

**Laboratory** Environmental Testing & Appraisal Laboratories, Environment Management Centre, Khasra No. 1102, Industrial Area, Salempur Rajputan, Roorkee, Uttarakhand

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

**Certificate Number** TC-6679 (in lieu of T-3617)

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**Validity** 14.10.2017 to 13.10.2019

Last Amended on 26.12.2017

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.	WATER			
1.	Potable, Domestic and Bore-well Water	pH	IS: 3025 (Part.11):1983 Reaff.2012 ELECTROMETRIC METHOD	2 to 12
		Colour	IS: 3025 (Part.11):1983 Reaff.2012 ELECTROMETRIC METHOD	2 Hazen to 12 Hazen
		Specific Conductance	IS: 3025 (Part.14):1985 Reaff.2013 CONDUCTIVITY METRIC METHOD	1µS/cm to 10000 µS/cm
		Turbidity	IS: 3025 (Part.10):1984 Reaff.2012 TURBIDITIMETRIC METHOD	1 NTU to 1000 NTU
		Total solids	IS: 3025 (Part.15):1984 Reaff. 2014 GRAVIMETRIC METHOD	5 mg/l to 3000 mg/l
		Total Dissolved solids	IS: 3025 (Part.16):1984 Reaff.2012 GRAVIMETRIC METHOD	5 mg/l to 2000 mg/l
		Total suspended solids	IS: 3025 (Part.17):1984 Reaff.2012 GRAVIMETRIC METHOD	5 mg/l to 1000 mg/l
		Total Hardness (as CaCO <sub>3</sub> )	IS: 3025 (Part.21): 2009 Reaff. 2014 EDTA TITRIMETRIC METHOD	2.0 mg/l to 1200 mg/l

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		Calcium	IS: 3025 (Part.40):1991 Reaff.2014 EDTA TITRIMETRIC METHOD	1to 1000 mg/l 1 mg/l
		Magnesium	IS: 3025 (Part.46):1994 Reaff.2003 EDTA TITRIMETRIC METHOD	1to1000 mg/l 1mg/l
		Total Alkalinity (as CaCO <sub>3</sub> )	IS: 3025 (Part.23) :1986 Reaff.2005 TITRIMETRIC METHOD	5.0 mg/l to 750 mg/l
		Chloride (as Cl)	IS: 3025 (Part.32) :1988 Reaff.2014 ARGENTOMETRIC TITRATION	1.0 mg/l to 400 mg/l
		Residual free Chlorine	IS:3025 ( Part.26)-1986 Reaff. 2014 APHA 4500 (B) IODOMETRIC METHOD	0.1 mg/l to 5.0 mg/l
		Sulphate (as SO <sub>4</sub> ) <sup>2-</sup>	IS: 3025 (Part.24):1986 Reaff.2014 GRAVIMETRIC METHOD	10 mg/l to 400 mg/l
		Fluoride	IS: 3025 (Part.60) :2006 Reaff. 2013 Reaff. APHA-4500FD SPADN's METHOD	0.1 to 100 mg/l 0.1mg/l
		Acidity(as CaCO <sub>3</sub> )	APHA-22nd Ed 2012-2310 B TITRATION METHOD (PP2-31 to PP 2-33)	0 mg/l to 500mg/l
		Volatile & Fixed residue	IS: 3025 (Part.18) :1984 Reaff. 2012 GRAVIMETRIC METHOD	50 mg/l to 1000 mg/l

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		Settleable matter	IS: 3025 (Part.19):1984, Reaff. 2012 GRAVIMETRIC METHOD	5 mg/l to 5000 mg/l
		Sodium as Na	IS: 3025 (Part.45) :1993 , Reaff. 2014 FLAME EMISSION METHOD	1 mg/l to 100 mg/l
		Potassium	IS: 3025 (Part.45) :1993 Reaff. 2014 FLAME EMISSION METHOD	1 mg/l to 100 mg/l
		Iron	IS: 3025 (Part.53) :2005 Reaff.2014 COLORIMETRIC METHOD	1 mg/l to 25 mg/l
		Silica	APHA 2012, 4500 SiO <sub>2</sub> -C COLORIMETRIC METHOD MOLYBEDOSILICATE METHOD	1 to 1000mg/l 1mg/l
		Boron	IS :3025 ( Part. 57 ) 2003; Reaff.2014 COLORIMETRIC METHOD APHA 4500(B)B CURCUMIN METHOD	1 mg/l to 10mg/l
		Phosphate	APHA 2012, 4500 - D COLORIMETRIC METHOD STANNOUS CHLORIDE METHOD	0.01 to 100 mg/l 0.01mg/l
		Anionic Surfactant	IS : 13428 Annex .K- 2005 COLORIMETRIC METHOD APHA -5540 ( C) Anionic Surfactant (M.B.A.S.)	0.1 to 100mg/l 0.1 mg/l

