Laboratory	**ECO Laboratories & Consultants Pvt. Ltd., ECO Group, Eco Bhawan, E-207, Industrial Area, Phase VIII-B, (Sector-74), Mohali, Punjab**	
Accreditation Standard	**ISO/IEC 17025: 2017**	
Certificate Number	**TC-7477**	**Page 1 of 35**
Validity	**09.07.2019 to 21.06.2020**	**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

BIOLOGICAL TESTING

I.	**WATER**			
1.	**Drinking Water**	Total Coliforms	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
			IS 1622:1981 RA-2009)	≥1 CFU/ml
		Escherichia coli	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
2.	**Quality Tolerances for Water for Processed food Industry**	Coliform Bacteria	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
		Standard Plate Count	IS 1622:1981 (RA 2009)	≥1CFU/ml
		Proteolytic count	IS 4251/1967 (RA 2009) (Appendix A)	≥1CFU/ml
		Lipolytic Count	IS 4251/1967 (RA 2009) (Appendix A)	≥1CFU/ml
		Thermophilic count	IS 4251/1967(RA 2009) (Appendix B)	≥1 CFU/ml
3.	**Water for Swimming Pools**	Standard Plate Count	IS 3328/1993 (RA 2013) Annex A	≥1 CFU/ml
		Coliforms	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
4.	**Water for Ice Manufacturing**	Coliforms	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
		Standard Plate Count	IS 1622:1981 RA 2009)	≥1 CFU/ml
5.	**Water (Including Raw water/ Surface Water/Ground Water)**	Total Plate Count/ Heterotrophic plate count/Total Bacterial count	IS 1622:1981 (RA 2009)	≥1 CFU/ml
		Yeast & Mould	IS 5403:1999 (RA 2009)	≥1 CFU/ml
		Coliforms	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Faecal Coliforms	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
		Escherichia coli	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
		Coliforms	IS 15185:2016	≥1 CFU/100ml
		Escherichia coli	IS 1622:1981 (RA 2009)	≥1 CFU/100ml
II.	**ENVIRONMENT & POLLUTION**			
1.	**Waste Water (Effluent/ Sewage)**	Total Coliform Bacteria	APHA 23rd Edition Chapter 9	≥ 1.8 MPN/100ml
		Faecal Coliforms	APHA 23rd Edition Chapter 9	≥ 1.8 MPN/100ml
		Faecal Streptococci	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
		Faecal coliform	IS 1622:1981 (RA 2009)	2 MPN to 1600 MPN/100 ml
		Intestinal enterococci	IS 15186:2002 (RA 2009)	≥1 CFU/100ml
		Escherichia coli	IS 15185:2016	≥1 CFU/100ml
		Coliforms	IS 15185:2016	≥1 CFU/100ml
2.	**Indoor Air Quality**	Bacterial Count	APHA 23 Edition Chapter 9	≥1CFU/4hours/plate
		Yeast & Mould Count	APHA 23 Edition Chapter 9	≥1CFU/4hours/plate

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Accreditation Standard	**ISO/IEC 17025: 2017**		
Certificate Number	**TC-7477**	**Page 3 of 35**	
Validity	**09.07.2019 to 21.06.2020**	**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

CHEMICAL TESTING

I.	**WATER**			
1.	**Packaged Drinking Water / Packaged Natural Mineral Water / Drinking Water / Processed Food Industry/ Ground Water/ Ice Manufacturing**	Colour	APHA-23rd Ed 2017-2120 B Visual Comparison (Pt Cobalt) Method	5 to100 Colour Units
			IS 3025 (Part-4) Cl 2.0: 1983 [Reaffirmed.2017]	
		Odour	IS 3025 (Part-5): 1983 [Reaffirmed. 2017]	Qualitative-Agreeable
		Turbidity	APHA-23rd Ed 2017- 2130B Nephelometric Method	0.1 NTU to 100 NTU
			IS 3025 (Part-10) : 1984 [Reaffirmed. 2017]	
		pH @ 25°`C	APHA-23rd Ed 2017-4500B (Page No. 4-95 to 4-100)	2 - 13
			IS 3025 (Part-11):1984 [Reaffirmed.2017]	
		Total Dissolved Solids	APHA-23rd Ed 2017- 2540C Dried at 180ºC	5 mg/L to -2000 mg/L
			IS 3025 (Part-16):1984 [Reaffirmed.2017]	
		Aluminium as Al	APHA-23rd Ed 2017-3111E Ext NO_2- Ac Flame AAS Method	0.1 mg/L to 5 mg/L
