952 IP-30	Qualitative
58.	Aviation Turbine Fuel	Lubricity	ASTM D5001	0.50 mm to 0.95 mm(WSD)
59.	Motor Gasoline	Vapour Pressure	ASTM D5191	7v to 130 kpa
60.	Aviation Turbine Fuel	Particulate contaminant	ASTM D5452	0.1mg/liter to 1.0mg/liter
61.	High Speed Diesel. Naphtha, Motor Gasoline	Sulphur	ASTM D5453	1 mg/kg to 8000 mg/kg
62.	Gasoline	Benzene and Toluene, Ethyl Benzene, Xylenes, C9 & Heavier Aromatics, And Total Aromatics.	ASTM D 5580	Benzene: 0.1% to 5.0%, Toluene: 1% to 15%, Individual C8Aromatics: 0.5 %to 10%, Total C9 Aromatics & Heavies: 5% to 30%, Total Aromatics: 10% to 80%.
63.	Aromatic Hydrocarbons	Bromine Index	ASTM D5776	Below 500 mg/100g
64.	Petroleum Coke,	Gross Calorific Value	ASTM D5865, IS 1448 (Part 6)	3000 kcl/kg to 10000 kcl/kg
65.	High Speed Diesel Oil (Domestic)	Lubricity	ASTM D6079, ISO 12156-1	100 µm to 650 µm
66.	Polypropylene (PP)	Yellowness Index	ASTM D6290	(-) 7.0 to 20.0
67.	High Speed Diesel Oil,	Cold filter plugging point	ASTM D 6371 IS 1448 (Part 110)	(-) 30°C to 30°C

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68.	Carbon Black Feed Stock	Asphaltenes	ASTM D6560, IP 143, IS 1448 (Part 22)	0.50m/m to 30.0% m/m
69.	Petroleum coke	Proximate analysis	ASTM D 7582	Moisture: 0.1%wt to 0.5 %wt. Ash content: 0.10wt% to 1.0wt% VM : 7.0 wt% to 15.0 wt%
70.	Superior Kerosene, Aviation Turbine Fuel,	Flash Point (Abel Closed Cup)	IS 1448 (Part 20) IP 170	(-)-18°C to 70°C/ (-)-30°C to 70°C
71.	Petroleum Coke,	Moisture content	IS 1448 (Part 132)	1.0%wt to 10.0 %wt (As rec) 0.10%wt to 0.90%wt (Aft Ini Dry)
72.	Petroleum Coke	Hardgrove Grind ability Index	IS 4433	37 to 89
73.	High Speed Diesel Oil	Total Sediment	UOP 413 CLJQCD\UOP413	0.0 to 15 mg/100ml
74.	Aromatic Product Ortho Xylene Para Xylene Benzene	Water	UOP 481, CLJQCD\UOP481, ASTM D 6304	3 ppm to 7 mass%
75.	Liquefied Petroleum Gases,	C2 Hydrocarbons C3 Hydrocarbons C4 Hydrocarbons C5 Hydrocarbons	UOP 539, CLJQCD\UOP539	0.1 mol% to 99.9 mol%
76.	Para Xylene	Impurities in High Purity p-Xylene	UOP 720 CLJQCD\UOP720	0.002 mass %to 0.200 mass%
77.	Heavy Aromatics	Aromatics	UOP 744 CLJQCD\UOP744	Range : 0.01 %wt and above
78.	Para Xylene, Naphtha, Diesel Oil,	Chloride in Petroleum Distillates	UOP 779 CLJQCD\UOP779	1 wt.ppm to 1000 wt.ppm

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79.	Crude oil	Salt content	IP 77 / 72 IS 1448 (Part 115)	0.002 %wt to 0.02 %wt
80.	High Speed Diesel Oil	Aromatic Hydrocarbon Types in Middle Distillates	IP 391	7 %wt to 42 %wt
81.	Liquefied Petroleum Gases	Density and Vapour Pressure	IP 432	Density:490 kg/m ³ to 610 kg/m ³ Vapour Pressure 450 kPa to 1550kPa
82.	Gasoline	Lead	IP 352	0.05 g Pb/1000ml to 5 g Pb/1000ml
II.	WATER			
1.	Potable & Service water	Turbidity	IS 3025 (Part 10)	0.05NTU to 1000NTU
		pH	IS 3025 (Part 11)	2 to 12
		Total Dissolved Solids	IS 3025 (Part 16)	3mg/L to 2000mg/L
		Total Suspended Solids	IS 3025 (Part 17)	2.5mg/L to 100mg/L
		Total Hardness	IS 3025 (Part 21)	1mg/L to 1000mg/L
		Sulphates	IS 3025 (Part 24)	1mg/L to 400mg/L
		Sulphide content	IS 3025 (Part 29)	0.1mg/L to 20mg/L
		Chloride	IS 3025 (Part 32)	3mg/L to 1000mg/L
		Ammonical Nitrogen	IS 3025 (Part 34)	0.5mg/L to 100mg/L
		Oil and Grease	IS 3025 (Part 39)	4.0mg/L to 100mg/L
2.	Waste Water (Treated Effluent Water)	Turbidity	IS 3025 (Part 10)	0.05NTU to 1000NTU
		pH	IS 3025 (Part 11)	2 to 12
		Total Dissolved Solids	IS 3025 (Part 16)	3mg/L to 2000mg/L
		Total Suspended Solids	IS 3025 (Part 17)	2.5mg/L to 1000mg/L
		Total Hardness	IS 3025 (Part 21)	1mg/L to 1000mg/L
		Sulphates	IS 3025 (Part 24)	1mg/L to 200mg/L
		Sulphide content	IS 3025 (Part 29)	0.1mg/L to 20mg/L
		Chloride	IS 3025 (Part 32)	3mg/L to 1000mg/L

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		Ammonical Nitrogen	IS 3025 (Part 34)	0.5mg/L to 100mg/L
		Oil and Grease	IS 3025 (Part 39)	4.0mg/L to 2000mg/L
		Biological Oxygen Demand	APHA 5210D	1mg/l to 700mg/L
		Chemical Oxygen Demand	APHA 5220D	10mg/L to 3000mg/L