Laboratory	**Envirodesigns Eco Labs, Eco Tower, Janatha Junction, Palarivattom, Kochi, Kerala**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Discipline	**Chemical Testing**	**Issue Date**	**23.12.2014**
Certificate Number	**T-0986**	**Valid Until**	**22.12.2016**
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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
	AT LABORATORY			
	I. WATER			
1.	**Drinking Water, Water for Processed Food Industry, Raw water/ Bore well water/ Well water/ Surface water, Raw /Treated waste water, Water for Ice, Swimming pool water, Water for Construction**	Colour	IS 3025 (Part 4): 1983 (RA 2012) Cl. 2	(1 to 500) Hazen Unit
		Odour	IS 3025 (Part 5): 1983 (RA 2012)	Qualitative
		Taste	IS 3025 (Part 8): 1984 (RA 2012)	Qualitative (Agreeable/Disagreeable)
		pH	IS 3025 (Part 11): 1983(RA 2012) Cl. 2	1 to 14
		Turbidity	IS 3025 (Part 10): 1984 (RA 2012)	0.5 NTU to 500 NTU
		Phenolic Compounds as C_6H_5OH	IS 3025 (Part 43): 1992 (RA 2009) Cl. 6	0.0005 mg/L to 5.0 mg/L
		Nitrate as NO3	IS 3025 (Part 34): 1988 (RA 2009) Cl. 3	0.1 mg/L to 100 mg/L
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2009) Cl. 2	0.5 mg/L to 1000 mg/L
		Fluoride as F	IS 3025 (Part 60): 2008 Cl. 5	0.2 mg/L to 5.0 mg/L
		Sulphate as SO_4	IS 3025 (Part 24): 1986 (RA 2009) Cl. 4	1.0 mg/L to 500 mg/L

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	Drinking Water, Water for Processed Food Industry, Raw water/ Bore well water/ Well water/ Surface water, Raw /Treated waste water, Water for Ice, Swimming pool water, Water for Construction	Cyanide as CN	IS 3025 (Part 27): 1986 (RA 2009) Cl. 2	0.005 mg/L to 2.0 mg/L
		Manganese as Mn	IS 3025 (Part 2): 2004 (RA 2009)	0.005 mg/L to 5.0 mg/L
		Copper as Cu	IS 3025 (Part 42): 1992 (RA 2009) Cl. 6 IS 3025 (Part 2): 2004 (RA 2009)	0.01 mg/L to 10.0 mg/L
		Zinc as Zn	IS 3025 (Part 49): 1994 (RA 2009) Cl. 5 IS 3025 (Part 2): 2004 (RA 2009)	0.05 mg/L to 50 mg/L
		Cadmium as Cd	IS 3025 (Part 2): 2004 (RA 2009)	0.001 mg/L to 5.0 mg/L
		Mercury as Hg	IS 3025 (Part 48): 1994 (RA 2009) Cl. 5	0.0005 mg/L to 5.0 mg/L
		Lead as Pb	IS 3025 (Part 2): 2004 (RA 2009)	0.005 mg/L to 5.0 mg/L
		Total Chromium as Cr	IS 3025 (Part 2): 2004 (RA 2009)	0.01 mg/L to 5.0 mg/L
		Arsenic as As	IS 3025 (Part 37): 1988 (RA 2009) Cl. 2	0.005 mg/L to 5.0 mg/L
		Selenium as Se	IS 3025 (Part 56): 2005 (RA 2009) Cl. 7	0.005 mg/L to 5.0 mg/L

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	Drinking Water, Water for Processed Food Industry, Raw water/ Bore well water/ Well water/ Surface water, Raw /Treated waste water, Water for Ice, Swimming pool water, Water for Construction	Nickel as Ni	IS 3025 (Part 2): 2004 (RA 2009)	0.01 mg/L to 5.0 mg/L
		Silver as Ag	IS 3025 (Part 2): 2004 (RA 2009)	0.05 mg/L to 5.0 mg/L
		Poly nuclear Aromatic Hydrocarbons Acenaphthylene Anthracene Benzo (a) Anthracene Phenanthrene Pyrene	USEPA 8270 C	0.1 µg/L to 1000 µg/L
		Residual Chlorine	IS 3025 (Part 26): 1986 (RA 2009)	0.1 mg/L to 10.0 mg/L
		Total Dissolved Solids	IS 3025 (Part 16): 1984 (RA 2006)	2 mg/L to 10000 mg/L
		Nitrite as NO2	IS 3025 (Part 34): 2005 (RA 2009) Cl. 4	0.01 mg/L to 50.0 mg/L
		Sodium as Na	IS 3025 (Part 45): 1993 (RA 2009) Cl. 5	1 mg/L to 500 mg/L
		Sulphide as S	IS 3025 (Part 29): 1986 (RA 2009) Cl. 3	0.02 mg/L to 20 mg/L
		Alkalinity as CaCO3	IS 3025 (Part 23): 1986 (RA 2009) Cl. 8.1	1 mg/L to 1000 mg/L