			IS 3025(Part-55):2014 (a) Erichrome Cyanine R method	0.02 mg/l to 2 mg/l
		Ammonia as NH_3-N	APHA-23rd Ed 2017-4500F Phenate Method	0.3 mg/L to 50 mg/L
			IS 3025 (Part-34):2005 Phenate Method (RA 2014)	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Anionic Detergents as MBAS	APHA-23rd Ed 2017- 5540 B & C	0.05 mg/L to 5 mg/L
			Annex K of IS 13428:2005 [Reaffirmed.2014]	
		Barium as Ba	Annex F of IS 13428:2005 [Reaffirmed.2014]	0.5 mg/L to 10 mg/L
		Boron as B	APHA-23rd Ed 2017- 4500B Curcumin Method	0.05 mg/L to 10 mg/L
			IS 3025 (Part- 57):2005 Curcumin Method (RA 2017)	
			Annex H of IS 13428:2005	0.02 mg/L to 0.5 mg/L
		Calcium as Ca	APHA-23rd Ed 2017-3500B-EDTA Method	1 mg/L to 1000 mg/L
			IS 3025 (Part-40):1991 [Reaffirmed.2014]	
		Chloride as Cl	APHA-23rd Ed 2017- 4500 B Argentometric Method	1 mg/L to 1000 mg/L
			IS 3025 (Part-32):1988 [Reaffirmed.2009]	
		Copper as Cu	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.02 mg/L to 10 mg/L
			IS 3025 (Part-42):1992 [Reaffirmed.2014]	
		Fluoride as F	IS 3025 (Part-60):2013	0.1 mg/L to 20.0 mg/L
			APHA-23rd Ed 2017-4500 D SPADNS Method	
		Free residual chlorine	APHA-23rd Ed 2017- 4500G DPD Colorimetric Method	0.1 mg/L to 10 mg/L
		Iron as Fe	APHA-23rd Ed 2017-3111B	0.05 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3500Fe-B Phenanthroline Method	
			IS 3025 (Part-53): 2003 [Reaffirmed.2014]	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Magnesium as Mg	APHA-23rd Ed 2017-3500-Mg B Calculation Method	1 mg/L to 600 mg/L
			IS 3025 (Part-46):1994 [Reaffirmed.2014]	
		Manganese as Mn	APHA-23rd Ed 2017 3111B A-Ac Flame AAS Method	0.05 mg/L to 5 mg/L
		Nitrate as NO_3	APHA-23rd Ed 2017-4500 B UV Screening Method	1 mg/L to 100 mg/L
			IS 3025 (P-34)Cl 3.4, 1988 [Reaffirmed.2014] Devarda's Alloy Reduction Method	
		Nitrite as NO_2	IS 3025 (P-34) Cl 4.0, 1988 [Reaffirmed.2014]	0.02 mg/L to 1.0 mg/L
		Phenolic Compounds (as C_6H_5OH)	IS 3025 (Part-43):1992 [Reaffirmed.2014]	0.001 mg/L to 1.0 mg/L
			APHA-23rd Ed 2017-5530C	
		Selenium (as Se)	IS 3025 (Part-56) Cl 7.0:2003, [Reaffirmed.2014]	0.01 mg/L to 2.0 mg/L
			APHA-23rd Ed 2017-3114C	
		Silver as Ag	Annex J of IS 13428	0.01 mg/L to 2.0 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	
		Sulphates SO_4	IS 3025 (Part-24) Cl 4.0:1986 Turbidity Method [Reaffirmed.2014]	1 mg/L to 100.0 mg/L
			APHA-23rd Ed 2017- 4500E Turbidity Method	
		Sulphide as H_2S	IS 3025 (Part-29) Cl 3.0:1986 [Reaffirmed. 2014] Methylene Blue Method	0.1 mg/L to 1.0 mg/L
			APHA-23rd Ed 2017-4500S^2-D Methylene Blue Method	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total Alkalinity as $CaCO_3$	IS 3025 (Part-23):1986 [Reaffirmed.2014]	1 mg/L to 1000 mg/L
			APHA-23rd Ed 2017-.2320 B Titration Method	
		Total Hardness as $CaCO_3$	IS 3025 (Part-21):2009[Reaffirmed.2014]	2 mg/L to 1000 mg/L
			APHA-23rd Ed 2017-2340C EDTA Method	
		Zinc as Zn	IS 3025 (Part-49):1994 [Reaffirmed.2014]	0.05 mg/L to 50 mg/L
			APHA-23rd Ed 2017- 3111B A-Ac Flame AAS Method	
		Cadmium as Cd	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.01 mg/L to 5 mg/L
			IS 3025(Part-41) Cl 6.0:1992 [Reaffirmed.2014]	0.01 mg/L to 2 mg/L
			APHA-23rd Ed 2017-3111C Ext A-Ac Flame AAS Method	
		Cyanide as CN	APHA-23rd Ed 2017- 4500 E	0.01 mg/L to 1 mg/L
		Lead as Pb	IS 3025 (Part-47) Cl 8.0:1994 [Reaffirmed. 2014]	0.01 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3111C Ext A-Ac Flame AAS Method	
		Mercury as Hg	IS 3025 (Part-48) Cl 5.0:1994 [Reaffirmed. 2014]	0.0005 mg/L to 2 mg/L
			APHA-23rd Ed 2017-3112B	