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		Nitrate (as NO <sub>3</sub> )	IS:3025 (Part 34) 1988; Reaff. 2014 CHROMOTROPIC ACID METHOD	5 mg/l to 1000 mg/l
		Phenolic compound (as C <sub>6</sub> H <sub>5</sub> OH)	IS: 3025 (Part.43)1992 ; Reaff.2014 APHA 5530 ( C) DIRECT PHOTOMETRIC/ CHLOROFORM EXTRACTION METHOD	1 to 250 µg/l 1 µg/l
		Chromium ( VI)	IS: 3025 (Part.52) :2003; Reaff. 2014 APHA -3500-CR DIPHENYL CARBAZIDE (DPC) METHOD	0.03 to 1.0mg/l 0.03 mg/l
<b>II.</b>	<b>POLLUTION &amp; ENVIRONMENT</b>			
<b>1.</b>	<b>Waste/ Aqueous Effluents</b>	pH	IS: 3025 (Part.11):1983 Reaff.2012 ELECTROMETRIC METHOD	2 to 12
		Turbidity	IS: 3025 (Part.10):1984 Reaff.2012 TURBIDITIMETRIC METHOD	0.1 NTU to 100 NTU
		Total solids	IS : 3025 (Part.15):1984 Reaff.2014 GRAVIMETRIC METHOD	10 mg/l to 10000 mg/l
		Total Dissolved Solids	IS: 3025 (Part.16) :1984 Reaff.2012 GRAVIMETRIC METHOD	10 mg/l to 10000mg/l

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		Total Suspended Solids	IS: 3025 (Part.17) :1984 Reaff.2012 GRAVIMETRIC METHOD	10 mg/l to 2000 mg/l
		Total Hardness (as CaCO <sub>3</sub> )	IS: 3025 (Part.21) : 2009 Reaff.2014 EDTA TITRIMETRIC METHOD	2.0 mg/l to 2000 mg/l
		Calcium	IS: 3025 (Part.40) :1991 Reaff.2014 EDTA TITRIMETRIC METHOD	2 to 1000 mg/l 1mg/l
		Magnesium	IS: 3025 (Part.46) :1994 Reaff.2014 EDTA TITRIMETRIC METHOD	2 to 1000 mg/l 1mg/l
		Chloride (as Cl)	IS: 3025 (Part.32) :1988 Reaff.2014 ARGENTOMETRIC TITRATION METHOD	5 mg/l to 1000 mg/l
		Sulphate (as SO <sub>4</sub> ) <sup>-2</sup>	IS: 3025 (Part.24):1986 Reaff.2014 GRAVIMETRIC METHOD	10 mg/l to 1000 mg/l
		Fluoride as F-	IS: 3025 (Part.60) :2008 Reaff. 2013 APHA-4500FD SPADN's METHOD	0.2 to 1000mg/l 0.1mg/l
		Sodium as Na	IS: 3025 (Part.45) :1993 Reaff.2014 FLAME EMISSION METHOD	1 mg/l to 100 mg/l
		Potassium	IS: 3025 (Part.45) :1993 Reaff.2014 FLAME EMISSION METHOD	5 mg/l to 100 mg/l

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		Iron as Fe <sup>2+</sup>	IS: 3025 (Part.53) :2003 Reaff.2014 COLORIMETRIC METHOD	1 mg/l to 50 mg/l
		Acidity(as CaCO <sub>3</sub> )	APHA-22nd Ed 2012-2310 B TITRATION METHOD (PP 2-31 to 2-33)	2 mg/l to 500mg/l
		Volatile & Fixed residue	IS: 3025 (Part.18) :1984 Reaff. 2012 GRAVIMETRIC METHOD	50 mg/l to 5000 mg/l
		Settleable matter	IS: 3025 (Part.19):1984 Reaff. 2012 GRAVIMETRIC METHOD	5 mg/l to 1000 mg/l
		Ammonical Nitrogen	APHA 4500 (B); 22 <sup>nd</sup> Ed. 2012 TITRIMETRIC METHOD	1 mg/l to 100 mg/l
		Ammonia	IS:3025 (Part. 34):1988 Reaff. 2014	20 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>
		Total Kjeldhal Nitrogen (TKN)	APHA-2012, 4500 NORG-C	4 mg/l to 400 mg/l
		Silica	APHA 2012, 4500 SiO <sub>2</sub> -C COLORIMETRIC METHOD MOLYBEDOSILICATE METHOD	0.05 mg/l to 2.0 mg/l
		Boron	IS :3025 ( Part. 57 ) 2004 Reaff. 2014	1 mg/l to 20 mg/l
		Phosphate	APHA 2012, 4500 - D COLORIMETRIC METHOD STANNOUS CHLORIDE METHOD	0.05 to 100 0mg/l
		Anionic Surfactant	IS : 13428 Annex .K- 2005 COLORIMETRIC METHOD APHA -5540 ( C) Anionic Surfactant (M.B.A.S.)	0.2 mg/l to 100 mg/l

