

Laboratory	Cochin Test House, Kollanpady, Irumpanam, Cochin, Kerala		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	12.09.2014
Certificate Number	T-2340	Valid Until	11.09.2016
Last Amended on	15.09.2014	Page	1 of 4

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. WATER				
1. (Drinking water, Water for food industry & Swimming pool water)	pH at 25 ⁰ C		IS: 3025 (Part 11)- 1983 RA 2012	4 to11
	Colour		IS: 3025 (Part 4)- 1983 RA 2012	1 to500 Hazen Unit
	Odour		IS: 3025 (Part 5)- 1983 RA 2012	Agreeable/ Disagreeable
	Total Dissolved Solids		IS: 3025 (Part 16)- 1984 RA 2012	5 to 5000 mg/L
	Turbidity		IS: 3025 (Part 10)- 1984 RA 2012	1 to1000 NTU
	Chloride as Cl-		IS: 3025 (Part 32)- 1988 RA 2009	5 to2000 mg/L
	Total Hardness as CaCO ₃		IS: 3025 (Part 21)- 2009 RA 2012	2 to 2000 mg/L
	Total Alkalinity as CaCO ₃		IS: 3025 (Part 23)- 1986 RA 2009	2 to 2000 mg/L
	Nitrate as NO ₃		IS: 3025 (Part 34)- 1988 RA 2009	0.1 to 100 mg/L
	Iron as Fe		IS: 3025 (Part 53)- 2003 RA 2009	0.08 to 200 mg/L
	Fluoride as F		APHA : 22 nd Edition - 4500 F ⁻ D	0.1 to 100 mg/L
	Sulphate as SO ₄		APHA: 22 nd Edition -4500 SO ₄ ²⁻ E	1.0 to500 mg/L
	Electrical Conductivity @25 ⁰ C		IS: 3025 (Part 14)- 1984,RA 2013	1 to10,000 micromhos/cm
	Calcium as Ca		IS: 3025 (Part 40)- 1991RA 2009	1.0 to200 mg/L
	Magnesium as Mg		IS: 3025 (Part 46)- 1994 RA 2009	1.0 to 100 mg/L
	Sodium as Na		IS: 3025 (Part 45)- 1993 RA 2009	1.0 to 1000 mg/L
	Potassium as K		IS: 3025 (Part 45)- 1993 RA 2009	1.0 to 1000 mg/L
	Mercury as Hg		APHA: 22 nd Edition 2012-3112 B	0.01 to5 mg/L
	Arsenic as As		APHA: 22 nd Edition 2012-3114 C	0.01to10 mg/L
	Lead as Pb		APHA: 22 nd Edition 2012-3111 C	0.5to 10 mg/L
	Nickel		APHA: 22 nd Edition 2012-3111 C	0.4 to 10 mg/L
	Residual free chlorine		IS: 3025 (Part 26)- 1988,RA 2009	1 to 10 mg/L

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	(Drinking water, Water for food industry & Swimming pool water)	Aluminum as Al	IS: 3025 (Part-55),2003 RA 2009	0.02 to 10 mg/L
		Copper as Cu	APHA:22 nd Edition 2012-3111 C	0.1 to 10 mg/L
		Hexavalent Chromium asCr ⁶⁺	APHA:22 nd Edition 2012-3500 Cr B	0.1 to 10 mg/L
		Zinc as Zn	APHA:22 nd Edition 2012.-3111B	0.05 to 10 mg/L
		Phenolic compounds as C ₆ H ₅ OH	IS: 3025 (Part 43)- 1992 RA 2009	0.001to10 mg/L
		Cadmium as Cd	APHA:22 nd Edition 2012, 3111 B	0.1to10 mg/L
		Selenium as Se	APHA: 22 nd Ed.2012 3114 C	0.01to10 mg/L
		Chromium as Cr	APHA: 22 nd Ed 2012. 3111 C	0.5 to 10 mg/L
		Cyanide as CN	IS: 3025 (Part 27)- 1986 RA 2003	0.02 to 5 mg/L
		Manganese as Mn	APHA: 22 nd Ed.2012 3111 B	0.1 to 100 mg/L
		Oxygen absorbed in 4 hours at 27 ⁰ C	IS: 3025 (Part 63)- 2007	0.4 to10 mg/L
		Vanadium As V	APHA: 22 nd Ed.2012 3500 V(B)	0.2 to 100 mg/L
		Reactive Silica as SiO ₂	IS: 3025 (Part 35)- 1998 RA 2009	0.5 to 100 mg/L
2.	Waste water/ Effluent water (as per General Effluent Standards)	pH at 25 ⁰ C	IS: 3025 (Part 11)- 1983 RA 2012	4 to11
		Suspended Solids	IS: 3025(Part 17)- 1984 RA 2012	1.0 to1000 mg/L
		Oil and grease	IS: 3025 (Part 39)- 1991 RA 2009	4.0 to 1000 mg/L
		BOD at 27 ⁰ C 3 days	IS: 3025 (Part 44)- 1993 RA 2009	2.0 to1000 mg/L
		Chemical Oxygen Demand	IS: 3025 (Part 58)- 2006 RA 2009	10.0 to 5000 mg/L
		Phenolic compounds as C ₆ H ₅ OH	IS: 3025 (Part 43)- 1992 RA 2009	0.001 to 100 mg/L