		Molybdenum as Mo	APHA-23rd Ed 2017-3111D NO_2- Ac Flame AAS Method	0.05 mg/L to 5 mg/L
		Nickel as Ni	IS 3025 (Part-54):2003 [Reaffirmed.2014]	0.02 mg/L to 10 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	
		Total Arsenic as As	IS 3025 (Part-37):1988 [Reaffirmed. 2014]	0.01 mg/L to 5.0 mg/L
			APHA-23rd Ed 2017-3114C Hydride Generation	
		Total Chromium as Cr	IS 3025 (Part-52) Cl 7.0:2003 [Reaffirmed.2014]	0.05 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	
			APHA-23rd Ed 2017-3111C Ext A-Ac Flame AAS Method	0.02 mg/L to 2 mg/L
		Sodium as Na	IS 3025 (Part-45):1993 [Reaffirmed.2014]	1 mg/L to 500.0 mg/L
			APHA-23rd Ed 2017-3500B Flame Photometric Method	
		Potassium as K	IS 3025 (Part-45):1993 [Reaffirmed.2014]	1 mg/L to 100.0 mg/L
			APHA-23rd Ed 2017-3500B Flame Photometric Method	
		Antimony as Sb	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.5 mg/L to 5.0 mg/L
		Chloramines as Cl_2	APHA-23rd Ed 2017- 4500G DPD Colorimetric Method	0.1 mg/L to 10 mg/L
		Total Solids	IS 3025 (Part-15):1984[Reaffirmed.2014]	5 mg/L to 5000 mg/L
			APHA-23rd Ed 2017- 2540B Dried at 103-105ºC	
		Appearance	APHA-23rd Ed 2017-2110	NA
		Acidity as $CaCO_3$	APHA-23rd Ed 2017-2310 B Titration Method	1 mg/L to 500 mg/L
			IS 3025 (Part-22):1986 [Reaffirmed.2014]	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Calcium Hardness as $CaCO_3$	APHA-23rd Ed 2017-3500B EDTA Method	1 mg/L to 1000 mg/L
		Magnesium Hardness as $CaCO_3$	APHA-23rd Ed 2017-3500-Mg B Calculation Method	1 mg/L to 600 mg/L
		Reactive silica as SiO_2	APHA-23rd Ed 2017-4500C Molybdosilicate Method (Page No. 4-167 to Page No. 4-169)	1 mg/L to 25 mg/L
			APHA-23rd Ed 2017-4500D Heteropoly Blue Method	0.1 mg/L to 10 mg/L
		Hexavalent Chromium as Cr^{6+}	IS 3025 (Part-52) Cl 6.0:2003 [Reaffirmed.2014]	0.05 mg/L to 5 mg/L
			APHA-23rd Ed 2017-3500B	
2.	**Water Construction Purpose**	Organic solids	IS 3025 (Part-18):1984 [Reaffirmed.2017]	1 mg/L to 1000 mg/L
		Inorganic solids	IS 3025 (Part-18):1984 [Reaffirmed.2002]	5 mg/L to 5000 mg/L
		Sulphate as SO_4	IS 3025 (Part-24):1986 [Reaffirmed.2014]	1 mg/L to 1000 mg/L
			APHA-23rd Ed 2017- 4500E Turbidity Method	
		Chloride as Cl	APHA-23rd Ed 2017- 4500 B Argentometric Method	1 mg/L to 5000 mg/L
			IS 3025 (Part-32):1988 [Reaffirmed.2014]	
		Suspended Matter	IS 3025 (Part-17):1984	5 mg/L to 5000 mg/L
			APHA-23rd Ed 2017- 2540 D Dried at 103-105ºC	
		pH @ 25°C	APHA-23rd Ed 2017-4500B	2 to 13
			IS 3025 (Part-11):1984 [Reaffirmed.2017]	
		To neutralize 100ml of sample water using phenolphthalein as an	IS 456:2000 [Reaffirmed.2016]	0.1 to 50 ml

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		indicator using 0.02N NaOH		
		b) To neutralize 100ml of sample water using Mixed indicator using 0.02 N H_2SO_4	IS 456:2000:[Reaffirmed.2016]	0.1 to 50 ml
3.	**Swimming Pools / Surface Water/ Irrigation, Industrial Cooling Water/ Boiler Water/ Bore well/ Domestic**	Colour	APHA-23rd Ed 2017-2120 B Visual Comparison (Pt Cobalt) Method	5 to 100 Colour Units
			Cl 2.0 IS 3025 (Part-4): 1983 [Reaffirmed.2017]	
		Odour	IS 3025 (Part-5) : 1983 [Reaffirmed. 2017]	Qualitative-Agreeable
		Taste	IS 3025 (Part-8):1984 [Reaffirmed.2017]	Qualitative-Agreeable
		Temperature	APHA-23rd Ed 2017-2550 B	15 to 50°C
		Turbidity	APHA-23rd Ed 2017- 2130B Nephelometric Method	1 NTU to 200 NTU
			IS 3025 (Part-10): 1984 [Reaffirmed. 2017]	
		pH @ 25°C	APHA-23rd Ed 2017-4500B	2-13
			IS 3025 (Part-11):1984 [Reaffirmed.2017]	
		Oxygen Dissolved (DO)	APHA-23rd Ed 2017-4500C Winkler Method with Azide Modification	1 mg/L to 10 mg/L
