

**Laboratory** Cosmo Conscious Research Laboratory, Survey House, 121, 2<sup>nd</sup> Cross, Nehru Colony, Bellari, Karnataka

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

**Certificate Number** TC-6152

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**Validity** 18.08.2017 to 17.08.2019

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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.	WATER			
1.	Drinking Water, Surface Water & Ground Water	pH value	IS:3025 (Part 11)-1983 Reaffirmed 2012 Electrometric method	4.0 to 12
		Conductivity	IS:3025 (Part 14)-2013 Electrometric method	1 µS/cm to 5000 µS/cm
		Turbidity	IS:3025 (Part 10)-1984 Reaffirmed 2012 Nephelometric method	0.1 NTU to 100 NTU
		Total Dissolved Solids	IS:3025 (Part 16)-1984 Reaffirmed 2012 Gravimetric method	10 mg/L to 3000 mg/L
		Chloride as Cl	IS:3025 (Part 32)-1988 Reaffirmed 2014 Argentometric method	2 mg/L to 1000 mg/L
		Alkalinity as CaCO <sub>3</sub>	IS:3025 (Part 23)-1986 Reaffirmed 2014 Indicator method	2 mg/L to 1000 mg/L
		Total Hardness as CaCO <sub>3</sub>	IS:3025 (Part 21)-2009 Reaffirmed 2014 EDTA Titrimetric method	2 mg/L to 1000 mg/L
		Calcium as Ca	IS:3025 (Part 40)-1991 Reaffirmed 2014 EDTA Titrimetric method	2 mg/L to 1000 mg/L
		Magnesium as Mg	APHA 22 <sup>nd</sup> Edition 350-B-Mg By calculation method	2 mg/L to 1000 mg/L
		Fluoride as F	APHA 22 <sup>nd</sup> Edition 4500-D-F SPADANS method	0.1 mg/L to 5 mg/L

**Sandeep Singh Tomar**  
Convenor

**N. Venkateswaran**  
Program Director

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		Nitrate as NO <sub>3</sub>	IS:3025 (Part 34)-1988 Reaffirmed 2014 Chromotropic acid method	0.1 mg/L to 10 mg/L
		Sulphate as SO <sub>4</sub>	APHA 22 <sup>nd</sup> Edition 4500-E-SO <sub>4</sub> <sup>2-</sup> Turbidimetric method	1 mg/L to 500 mg/L
		Sodium as Na	IS:3025 (Part 45)-1993 Reaffirmed 2009 Flame Emission Photometric method	2 mg/L to 500 mg/L
		Potassium as K	IS:3025 (Part 45)-1993 Reaffirmed 2009 Flame Emission Photometric method	2 mg/L to 500 mg/L
		Total Suspended Solids	IS:3025 (Part 17)-1984 Reaffirmed 2012 Gravimetric method	1 mg/L to 500 mg/L
		Oil & grease	IS:3025 (Part 39)-1991 Reaffirmed 2014 Partition Gravimetric method	2 mg/L to 500 mg/L
		Acidity as CaCO <sub>3</sub>	IS:3025 (Part 22)-1986 Reaffirmed 2014 Indicator method	2 mg/L to 500 mg/L
		Phosphorous as P	IS:3025 (Part 31)-1988 Reaffirmed 2014 Stannous Chloride method	0.01 mg/L to 5 mg/L
		Temperature	IS:3025 (Part 9)-1984 Reaffirmed 2012 Temperature Probe	10 °C to 40 °C
		Color	IS:3025 (Part 4)-1983 Reaffirmed 2012 Platinum cobalt method	1 Hazen to 100 Hazen