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	Drinking Water, Water for Processed Food Industry, Raw water/ Bore well water/ Well water/ Surface water, Raw /Treated waste water, Water for Ice, Swimming pool water, Water for Construction	**Pesticide Residue**		
		γ-HCH (Lindane)	USEPA 508 (8270)	0.1 µg/L to 1000 µg/L
		α- HCH	USEPA 508 (8270)	0.1 µg/L to 1000 µg/L
		β- HCH	USEPA 508 (8270)	0.1 µg/L to 1000 µg/L
		δ-HCH	USEPA 508 (8270)	0.1 µg/L to 1000 µg/L
		2,4 DDT	USEPA 508 (8270)	0.1 µg/L to 1000 µg/L
		2,4 DDE	USEPA 508 (8270)	0.1 µg/L to 1000 µg/L
		Boron as B	IS 3025 (Part 2): 2004 (RA 2009)	0.05 mg/L to 5.0 mg/L
		Barium as Ba	IS 3025 (Part 2): 2004 (RA 2009)	0.02 mg/L to 10.0 mg/L
		Vanadium as V	IS 3025 (Part 2): 2004 (RA 2009)	0.02 mg/L to 1 mg/L
		BOD @ 27°C for 3 days	IS 3025 (Part 44): 1993 (RA 2009)	1 mg/L to 1000 mg/L
		COD	IS 3025 (Part 58): 2006	4 mg/L to 4000 mg/L
		Oil & Grease	IS 3025 (Part 39): 1991 (RA 2009) Cl. 5	0.05 mg/L to 500 mg/L
		Total Kjeldhal Nitrogen as N	IS 3025 (Part 34): 1988 (RA 2009) Cl. 5.2	1 mg/L to 500 mg/L
		Ammonia (as Total ammonia-N)	IS 3025 (Part 34): 1988 (RA 2009) Cl. 2.3	0.1 mg/L to 500 mg/L

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	Drinking Water, Water for Processed Food Industry, Raw water/ Bore well water/ Well water/ Surface water, Raw /Treated waste water, Water for Ice, Swimming pool water, Water for Construction	Phosphorus as P	IS 3025 (Part 31): 1988 (RA 2009) Cl. 4	0.05 mg/L to 100 mg/L
		Benzo (a) pyrene	USEPA 8270 C	0.1 µg/L to 1000 µg/L
		Benzene	USEPA 8260 B	10 µg/L to 1000 µg/L
		Silica as SiO_2	IS 3025 (Part 35): 1988 (RA 2009) Cl. 3	0.4 mg/L to 500 mg/L
		Conductivity @ 25°C	IS 3025 (Part 14): 2013	1 µS/cm to 200 mS/cm
		Dissolved oxygen	IS 3025 (Part 38): 1989 (RA 2009) Cl. 4.1 & 4.2	1 mg/L to 10 mg/L
		Aluminium as Al	IS 3025 (Part 55): 2003 (RA 2009) Cl. 5	0.02 mg/L to 5.0 mg/L
		Iron as Fe	IS 3025 (Part 53): 2003 (RA 2009) Cl. 6	0.02 mg/L to 10.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46): 1994 (RA 2009) Cl. 6	0.5 mg/L to 200 mg/L
		Calcium as Ca	IS 3025 (Part 40): 1991 (RA 2009) Cl. 5	0.5 mg/L to 500 mg/L
		Total Solids	IS 3025 (Part 15): 1984 (RA 2009)	2 mg/L to 10000 mg/L
		Total Hardness as CaCO3	IS 3025 (Part 21): 2009 (RA 2012) Cl. 5	2.0 mg/L to 1000 mg/L