		Phosphorus as P	APHA-23rd Ed 2017-4500-D Stannous Chloride Method	0.5 mg/L to 50 mg/L
		Residual hydrazine as N_2H_4	ASTM D 135-07	0.1 mg/L to 10 mg/L
		Sodium Absorption Ratio	IS 11624; 1986 (Reaffirmed. 2009)	0.1-30
		Percent Sodium	IS:2488 (Part- V):1976	20 to 80%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total Dissolved Solids	APHA-23rd Ed 2017- 2540C Dried at 180ºC	5 mg/L to 50000 mg/L
			IS 3025 (Part-16):1984 [Reaffirmed.2017]	
		Solids- Fixed & Volatile	APHA-23rd Ed 2017- 2540 E Ignited at 550°C	5 mg/L to 5000 mg/L
		Aluminium as Al	APHA-23rd Ed 2017-3111D NO_2- Ac Flame AAS Method	0.1 mg/L to 50 mg/L
		Ammonia as NH_3-N	APHA-22nd Ed 2012-4500C Titrimetric Method	1 mg/L to 50 mg/L
			Cl 2.5 IS 3025 (Part-34):1988 Titrimetric Method [Reaffirmed.2009]	
		Barium as Ba	APHA-23rd Ed 2017-3111D NO_2- Ac Flame AAS Method	1 mg/L to 20 mg/L
			Annex F of IS 13428:2005	
		Boron as B	APHA-23rd Ed 2017- 4500C Carmine Method	1 mg/L to 20 mg/L
		Calcium as Ca	APHA-23rd Ed 2017-3500B-EDTA Method	5 mg/L to 5000 mg/L
			IS 3025 (Part-40):1991 [Reaffirmed.2014]	
		Chloride as Cl	APHA-23rd Ed 2017- 4500 B Argentometric Method	10-50000 mg/L
			IS 3025 (Part-32):1988 [Reaffirmed.2014]	
		Copper as Cu	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.5 mg/L to 20 mg/L
			IS 3025 (Part-42):1992 [Reaffirmed.2014]	
		Fluoride as F	IS 3025 (Part-60):2008[Reaffirmed.2013]	0.2 mg/L to 20.0 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			APHA-23rd Ed 2017-4500 D SPADNS Method	
		Free residual chlorine	APHA-23rd Ed 2017- 4500G DPD Colorimetric Method	0.1 mg/L to 10 mg/L
		Iron as Fe	APHA-23rd Ed 2017-3111B	0.05 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3500Fe-B Phenanthroline Method	
			IS 3025 (Part-53): 2003 [Reaffirmed.2014]	
		Magnesium as Mg	APHA-23rd Ed 2017-3500-Mg B Calculation Method	5 mg/L to 2000 mg/L
			IS 3025 (Part-46):1994 [Reaffirmed.2014]	
		Oxygen Absorbed in 4hrs	IS:3025 (P-63): 2007[Reaffirmed.2013]	1.0 mg/L to 100 mg/L
		Biochemical Oxygen Demand (BOD)	IS: 3025 (P-44):1993 R-2014 Ad.1 BOD 3-days at 27 ºC	2 mg/L to 1000 mg/L
		Chemical Oxygen Demand (COD)	APHA-23rd Ed 2017- 5220B Open Reflux Method	5 mg/L to 2000 mg/L
		Oil & Grease	APHA-23rd Ed 2017- 5520D Soxhlet Extraction (Page No. 5-42 to Page No. 5-43)	1 mg/L to 40 mg/L
		Manganese as Mn	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.1 mg/L to 10 mg/L
		Nitrate as NO_3	Cl 3.3, IS 3025 (Part-34) 1988 R1999 Chromotropic Acid Method	1 mg/L to 100 mg/L
		Phenolic Compounds as C_6H_5OH	IS 3025 (Part-43):1992 [Reaffirmed.2014]	0.01 mg/L to 10.0 mg/L
			APHA-23rd Ed 2017-5530C	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Selenium as Se	Cl 7.0 IS 3025 (Part-56): 2003 [Reaffirmed.2014]	0.01 mg/L to 10.0 mg/L
			APHA-23rd Ed 2017-3114C	
		Silver as Ag	Annex J of IS 13428	0.1 mg/L to 5.0 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	
		Sulphate as SO_4	APHA-23rd Ed 2017- 4500E Turbidity Method	5 mg/L to 1000 mg/L
		Sulphide as H_2S	Cl 3.0 IS 3025 (Part-29): 1986 (RA 2014) Methylene Blue Method	0.1 mg/L to 10 mg/L
			APHA-23rd Ed 2017- 4500S^2-D Methylene Blue Method	
		Total Alkalinity as $CaCO_3$	IS 3025 (Part-23):1986 [Reaffirmed.2014]	5 mg/L to 5000 mg/L
			APHA-23rd Ed 2017-2320 B Titration Method	
		Total Hardness as $CaCO_3$	IS 3025 (Part-21):2014	5 mg/L to 5000 mg/L
			APHA-23rd Ed 2017-2340C EDTA Method	
		Zinc as Zn	IS 3025 (Part-49):1994[Reaffirmed.2014]	1 mg/L to 50 mg/L
			APHA-23rd Ed 2017- 3111B A-Ac Flame AAS Method	