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		Dissolved Oxygen	IS:3025 (Part 38)-1989 Reaffirmed 2014 Titrimetric method	1 mg/L to 8 mg/L
2.	Heavy Metals in Water, Surface water and Ground water	Total Chromium as Cr	APHA 22nd Edition 3111-B-Cr AAS method	0.1 mg/L to 5 mg/L
		Total Iron as Fe	APHA 22nd Edition 3111-B-Fe AAS method	0.1 mg/L to 10 mg/L
		Nickel as Ni	APHA 22nd Edition 3111-B-Ni AAS method	0.1 mg/L to 5 mg/L
		Manganese as Mn	APHA 22nd Edition 3111-B-Mn AAS method	0.1 mg/L to 5 mg/L
		Copper as Cu	APHA 22nd Edition 3111-B-Cu AAS method	0.1 mg/L to 5 mg/L
		Zinc as Zn	APHA 22nd Edition 3111-B-Zn AAS method	0.1 mg/L to 10 mg/L
		Lead as Pb	APHA 22nd Edition 3111-B-Pb AAS method	0.1 mg/L to 5 mg/L
		Silver as Ag	APHA 22nd Edition 3111-B-Ag AAS method	0.1 mg/L to 5 mg/L
		Aluminum as Al	APHA 22nd Edition 3111-D-Al AAS method	0.1 mg/L to 1 mg/L
II.	<b>POLLUTION &amp; ENVIRONMENT</b>			
1.	Waste Water	pH value	IS:3025 (Part 11)-1983 Reaffirmed 2012 Electrometric method	1 to 12
		Conductivity	IS:3025 (Part 14)-2013 Electrometric method	1 µS/cm to 50,000 µS/cm
		Turbidity	IS:3025 (Part 10)-1984 Reaffirmed 2012 Nephelometric method	1 NTU to 1000 NTU

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		Total Dissolved Solids	IS:3025 (Part 16)-1984 Reaffirmed 2012 Gravimetric method	1 mg/L to 50,000 mg/L
		Chloride as Cl	IS:3025 (Part 32)-1988 Reaffirmed 2014 Argentometric method	2 mg/L to 10,000 mg/L
		Alkalinity as CaCO <sub>3</sub>	IS:3025 (Part 23)-1986 Reaffirmed 2014 Indicator method	1 mg/L to 2000 mg/L
		Total Hardness as CaCO <sub>3</sub>	IS:3025 (Part 21)-2009 Reaffirmed 2014 EDTA Titrimetric method	2 mg/L to 2000 mg/L
		Calcium as Ca	IS:3025 (Part 40)-1991 Reaffirmed 2014 EDTA Titrimetric method	2 mg/L to 2000 mg/L
		Magnesium as Mg	APHA 22nd Edition 350-B-Mg By calculation method	2 mg/L to 2000 mg/L
		Fluoride as F	APHA 22nd Edition 4500-D-F SPADANS method	0.1 mg/L to 10 mg/L
		Nitrate as NO <sub>3</sub>	IS:3025 (Part 34)-1988 Reaffirmed 2014 Chromotropic acid method	0.5 mg/L to 400 mg/L
		Sulphate as SO <sub>4</sub>	APHA 22nd Edition 4500-E-SO <sub>4</sub> <sup>2-</sup> , Turbidimetric method	1 mg/L to 5000 mg/L
		Sodium as Na	IS:3025 (Part 45)-1993 Reaffirmed 2009 Flame Emission Photometric method	2 mg/L to 2000 mg/L
		Potassium as K	IS:3025 (Part 45)-1993 Reaffirmed 2009 Flame Emission Photometric method	1 mg/L to 1000 mg/L

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		Total Suspended Solids	IS:3025 (Part 17)-1984 Reaffirmed 2012 Gravimetric method	2 mg/L to 5000 mg/L
		Oil & grease	IS:3025 (Part 39)-1991 Reaffirmed 2014 Partition Gravimetric method	4 mg/L to 2000 mg/L
		Acidity as CaCO <sub>3</sub>	IS:3025 (Part 22)-1986 Reaffirmed 2014 Indicator method	1 mg/L to 2000 mg/L
		Phosphorous as P	IS:3025 (Part 31)-1988 Reaffirmed 2014 Stannous Chloride method	0.05 mg/L to 100 mg/L
		Temperature	IS:3025 (Part 9)-1984 Reaffirmed 2012 Temperature Probe	15 °C to 40 °C
		Color	IS:3025 (Part 4)-1983 Reaffirmed 2012 Platinum cobalt method	1 Hazen to 500 Hazen
		Dissolved Oxygen	IS:3025 (Part 38)-1989 Reaffirmed 2014 Titrimetric method	1 mg/L to 10 mg/L
		Chromium as Cr	APHA 22nd Edition 3111-B-Cr AAS method	0.2 mg/L to 5 mg/L
		Total Iron as Fe	APHA 22nd Edition 3111-B-Fe AAS method	0.1 mg/L to 10 mg/L
		Bio-Chemical Oxygen Demand (BOD-3 Days @ 27°C)	IS 3025 (Part 44)-1993 Reaffirmed 2014	1 mg/L to 10000 mg/L
		Chemical Oxygen Demand (COD)	APHA 5220-C (P.no.5-17) Closed Reflux method	4 mg/L to 50,000 mg/L
		Nickel as Ni	APHA 22nd Edition 3111-B-Ni AAS method	0.1 mg/L to 25 mg/L