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	Drinking Water, Water for Processed Food Industry, Raw water/ Bore well water/ Well water/ Surface water, Raw /Treated waste water, Water for Ice, Swimming pool water, Water for Construction	Hexavalent chromium as Cr^{6+}	IS 3025 (Part 52): 2003 (RA 2009) Cl. 6	0.03 mg/L to 10.0 mg/L
		Mineral oil	IS 3025 (Part 39): 1991 (RA 2009) Cl. 6	0.05 mg/L to 50.0 mg/L
		Anionic detergents (as MBAS)	IS 13428 : 2005 (RA 2009) Annex. K	0.1 mg/L to 1.0 mg/L
		Acidity as CaCO3	IS 3025 (Part 22): 1986 (RA 2009) Cl. 8.1	1 mg/L to 500 mg/L
		Inorganic Solids	IS 3025 (Part 18): 1984 (RA 2012)	5 mg/L to 10000 mg/L
		Organic Solids	IS 3025 (Part 18): 1984 (RA 2012)	5 mg/L to 1000 mg/L
		Total Suspended Solids	IS 3025 (Part 17): 1984 (RA 2006)	2 mg/L to 5000 mg/L
		Oxygen absorbed in 4 hours at 27°C	IS 3025 (Part 63): 2007	0.5 mg/L to 10.0 mg/L
		Heavy metals (as Pb)	IS 3025 (Part 47): 1994 (RA 2009) Cl. 7	0.05 mg/L to 5.0 mg/L
II.	**POLLUTION & ENVIRONMENT**			
1.	**Raw & Treated effluents**	BOD @ 27°C for 3 days	IS 3025 (Part 44): 1993 (RA 2009)	1 mg/L to 10000 mg/L
		COD	IS 3025 (Part 58): 2006	4 mg/L to 40000 mg/L

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	Raw & Treated effluents	Oil & Grease	IS 3025 (Part 39): 2009 Cl. 5	1 mg/L to 1000 mg/L
		pH	IS 3025 (Part 11): 1983 (RA 2006) Cl. 2	1 to 14
		Total Suspended Solids	IS 3025 (Part 17): 1984 (RA 2006)	2 mg/L to 10000 mg/L
2.	**Soil**	Copper	USEPA 3050B & 7000A	5 mg/kg to 1000 mg/kg
		Lead		5 mg/kg to 1000 mg/kg
		Zinc		5 mg/kg to 1000 mg/kg
		Cadmium		5 mg/kg to 1000 mg/kg
		Chromium		5 mg/kg to 1000 mg/kg
		Manganese		5 mg/kg to 1000 mg/kg
		Nickel		5 mg/kg to 1000 mg/kg
		Iron		5 mg/kg to 5000 mg/kg
3.	**Solid Waste**	Copper	USEPA 3050B & 7000A	5 mg/kg to 1000 mg/kg
		Lead		5 mg/kg to 1000 mg/kg
		Zinc		5 mg/kg to 1000 mg/kg
		Cadmium		5 mg/kg to 1000 mg/kg
		Chromium		5 mg/kg to 1000 mg/kg
		Manganese		5 mg/kg to 1000 mg/kg
		Nickel		5 mg/kg to 1000 mg/kg
		Iron		5 mg/kg to 5000 mg/kg

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III.	**AIR, GASES & ATMOSPHERE**			
1.	**Ambient Air/ In plant Air quality /Fugitive emission Monitoring**	Sulphur dioxide	IS 5182 (Part 2): 2001 (RA 2012)	5 µg/m^3 to 1000 µg/m^3
		Nitrogen dioxide	IS 5182 (Part 6): 2006 (RA 2012)	5 µg/m^3 to 1000 µg/m^3
		Particulate Matter (Size less than 10µm) or PM_{10}	IS 5182 (Part 23): 2006	1 µg/m^3 to 1000 µg/m^3
		Particulate Matter (Size less than 2.5µm) or $PM_{2.5}$	EEL/WP/A/04 (Issue No. 3 : Dt. 01.10.12)	3 µg/m^3 to 500 µg/m^3
		Suspended Particulate Matter	IS 5182 (Part 4): 1999 (RA 2010)	10 µg/m^3 to 1000 µg/m^3
		Ozone	EEL/WP/A/06 (Issue No. 3 : Dt. 01.10.12)	2 µg/m^3 to 500 µg/ m^3
		Ammonia	EEL/WP/A/07 (Issue No. 3 : Dt. 01.10.12)	18 µg/m^3 to 700 µg/m^3
		Benzene	IS 5182 (Part 11): 2006	2 µg/m^3 to 100 µg/m^3
		Benzo (a) Pyrene	EEL/WP/A/09 (Issue No. 3 : Dt. 01.10.12)	0.3 ng/m^3 to 100 ng/m^3
		Lead	EEL/WP/A/10 (Issue No. 3 : Dt. 01.10.12)	0.0007 µg/m^3 to 10 µg/m^3
		Arsenic	EEL/WP/A/10 (Issue No. 3 : Dt. 01.10.12)	0.9 ng/m^3 to 1000 ng/m^3