		Cadmium as Cd	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.01 mg/L to 5 mg/L
		Cyanide as CN	APHA-23rd Ed 2017- 4500 E	0.1 mg/L to 5.0 mg/L
		Lead as Pb	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.1 mg/L to 10 mg/L
		Mercury as Hg	Cl 5.0 IS 3025 (Part-48):1994 [Reaffirmed.2014]	0.005 mg/L to 2 mg/L
			APHA-23rd Ed 2017-3112B	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nickel as Ni	IS 3025 (part 54):2003 [Reaffirmed.2014]	1 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	
		Total Arsenic as As	IS 3025 (Part-37):1988 [Reaffirmed.2014]	0.01 mg/L to 5.0 mg/L
			APHA-23rd Ed 2017-3114C Hydride Generation	
		Total Chromium as Cr	Cl 7.0 IS 3025 (Part-52):2003 [Reaffirmed.2014]	0.5 mg/L to 50 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	
		Total Solids	IS 3025 (Part-15):1984[Reaffirmed.2014]	10 mg/L to 50000 mg/L
			APHA-23rd Ed 2017- 2540B Dried at 103-105ºC	
		Silica as SiO_2	APHA-23rd Ed 2017-4500C Molybdosilicate Method	1 mg/L to 200 mg/L
II.	**FERTILIZERS**			
1.	**Nitrogenous, Fertilizers**	Moisture	FCO,2017,Schedule II, Part B-2, Page 65	0.1 g/100g (%) to10 g/100g (%)
		Total Nitrogen	FCO,2017,Schedule II, Part B- IV, Page 68	0.1 g/100g (%) to 70 g/100g (%)
		Ammonia Nitrogen	FCO, 2017,Schedule II, Part B-VII, Page 72	0.1 g/100g (%) to 25 g/100g (%)
		Urea Nitrogen	FCO,2017,Schedule II, Part B-XI, Page 74	0.1 g/100g (%) to 50 g/100g (%)
		Particle Size	FCO,2017,Schedule II, Part B-20, Page 157	0 to 100 g/100g (%)
2.	**Bio-fertilizers, Organic Fertilizers, City Compost,**	pH	FCO, 2017, Schedule IV, Part D-1, Page 224	2 to 12
		Moisture	FCO, 2017,Schedule IV, Part D-2, Page 224	2 g/100g (%) to 50 g/100g (%)

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Accreditation Standard	**ISO/IEC 17025: 2017**	
Certificate Number	**TC-7477**	**Page 14 of 35**
Validity	**09.07.2019 to 21.06.2020**	**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
	Vermi Compost Organic manure	Bulk Density	FCO, 2017,Schedule IV, Part D-3, Page 224	0.1 g/cm^3 to 30 g/cm^3
		Electrical Conductivity	FCO, 2017, Schedule IV, Part D-4, Page 225	1 dSm^{-1} to 20 dSm^{-1}
		Total Organic Carbon	FCO, 2017, Schedule IV Part D-5, Page 225	1 g/100g (%) to 60 g/100g (%)
		Total Nitrogen	FCO, 2017,Schedule IV, Part D-6, Page 226	0.1 g/100g (%) to 25 g/100g (%)
		Carbon: Nitrogen Ratio	FCO, 2017,Schedule IV, Part D-7, Page 226	0.2 -25
		Total Phosphate	FCO, 2017,Schedule IV Part D-8, Page 226	0.05–25 g/100g (%)
		Total Potassium	FCO, 2017,Schedule IV, Part D-9, Page 227	0.05–10 g/100g (%)
		Cadmium	FCO, 2017,Schedule IV, Part D-10, Page 228	0.2 mg/kg to100 mg/kg
		Zinc	FCO, 2017,Schedule IV, Part D-10, Page 228	0.2 mg/kg to 100 mg/kg
		Copper	FCO, 2017,Schedule IV, Part D-10, Page 228	1 mg/kg to 5000 mg/kg
		Chromium	FCO, 2017,Schedule IV, Part D-10, Page 228	2 mg/kg to 200 mg/kg
		Lead	FCO, 2017,Schedule IV, Part D-10, Page 228	2 mg/kg to 150 mg/kg
		Nickel	FCO, 2017,Schedule IV, Part D-10, Page 228	1.2 mg/kg to 100 mg/kg
		Mercury	FCO, 2017,Schedule IV, Part D-11, Page 229	0.1 mg/kg to 10 mg/kg
		Arsenic	FCO, 2017,Schedule IV, Part D-12, Page 230	0.2 mg/kg to 100 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III.	**ATMOSPHERIC POLLUTION**			
1.	**Ambient Air Quality/Work Zone Emissions/ Fugitive Emissions Monitoring**	Suspended Particulate Matter	IS 5182: Part- 4: 1999, RA 2014	10 µg/m^3 to 5000 µg/m^3
		Sulphur Dioxide as SO_2	IS 5182 : Part-2:2001, RA 2017	5 µg/m^3 to 1000 µg/m^3
		Oxides of Nitrogen	IS 5182: Part-6:2006 RA2017	7 µg/m^3 to 750 µg/m^3