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		Nitrate (as NO <sub>3</sub> )	IS:3025 (Part 34) 1988 Reaff. 2014 CHROMOTROPIC ACID METHOD	5 mg/l to 5000mg/l
		Biochemical oxygen demand (BOD)	IS: 3025 (Part.44):1993 Reaff. 2014 APHA-5210 ( B ) WRINKLER METHOD	5 mg/l to 2500 mg/l
		Chemical oxidation demand (COD)	IS: 3025 (Part.58) :2006 Reaff.2012 OPEN REFLUX METHOD	5.0 mg/l to 70000 mg/l
		Oil & Grease	IS :3025 (Part.39)1991 Reaff. 2014 GRAVIMETRIC METHOD	5 mg/l to 1000 mg/l
<b>III.</b>	<b>ATMOSPHERIC POLLUTION</b>			
<b>1.</b>	<b>Ambient Air Quality Monitoring</b>	Suspended Particulate Matters (SPM)	IS: 5182 (Part -4) 1999 Reaff.2014 (Gravimetric Method)	10 µg/m <sup>3</sup> to 2000 µg/m <sup>3</sup>
		Particulate matter (Size less than 2.5µm) or PM <sub>2.5</sub> µg/m <sup>3</sup>	As per USEPA & CPCB / MoEF guidelines Volume-1 NAAQMS/36 2012-13, ET&AL/TP-03; Issue No. - 02; Issue Date 15.10.2016 (Gravimetric Method)	10 µg/m <sup>3</sup> to 2000 µg/m <sup>3</sup>
		Particulate matter (size less than 10µm) or PM <sub>10</sub> µg/m <sup>3</sup> (RSPM)	IS:5182 (Part-23)-2006; Reaff.2012 (Gravimetric Method)	10 µg/m <sup>3</sup> to 2000 µg/m <sup>3</sup>
		Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>	IS:5182 (Part-2) -2001; Reaff. 2012	6 µg/m <sup>3</sup> to 1050 µg/m <sup>3</sup>
		Oxides of Nitrogen as NO <sub>2</sub> µg/m <sup>3</sup>	IS:5182 (Part-6) -2006; Reaff. 2012	6 µg/m <sup>3</sup> to 750 µg/m <sup>3</sup>

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		Carbon monoxide	IS: 5182(Part 10)-1999; Reaff. 2014	1 µg/ m <sup>3</sup> to 2000 µg/ m <sup>3</sup>
		Ammonia	As per USEPA & CPCB / MoEF guidelines Volume-1 NAAQMS/36 2012-13, Indo phenol Method ET&AL/TP-03; Issue No. -02; Issue Date 15.10.2016 (Chemical Method)	20 µg/ m <sup>3</sup> to 500 µg/ m <sup>3</sup>
		Ozone	IS: 5182 (Part -9) 1974; Reaff.2014	20 µg/ m <sup>3</sup> to 19000 µg/ m <sup>3</sup>
<b>2.</b>	<b>Stack Emission</b>	Particulate matter	IS:11255(Part-1) 1985 Reaff. : 2014	5 mg/Nm <sup>3</sup> to 400 mg/Nm <sup>3</sup>
		Sulphur dioxide	IS: 11255(Part-2) 1985; Reaff. 2014	10 mg/Nm <sup>3</sup> to 2000 mg/Nm <sup>3</sup>
		Carbon monoxide	IS: 13270-1992; Reaff. 2003	0.2 % to 10 % by vol.
		Carbon dioxide	IS: 13270-1992; Reaff. 2003	1 % to 20 % by vol.
		Oxygen	IS: 13270-1992; Reaff. 2003	1 % to 20% by vol.
		NOx (Oxides of Nitrogen)	IS: 11255(Part-7) 2005; Reaff. 2012	2.0 mg/Nm <sup>3</sup> to 500 mg/Nm <sup>3</sup>



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**CHEMICAL TESTING**

AT SITE				
<b>I.</b>	<b>ATMOSPHERIC POLLUTION</b>			
<b>1.</b>	<b>Noise - Ambient &amp; Source</b>	Noise Levels Leq dB (A) Ambient	IS 9989-1981, Reaff. 2001	30 to 130 dB (A)
		Noise Levels - Source (DG Sets only)	IS:4758-1999	30 to 130 dB (A)
<b>2.</b>	<b>Luminescence (Measurement of light and density)</b>	Light Intensity (in terms of Lux)	IS :3646 Part 1 (1992); Reaff. 2003	0 to 4000