

Laboratory QA Laboratory, Bharat Petroleum Coporation Limited,
Borkhedi Village, Dist. Nagpur, Maharashtra

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7173 (in lieu of T-3999)

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Validity 16.06.2018 to 15.06.2020

Last Amended on --

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 PRODUCTS			
1.	Motor Gasoline (MS)	Appearance	BPCL/WI-02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI-03, Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Density at 15°C	IS:1448 (Part-16) / ASTM D1298	660.0 kg/m ³ to 1000 kg/m ³ 0.660 gm/ml to 1.0 gm/ml
		Aromatics Content	IS 1448 (Part-23) IP 156-08/ ASTM D 1319-15	5 % to 50 % by volume
		Olefins Content		0.3% to 40% by volume
		Cu Strip Corrosion Rating	IS:1448 (Part-15)/ ASTM D 130-12	Qualitative (1a to 4c) by rating
		Distillation: -Temperature (FBP) -Volume Recovery	IS:1448 (Part-18) / ASTM D 86 / IP:123	30°C to 400°C Up to 100%
		Gum Content (Solvent Washed)	IS:1448(Part-29) / IP 131/ ISO 6246/ ASTM D 381	Up to 40 g/m ³
		Ethanol Content	IS 2796 (Annexure c)	Up to 20% by Volume
		Research Octane Number (RON)	IS 1448 (Part-27)/ ASTM D2699	80 units to 100 units
		Total Sulphur	IS 1448 (P:153)/ ISO 20847/ ASTM D4294	0.0017% to 5.0% by mass
		Total Sulphur	ASTM D3120	3 mg/kg to 1000 mg/kg
		Unwashed Gum	IS:1448(Part-29) / IP 131/ISO 6246/ ASTM D 381	1 mg/kg to 800 mg/kg

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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
2.	High Speed Diesel			
a.	High Speed Diesel (HSD)	Appearance	BPCL/WI-02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI-03, Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Cetane Index, (Calculated)	ASTM D-4737/ IP 380	40 to 65
		Cu Strip Corrosion	IS:1448 (Part-15)/ ASTM D 130	Qualitative (1a to 4c) by rating
		Density at 15 °C	IS:1448 (Part-16) / ASTM D1298 / ASTMD 4052	660.0 kg/m ³ to 1000 kg/m ³ 0.660 gm/ml to 1.0 gm/ml
		Distillation: -Temperature (FBP) -Volume Recovery	IS:1448 (Part-18) / ASTM D 86 / IP:123	30 °C to 400°C Up to 100%
		Flash Point (Abel)	IS 1448 (Part-20) IP 170	-19°C to 70°C
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445/ IP 71 (Sec.1)/ ASTM D7042	1 cSt to 300 cSt
		Pour Point	IS:1448 (Part-10) / ASTM D97 / IP 15-95/ ISO 3016-1994	-39 °C to +36 °C
		Total Sulphur	IS:1448 (Part-153) / ASTM D:4294 /ISO 20847/ ISO 8754 (IP:336)	0.0017% to 4.6% by mass
		Water Content	IS 1448 (Part-40) / ASTM D 95-13e/ ISO 3733/IP 74	Up to 25% by Volume.
b.	High Flash High speed Diesel (HFHSD)	Flash Point (Pensky Marten)	IS 1448 (Part-21) / ASTM D 93 / IP 34	40°C to 300°C
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445 / ASTMD 7042 IP 71 (Sec.1)	1.0 cSt to 300 cSt

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		Pour Point	IS 1448 (Part-10) / ASTM D97 /IP:15	(-) ³⁹ °C to 36 °C
3.	Light Diesel Oil (LDO)	Cu Strip Corrosion	IS:1448(Part-15) / ASTM D 130	Qualitative (1a to 4c) by rating
		Density at 15 °C	IS:1448 (Part-16) / ASTM D1298 / ASTMD 4052	660.0 kg/m ³ to1000 kg/m ³ 0.660 gm/ml to1.0 gm/ml
		Flash Point (Pensky Marten)	IS 1448 (Part-21) / ASTM D 93-16 / IP 34-17	40 °C to 300°C
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445 / IP 71 (Sec.1)	1.0 cSt to 30 cSt
		Pour Point	IS 1448 (Part-10) / ASTM D97 /IP:15	(-) ³⁹ °C to 36 °C
		Flash Point (Pensky Marten)	IS 1448 (Part-21) / ASTM D 93 / IP 34	40°C to 300°C
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445 / IP 71 (Sec.1)	1.0 cSt to 1600 cSt
		Pour Point	IS 1448 (Part-10) / ASTM D97 /IP:15/ ISO 3016	(-) ³⁹ °C to 36 °C
		Total Sulphur	IS:1448 (Part-153) / ASTM D:4294 /ISO 20847/ ISO 8754 (IP:336)	0.0017% to 4.6% by mass
		Water Content	IS 1448 (Part-40) / ASTM D 95-13e/ ISO 3733/IP 74	Up to 25% by Volume
4.	Fuel Oil (FO)	Density at 15 °C	IS:1448 (Part-16) / ASTM D1298 / ASTMD 4052	660.0 kg/m ³ to1000 kg/m ³ 0.660 gm/ml to1.0 gm/ml
		Flash Point (Pensky Marten)	IS 1448 (Part-21) / ASTM D 93 / IP 34	40°C to 300°C