		Respirable Suspended Particulate Matter (PM_{10})	IS 5182 : Part-23:2006 RA 2017	5 µg/m^3 to 5000 µg/m^3
		Particulate Matter ($PM_{2.5}$)	Lab SOP: EL/SOP/AAQ/01,.[Based on USEPA EQPM-0308-170]	10 µg/m^3 to 500 µg/m^3
		Ammonia as NH_3	Lab SOP: EL/SOP/AAQ/02 (Based on method: 401, Methods of Air Sampling and Analysis, James P. Lodge, JR., Editor, Intersociety committee)	5 µg/m^3 to 1000 µg/m^3
		Ozone as O_3	IS 5182 Part-9: 1974, RA 2014)	5 µg/m^3 to 1000 µg/m^3
		Carbon monoxide as CO	Iodine Pentoxide method IS: 5182 Part-10:1999 (Reaffirmed 2014)	50 µg/m^3 to 1000 µg/m^3
			Lab SOP: EL/SOP/AAQ/03, Issue No.- 03 & Issue date.- 01.01.2016	1.5 mg/m^3 to 40 mg/m^3
		Lead as Pb	IS: 5182 Part-22: 2004 (RA 2014)	0.04 µg/m^3 to 10 µg/m^3
		Arsenic as As	Lab SOP: EL/SOP/AAQ/04, [Method: 822, Methods of Air Sampling and Analysis,	1 to 100 ng/ m^3

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Inter Society Committee,3rd Edition] Issue date:01.01.2016	
		Nickel as Ni	Lab SOP: EL/SOP/AAQ/04[Based on method: 822, Methods of Air Sampling and Analysis, Inter Society Committee, 3rd Edition] Issue date:01.01.2016	10 ng/m^3 to 100 ng/m^3
		Benzene	IS 5182 Part-11:2006 (RA 2017)	10- 100 µg/m^3
		Benzo-a-pyrene Particulate phase	IS 5182 Part-12: 2004 (RA 2014)	1-100ng/m^3
2.	**Stack Emissions/ Gaseous Pollutants Excluding Vehicular**	Temperature	IS 11255 Part-3: 1970 (RA 2009)	5 to 600˚C
		Flue gas velocity	IS 11255 Part-3: 2008	3- 60 m/s
		Flow rate	IS 11255 Part-3: 2008	10- 100000 Nm^3/hr
		Particulate Matter	IS 11255 Part-1:1985 (2014)	5-1000 mg/Nm^3
		Sulphur dioxide as SO_2	IS 11255: Part-2: 1985 Reaffirmed. 2010	5- 5000 mg/Nm^3
		Oxides of Nitrogen	IS 11255: Part-7: 2005	2-10,000 mg/Nm3
		Carbon dioxide as CO_2	IS 13270-1992 Orsat, Reaffirmed. 2014	0.2% to 18%
		Oxygen as O_2	IS 13720-1992Orsat, Reaffirmed. 2010	1% to 20%
3.	**Indoor Air Quality Monitoring**	% Relative Humidity	SOP: EL/SOP/IAQ/02[By wet and Dry bulb thermometer] Issue date:01.01.2016	20% to 100%
		Heat Stress	(Lab SOP:EL/SOP/IAQ/03 [Based on Heat stress analyzer]) Issue date:01.01.2016	20^0C to 50 ^{0}C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Oxides of Nitrogen	Lab SOP:EL/ SOP/ IAQ/ 04[Based on NO2 Analyzer }l Issue date:01.01.2016	2 mg/m^3 to 1000 mg/m^3
		Carbon Monoxide as CO	Lab SOP: EL/SOP/IAQ/05[Based on CO Analyzer]	1 mg/m^3 to 50 mg/m^3
		Sulphur Dioxide as SO_2	Lab SOP: EL/SOP/IAQ/06[Based on SO2 Analyzer manual] Issue date:01.01.2016	2 mg/m^3 to 1000mg/m^3
		Hydrogen Sulphide as H_2S	EL/SOP/IAQ/07[Based on IS 5182 Part-7: 1973] Issue date:01.01.2016	1 $\mu g/m^3$ to 100 $\mu g/m^3$
		Oxygen as O_2	Lab SOP: EL/ SOP/ IAQ/ 08[Based on O2 Analyzer manual]	1% to 21%
		Total VOC's	Lab SOP: EL/SOP/IAQ/09[Based on VOC Analyzer] Issue date:01.01.2016	0.01 $\mu g/m^3$ to 1000 $\mu g/m^3$
		Illumination Level	SOP: EL/ SOP/ IAQ/ 10 [based on IS 3646-1: &Lux meter] Issue date:01.01.2016	1 Lux to 5000 Lux
		Noise Level (Inside Commercial, Building, Office only)	Lab SOP:, EL/SOP/IAQ/11[Based on IS:7194: /IS 9876:1981l] Issue date:01.01.2016	30 dB(A) to 130 dB(A)
IV.	**POLLUTION & ENVIRONMENT**			
1.	**Liquid Effluent/ Waste Water/ ETP/STP**	Colour	APHA-23rd Ed 2017-2120 B Visual Comparison (Pt Cobalt) Method	5 -100 Hazen Unit

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Cl 2.0 IS 3025 (Part- 4): 1983 [Reaffirmed.2017]	5 -100 Hazen Unit
		Odour	IS 3025 (Part-5): 1983 [Reaffirmed. 2017]	Qualitative-Agreeable
		Conductivity	APHA-23rd Ed 2017–2510B	1 µmho/cm to 20000 µmho/cm