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	Waste water/ Effluent water (as per General Effluent Standards)	Sulphide as S	APHA: 22nd Ed.2012 4500 - S ²⁻ D/F	0.2 to 500 mg/L
		Cyanide as CN	IS: 3025 (Part 27)- 1986 RA 2009	0.02 to 5 mg/L
		Ammoniacal Nitrogen as NH ₃ -N	IS: 3025 (Part 34)- 1988 RA 2009	1.0 to 200 mg/L
		Total Kjeldhal Nitrogen as N	IS: 3025 (Part 34)- 1988 RA 2009	1.0 to 200 mg/L
		Total Phosphate as P	APHA: 22nd Ed.2012 4500 - P (C)	0.2 to 100 mg/L
		Hexavalent Chromium as Cr ⁶⁺	APHA: 22nd Ed.2012 3500 -Cr B	0.1 to 100 mg/L
		Total Chromium as Cr	APHA: 22nd Ed. 2012- 3111-C	0.05 to 100 mg/L
		Lead as Pb	APHA: 22nd Ed 2012. 3111-C	1 to 10 mg/L
		Zinc as Zn	APHA: 22nd Ed 2012. 3111-B	0.5 to 100 mg/L
		Copper as Cu	APHA: 22nd Ed 2012. 3111-C	1 to 10 mg/L
		Mercury as Hg	APHA: 22nd Ed 2012. -3112- B	0.1 to 5 mg/L
		Nickel as Ni	APHA: 22nd Ed 2012. -3111 -C	0.5 to 10 mg/L

II. AIR, GASES & ATMOSPHERE

1. Ambient Air. Quality monitoring	Sulphur dioxide (SO ₂)	IS: 5182 (Part 2) :2001 RA 2009	4 to 1050 µg/m ³
	Nitrogen dioxide (NO _x)	IS: 5182 (Part 6) :2006	6 to 750 µg/m ³
	PM ₁₀ Particulate matter (Size <10 µm)	IS: 5182 (Part 23) :2006	1.0 to 1000 µg/m ³
	PM _{2.5} Particulate matter (Size <2.5µm)	USEPA Quality Assurance Hand Book Vol.II. Part-2, Quality Assurance Guidelines Document 2.12	4 to 200 µg/m ³
	Ozone as O ₃	IS: 5182 (Part 9) :1974 RA 2009	1.2 to 145 µg/m ³
	Carbon monoxide (CO)	IS:5182 (Part 10) :1999 RA 2009 (Indicator Tube Method)	2 to 60 ppm / 2.29 to 68.82 mg/m ³

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	Ambient Air. Quality monitoring	Ammonia (NH ₃)	Methods of Air samples and analysis:- 3 rd Edn Method No.401(Indophenol Blue Method)	20 to 500 µg/m ³
		Suspended particulate matter (SPM)	IS: 5182(Part 4)1999 RA 2010	1 to 500 µg/m ³
		Lead	IS: 5182 (Part 22) : 2004	0.12 to 10 µg/ m ³
		Nickel	CTH/CH/SOP/460,	5.88 to100 ng /m ³
		Arsenic	CTH/CH/SOP/460,	1.13 to10 ng/ m ³
		Benzene	IS: 5182 (Part 11) - 2006	0.3 to100 µg/ m ³
		Benzo (a) Pyrene	IS: 5182 (Part 12) 2004	0.7 to100 ng/m ³
		Hydrogen Sulphide	IS: 5182 (Part 7)-1973 RA 2006	1.0 to100 / µg m ³
2.	Stack Emission monitoring	Particulate Matter	IS: 11255(Part 1)-1985 RA 2009	10 to500 mg/Nm ³
		Flow rate	IS: 11255(Part 3)-2008	3 to 50 m/s
		Sulphur dioxide (SO ₂)	IS: 11255(Part 2)-1985 RA 2009	1 to 500 mg/Nm ³
		Nitrogen dioxide (NO _x)	IS: 11255(Part 7)-2005	1 to500 mg/Nm ³
		Hydrogen Sulphide (H ₂ S)	IS:11255(Part 4) - 2006	1to100 mg/Nm ³
		Ammonia as (NH ₃)	IS: 11255(Part 6)-1999. RA 2003	1 to500 mg/Nm ³
3.	Noise level monitoring excluding vibration	Leq., Lmax, Lmin, SEL	IS:9989 – 1985 RA 2009	30 to 120 dB (A)

-X-X-X-X-X-X-X-X-X-X-X-X-