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		Kinematic Viscosity, at 50°C	IS 1448 (Part-25) / ASTM D 445 / IP 71 (Sec.1)	100 cSt to 400 cSt
		Pour Point	IS 1448 (Part-10) / ASTM D97 /IP:15	(-)39°C to 36 °C
		Relative density at 15.6/15.6°C	IS:1448 (Part-16) /	0.850 g/cc to 1.000 g/cc
		Total Sulphur	IS 1448 (P:153)/ ISO 20847/ IP 336 ASTM D4294	0.0017% to 5.0% by mass
		Water Content	IS 1448 (Part-40) / IP 74 / ISO 3733 / ASTM D 95	Up to 25% by Vol.
5.	SKO	Flash Point (Abel)	IS 1448 (Part-20)/ IP 170	-19°C to 70°C
6.	Kerosene	Appearance	BPCL/WI-02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI-03, Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour Saybolt	IS:1448 (Part-14) / ASTM D 156	(-) 15 units to (+)10 units
		Cu Strip Corrosion	IS:1448 (Part-15)/ ASTM D 130	Qualitative (1a to 4c) by rating
		Density at 15°C	IS:1448 (Part-16) / ASTM D1298 / ASTMD 4052	660.0 kg/m ³ to1000 kg/m ³ 0.660 gm/ml to1.0 gm/ml
		Distillation: -Temperature (FBP) -Volume Recovery	IS:1448 (Part-18) / ASTM D 86 / IP:123	30 °C to 400°C Up to 100%
		Existent Gum	IS:1448(Part-29) / IP 131/ ISO 6246/ ASTM D 381	Up to 40 g/m ³
		Smoke Point	IS 1448 (Part-31)/ ISO 3014/ ASTMD 1322	10 mm to 30 mm

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		Total Sulphur	IS:1448 (Part-153) / ASTM D:4294 /ISO 20847/ ISO 8754 (IP:336)	0.0017% to 5% by mass
II.	LUBRICANTS			
1.	Lubricant	Appearance	BPCL/WI 02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI 03-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Crackle Test	BPCL/WI-02A, Dated 01.10.2015	Qualitative (Negative to Positive)
		Colour (ASTM)	ASTM D :1500/ IS:1448 (Part-12)	0 ASTM unit to 30 ASTM unit
		Cloud Point	IS1448(P-10/Sec1)/ ASTM D2500/IP219/ ISO 3015	40°C to 65°C
		Flash Point (COC)	IS:1448(Part-69) / ASTM D : 92	80 °C to 400°C
		Flash Point (Pensky Marten)	IS 1448 (Part-21) / ASTM D 93-16 / IP 34-17	40 °C to 300°C
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445/ IP 71 (Sec.1)/ ASTM D7042	1 cSt to 1600 cSt
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445/ IP 71 (Sec.1)/ ASTM D7042	1.0 cSt to 200 cSt
		Kinematic Viscosity at 100°C	ASTM D 7042	1 cSt to 300 cSt
		Pour Point	IS:1448 (Part-10) / ASTM D97 / IP 15-95/ ISO 3016-1994	-39°C to +36°C
		Viscosity Index	IS 1448 (P:56)/IP 226/ ISO 2909/ASTM D2276	90 to 130

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		Water Content	IS 1448 (Part-40) / ASTM D 95-13e/ ISO 3733/IP 74	Up to 25% by Volume
III.	INDUSTRIAL FINE CHEMICAL :			
1.	Ethanol	Appearance	BPCL/WI 02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI 03-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Ethanol Content at 15.6/15.6°C	IS 15464	94% to 100% by volume
		Miscibility with Water	IS15464 (Annexure C)	Qualitative test (Miscible/Not miscible)
		Relative Density at 15.6/15.6°C	IS 15464 (Annexure-A)	0.6 to 0.85

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CHEMICAL TESTING

AT MOBILE FACILITY				
I.	PETROLEUM PRODUCTS			
1.	Motor Gasoline (MS)	Appearance	BPCL/WI-02-Amd 0 dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI-02 dated 01.10.2015	Qualitative (Descriptive by visual)
		Density at 15°C	IS:1448 (Part-16) / ASTM D 1298/ ASTMD 4052	0.660 g/cm ³ to 1.000 g/cm ³
		Distillation: -Temperature (FBP) -Volume Recovery	IS:1448 (Part-18) / ASTM D 86 / IP:123	30 °C to 400°C Up to 100%
		Sulphur Content	IS 1448 (P:153)/ ISO 20847/ IP 336/ ASTM D4294	0.00017% to 5% by mass
2.	High Speed Diesel (HSD)	Appearance	BPCL/WI-02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI-02 Dated 01.10.2015	Qualitative (Descriptive by visual) (Orange/Red/Yellow)
		Density at 15°C	IS:1448 (Part-16) / ASTM D 1298/ ASTMD 4052	0.660 g/cm ³ to 1.000 g/cm ³
		Distillation: -Temperature (FBP) -Volume Recovery	IS:1448 (Part-18) / ASTM D 86 / IP:123	30 °C to 400°C Up to 100%
		Flash Point (Abel)	IS 1448(Part-20) / IP 170	19 °C to 70 °C

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		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445/ IP 71 (Sec.1)/ ASTM D7042	1 cSt to 1600 cSt
		Sulphur Content	IS 1448 (P:153)/ ISO 20847/ IP 336/ ASTM D4294	0.00017% to 5% by mass
II.	LUBRICANTS			
1.	Lubricant Oil	Appearance	BPCL/WI-02-Amd 0 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Colour	BPCL/WI-02 Dated 01.10.2015	Qualitative (Descriptive by visual)
		Crackle	BPCL/WI-02A, Dated 01.10.2015	Qualitative (Negative / Positive)
		Kinematic Viscosity at 40°C	IS 1448 (Part-25) / ASTM D 445/ IP 71 (Sec.1)/ ASTM D7042	1 cSt to 1600 cSt
III.	INDUSTRIAL FINE CHEMICAL			
1.	Ethanol	Ethanol Content at 15.6/15.6 °C	IS 15464	94% to 100% by volume