		Temperature	APHA-23rd Ed 2017-2550 B	1 °C to 50°C
		Turbidity	APHA-23rd Ed 2017- 2130B Nephelometric Method	1 NTU to 500 NTU
			IS 3025 (Part-10): 1984 [Reaffirmed 2017]	1 NTU to 500 NTU
		pH @ 25°C	APHA-23rd Ed 2017-4500B	2-13
			IS 3025 (Part-11):1983 [Reaffirmed.2017]	2-13
		Oxygen Dissolved (DO)	APHA-23rd Ed 2017-4500C Winkler Method with Azide Modification	0.2 mg/L to 15 mg/L
		Phosphate as PO_4	APHA-23rd Ed 2017-4500-D Stannous Chloride Method	0.5 mg/L to 100 mg/L
		Residual Sodium Carbonate	Lab SOP No. EL/SOP/WW/01, Issued No.-01& Issued date-01.01.2016	1 - 100 meq/L
		Percent Sodium (%)	IS:2488 (Part V) :1976	0.1 % to 100 %
		Total Dissolved Solids	APHA-23rd Ed 2017- 2540C Dried at 180ºC	5 mg/L to 50000 mg/L
			IS 3025 (Part-16):1984 [Reaffirmed.2017]	5 mg/L to 50000 mg/L
		MLVSS	APHA-23rd Ed 2017- 2540 E Ignited at 550°C	5 mg/L to 5000 mg/L
		Total Suspended Solids/MLSS	APHA-23rd Ed 2017- 2540 D Dried at 103-105ºC	5 mg/L to 10000 mg/L
			IS 3025 (Part-16):1984 [Reaffirmed.2017]	5 mg/L to 10000 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Aluminium as Al	APHA-23rd Ed 2017-3111D NO_2- Ac Flame AAS Method	1 mg/L to 100 mg/L
		Ammonia as NH_3-N	APHA-23rd Ed 2017-4500C Titrimetric Method	1 mg/L to 500 mg/L
			Cl 2.5 IS 3025 (Part-34): 1988 Titrimetric Method [Reaffirmed.2014]	1 mg/L to 500 mg/L
		Free Ammonia as NH_3	APHA-23rd Ed 2017-4500F Phenate Method	1 mg/L to 50 mg/L
		Total Kjeldhal Nitrogen as NH_3	APHA-23rd Ed 2017-4500B	1 mg/L to 200 mg/L
		Boron as B	APHA-23rd Ed 2017-4500C Carmine Method	1 mg/L to 20 mg/L
		Calcium as Ca	APHA-23rd Ed 2017-3500B EDTA Method	5 mg/L to 10000 mg/L
			IS 3025 (Part-40):1991 [Reaffirmed.2014]	5 mg/L to 10000 mg/L
		Chloride as Cl	APHA-23rd Ed 2017- 4500 B Argentometric Method	10 mg/L to 5000 mg/L
			IS 3025 (Part-32):1988 [Reaffirmed.2014]	10 mg/L to 5000 mg/L
		Copper as Cu	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.1 mg/L to 500 mg/L
			IS 3025 (Part-42):1992 [Reaffirmed.2003]	0.1 mg/L to 500 mg/L
		Fluoride as F	IS 3025 (Part-60):2008	0.1 mg/L to 100 mg/L
			APHA-23rd Ed 2017-4500 D SPADNS Method	0.2 mg/L to 100 mg/L
		Free residual chlorine	APHA-23rd Ed 2017- 4500G DPD Colorimetric Method	0.1 mg/L to 50 mg/L
		Iron as Fe	APHA-23rd Ed 2017-3111B	0.1 mg/L to 100 mg/L
			APHA-23rd Ed 2017-	0.05 mg/L to 100 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			3500Fe-B Phenanthroline Method	
			IS 3025 (Part-53): 2003 [Reaffirmed.2009]	0.05 mg/L to 100 mg/L
		Magnesium as Mg	APHA-23rd Ed 2017-3500-Mg B Calculation Method	5 mg/L to 5000mg/L
			IS 3025 (Part-46):1994 [Reaffirmed.2009]	5 mg/L to 5000 mg/L
		Biochemical Oxygen Demand (BOD)	IS: 3025 (P-44)-1993 R-1999 Ad.1 BOD 3-days at 27 ºC	2 mg/L to 50000 mg/L
		Chemical Oxygen Demand (COD)	APHA-23rd Ed 2017- 5220B Open Reflux Method	5 mg/L to 100000 mg/L
		Oil & Grease	APHA-23rd Ed 2017- 5520D Soxhlet Extraction	3 mg/L to 100 mg/L
		Manganese as Mn	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.1 mg/L to 100mg/L
		Nitrate as NO_3	Cl 3.3, IS 3025 (P-34) 1988 [Reaffirmed.2009] Chromotropic Acid Method	0.5 mg/L to 100 mg/L
		Phenolic Compounds as C_6H_5OH	IS 3025 (Part-43):1992 [Reaffirmed.2009]	0.01 mg/L to 50 mg/L
			APHA-23rd Ed 2017-5530C	0.01 mg/L to 50mg/L
		Selenium as Se	Cl 7.0 IS 3025 (Part-56):2003	0.01 mg/L to 50 mg/L
			APHA-23rd Ed 2017-3114C	0.01 mg/L to 50mg/l
		Sulphate as SO_4	APHA-23rd Ed 2017-4500ETurbidity Method	5 mg/L to 5000 mg/L
		Sulphide as H_2S	Cl 3.0 IS 3025 (Part-29):1986 [Reaffirmed.1992] Methylene Blue Method	0.1 mg/L to 50 mg/L