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	Ambient Air/ In plant Air quality /Fugitive emission Monitoring	Nickel	EEL/WP/A/10 (Issue No. 3 : Dt. 01.10.12)	0.5 ng/m^3 to 1000 ng/m^3
		Hydrogen sulphide	IS 5182 (Part 7): 1973 (RA 2009)	2 µg/m^3 to 100 µg/m^3
		Carbon monoxide	IS 5182 (Part 10): 1999 (RA 2009) Cl. 4	0.1 mg/m^3 to 100 mg/m^3
2.	**Stack emission**	Temperature	IS 11255 (Part 3): 2008	25 °C to 350 °C
		Velocity	IS 11255 (Part 3): 2008	3 m/sec to 16 m/sec
		Flow Rate	IS 11255 (Part 3): 2008	500 Nm^3/hr to 300000 Nm^3/hr
		Particulate Matter	IS 11255 (Part 1): 1985 (RA 2009) USEPA Method 5	2 mg/Nm^3 to 1000 mg/Nm^3
		Sulphur dioxide	IS 11255 (Part 2): 1985 (RA 2009) USEPA Method 6	12 mg/Nm^3 to 2000 mg/Nm^3
		Oxides of Nitrogen	IS 11255 (Part 7): 2005 USEPA method 7	11 mg/Nm^3 to 4000 mg/Nm^3
		Hydrogen sulphide	IS 11255 (Part 4): 2006	6 mg/Nm^3 to 100 mg/Nm^3
		Ammonia	IS 11255 (Part 6): 1999 (RA 2009)	5 mg/Nm^3 to 200 mg/Nm^3
		Fluoride	USEPA method 13 A	1 mg/Nm^3 to 100 mg/Nm^3

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	Stack emission	Mercury	USEPA method 29	0.05 mg/Nm^3 to 100 mg/Nm^3
		Vanadium	USEPA method 29	0.1 mg/Nm^3 to 100 mg/Nm^3
		Nickel	USEPA method 29	0.1 mg/Nm^3 to 100 mg/Nm^3
		Lead	USEPA method 29	0.1 mg/Nm^3 to 100 mg/Nm^3
		Sulphuric Acid emission	USEPA method 8	12 mg/Nm^3 to 1000 mg/Nm^3
		Carbon monoxide	USEPA method 10	1 mg/Nm^3 to 500 mg/Nm^3
IV.	**BUILDING MATERIALS**			
1.	**Hydraulic Cement**	Loss on Ignition	IS 4032: 1985 (RA 2009) Cl. 4.2	0.5 % to 15 %
		Silica as SiO_2	IS 4032: 1985 (RA 2009) Cl. 4.3	10 % to 25 %
		Combined Ferric oxide and Alumina as R_2O_3	IS 4032: 1985 (RA 2009) Cl. 4.4	0.5 % to 8 %
		Ferric oxide as Fe_2O_3	IS 4032: 1985 (RA 2009) Cl. 4.5	0.5 % to 8 %
		Alumina as Al_2O_3	IS 4032: 1985 (RA 2009) Cl. 4.6	0.5 % to 8 %
		Calcium oxide as CaO	IS 4032: 1985 (RA 2009) Cl. 4.7	30 % to 70 %
		Magnesia as MgO	IS 4032: 1985 (RA 2009) Cl. 4.8	0.1 % to 15 %
		Sulphuric Anhydride as SO_3	IS 4032: 1985 (RA 2009) Cl. 4.9	0.5 % to 5 %
		Insoluble Residue	IS 4032: 1985 (RA 2009) Cl. 4.10	0.5 % to 50 %
		Total alkali as Na_2O & K_2O	IS 4032: 1985 (RA 2009) Cl. 4.11	0.01 % to 5 %

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	Hydraulic Cement	Chlorides as Cl	IS 12423: 1988 (RA 2009) Cl. 8.4 Method 2	0.01 % to 1.0 %
2.	**Concrete Admixture**	Dry Material Content	IS 9103: 1999 (RA 2008) Annex. E-1	1 % to 100 %
		Ash Content	IS 9103: 1999 (RA 2008) Annex. E-2	1 % to 25 %
		Relative density	IS 9103: 1999 (RA 2008) Annex. E-3	0.8 to 3.0
		pH	IS 9103: 1999 (RA 2008) Annex. E-5	1 to 12
		Chloride ion concentration	IS 6925: 1973 (RA 2008) Cl. 5	0.01 % to 2.0 %
AT SITE				
I.	**NOISE**			
1.	**Noise Level Monitoring**	L_{eq} - Equivalent noise level	IS 9989: 1981 (RA 2008)	30 dB (A) to 130 dB (A)
II.	**AIR, GASES & ATMOSPHERE**			
1.	**Flue gas monitoring**	CO CO_2 O_2	EEL/WP/FG/01 (Issue No. 3 : Dt. 01.10.12)	2 mg/m^3 to 1000 mg/m^3 1 % to 99 % 1 % to 99 %

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