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		Manganese as Mn	APHA 22nd Edition 3111-B-Mn AAS method	0.1 mg/L to 25 mg/L
		Copper as Cu	APHA 22nd Edition 3111-B-Cu AAS method	0.1 mg/L to 10 mg/L
		Zinc as Zn	APHA 22nd Edition 3111-B-Zn AAS method	0.1 mg/L to 250 mg/L
		Lead as Pb	APHA 22nd Edition 3111-B-Pb AAS method	0.1 mg/L to 100 mg/L
		Silver as Ag	APHA 22nd Edition 3111-B-Ag AAS method	0.1 mg/L to 10 mg/L
		Aluminum as Al	APHA 22nd Edition 3111-D-Al AAS method	0.1 mg/L to 100 mg/L
<b>2.</b>	<b>Soil Monitoring</b>	Electrical Conductivity	IS:14767: 2000 Reaffirmed 2016	1 µmho/cm to 1000 µmho/cm
		Organic Carbon	IS:2720 (Part 22) – 1972 Reaffirmed 2015	0.01% to 80%
		pH	IS:2720 (Part 26) – 1987 Reaffirmed 2011	2 to 12
		Phosphorous as P	CCRL/TOP/01 Issue No. 01 , Issue Dt. 01.02.2016	0.05 to 500 mg/100gm
		Potassium as K	CCRL/TOP/02 Issue No. 01, Issue Dt. 01.02.2016	0.5 to 2000 mg/100gm
		Chloride as Cl	CCRL/TOP/03 Issue No. 01, Issue Dt. 01.02.2016	2 to 100 mg/100gm
		Iron as Fe	CCRL/TOP/04 Issue No. 01, Issue Dt. 01.02.2016	0.01 to 500 mg/kg
		Water Holding Capacity	CCRL/TOP/05 Issue No. 01, Issue Dt. 01.02.2016	1% to 80%

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<b>III.</b>	<b>ATMOSPHERIC POLLUTION</b>			
<b>1.</b>	<b>Stack Monitoring</b>	CO <sub>2</sub>	CCRL/TOP/06 Issue No. 01, Issue Dt. 01.02.2016	0% to 20%
		O <sub>2</sub>	CCRL/TOP/06 , Issue No. 01, Issue Dt. 01.02.2016	0% to 20%
		Particulate Matter	IS:11255 (Part 1) - 1985 Reaffirmed 2014 Gravimetric Method	5 mg/Nm <sup>3</sup> to 1000 mg/Nm <sup>3</sup>
		Oxides of Sulphur	CCRL/TOP/06, Issue No. 01, Issue Dt. 01.02.2016	0 ppm to 5000 ppm
		Oxides of Nitrogen	CCRL/TOP/06, Issue No. 01, Issue Dt. 01.02.2016	0 ppm to 5000 ppm
<b>2.</b>	<b>Ambient Air Monitoring</b>	Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>	IS: 5182 ( Part 2 ) : 2001 Reaffirmed 2012	3 µg/m <sup>3</sup> to 100 µg/m <sup>3</sup>
		Nitrogen Dioxide (NO <sub>2</sub> ) µg/m <sup>3</sup>	IS: 5182 (Part 6) : 2006 Reaffirmed 2012	3 µg/m <sup>3</sup> to 100 µg/m <sup>3</sup>
		Particulate Matter (Size less than 10 µm) or PM <sub>10</sub>	IS: 5182 (Part 23) : 2006 Reaffirmed 2012	5 µg/m <sup>3</sup> to 1000 µg/m <sup>3</sup>
		Particulate Matter (Size less than 2.5µm) or PM <sub>2.5</sub>	USEPA Vol- II & Part II, Quality Assurance guidance Document-2.12	5 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>

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