			APHA-23rd Ed 2017-4500S^2-D Methylene Blue Method	0.1 mg/L to 50mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total Alkalinity as $CaCO_3$	IS 3025 (Part-23):1986 [Reaffirmed.2014]	5 mg/L to 5000mg/L
			APHA-23rd Ed 2017-.2320 B Titration Method	5 mg/L to 5000mg/L
		Total Hardness as $CaCO_3$	IS 3025 (Part-21):2009[Reaffirmed.2014]	5 mg/L to 10000 mg/L
			APHA-23rd Ed 2017-2340C EDTA Method	5 mg/L to 10000 mg/L
		Zinc as Zn	IS 3025 (Part-49):1994 [Reaffirmed.2003]	0.1 mg/L to 50 mg/L
			APHA-23rd Ed 2017- 3111B A-Ac Flame AAS Method	0.1 mg/L to 50 mg/L
		Cadmium as Cd	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.01 mg/L to 5 mg/L
		Cyanide as CN	APHA-23rd Ed 2017- 4500 E	0.1 mg/L to 5.0 mg/L
		Lead as Pb	APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.1 mg/L to 10 mg/L
		Mercury as Hg	Cl 5.0 IS 3025 (Part-48):1994 [Reaffirmed.2014]	0.005 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3112B	0.005 mg/L to 10 mg/L
		Nickel as Ni	IS 3025 (Part-54):2003 [Reaffirmed.2014]	0.5 mg/L to 50 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.5 mg/L to 50 mg/L
		Total Arsenic as As	IS 3025 (Part-37):1988 [Reaffirmed.2014]	0.1 mg/L to 10.0 mg/L
			APHA-23rd Ed 2017-3114C Hydride Generation	0.01 mg/L to 10mg/L
		Total Chromium as Cr	Cl 7.0 IS 3025 (Part-52):2003 [Reaffirmed.2014]	0.5 mg/L to 50 mg/L
			APHA-23rd Ed 2017-3111B A-Ac Flame AAS Method	0.5 mg/L to 50 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total Solids	IS 3025 (Part-15): 1984 [Reaffirmed.2014]	10 mg/L to 50000 mg/L
			APHA-23rd Ed 2017- 2540B Dried at 103-105ºC	10 mg/L to 50000 mg/L
		Silica as SiO_2	APHA-23rd Ed 2017-4500C Molybdosilicate Method	1 mg/L to 200 mg/L
		Hexavalent Chromium as Cr^{6+}	Cl 6.0 IS 3025 (Part-52):2003 [Reaffirmed.2014]	0.05 mg/L to 10 mg/L
			APHA-23rd Ed 2017-3500B	
		Sodium as Na	IS 3025 (Part-45):1993 [Reaffirmed.2014]	1.0 mg/L to 2000.0 mg/L
			APHA-23rd Ed 2017-3500B Flame Photometric Method	1.0 mg/L to 5000 mg/L
		Potassium as K	IS 3025 (Part-45):1993 [Reaffirmed.2014]	1.0 mg/L to 2000.0 mg/L
			APHA-23rd Ed 2017-3500B Flame Photometric Method	
		Dissolved Oxygen (DO)	APHA-23rd Ed 2017-4500C Winkler Method with Azide Modification	0.2-15
2.	**Site Testing (Water/ Waste Water/ Surface Water and all types of Water**	pH	APHA-23rd Ed 2017-4500B	2-13
			IS 3025 (Part-11):1983 [Reaffirmed.2017]	2-13
		Free residual chlorine	APHA-23rd Ed 2017- 4500G DPD Colorimetric Method	0.1 mg/L to 10 mg/L
3.	**Municipal Solid wastes/ Wastes (Liquid/Slurry/Sludge/Solid/Semi-Solid)/ Hazardous Waste**	pH	Lab SOP No. EL/SOP/ SS/ 16, Issued No.-03 & Issued date-01.01.2016 based on 7.4, CPCB/LATS/16/2002-03	2-13
		Paint Filter Liquid Test (PFLT)	Lab SOP No. EL/SOP/SS/17, Issued No.-03 & Issued date-01.01.2016 based on 9.4, CPCB/LATS/16/2002-03	Qualitative- Pass/Fail

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		% Moisture Content Loss on Ignition at 105°C	Lab SOP No. EL/SOP/SS/18, Issued No.-03 & Issued date-01.01.2016 based on CPCB/LATS/16/2002-03	0.1% to 100%
		% Organic Content Loss on Ignition at 550°C	Lab SOP No. EL/SOP/SS/19, Issued No.-03 & Issued date-01.01.2016 based on CPCB/LATS/16/2002-03	0.1% to 100%
		% Annealing Loss of Dry Residue at 550°C	Lab SOP No. EL/SOP/SS/20, Issued No.-03 & Issued date-01.01.2016 based on CPCB/LATS/16/2002-03	0.1% to100%
		Flammability	Lab SOP No. EL/SOP/SS/21, Issued No.-03 & Issued date-01.01.2016 based on CPCB/LATS/16/2002-03	Qualitative
		Metals By TCLP Extraction		
		Arsenic as As	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3114CHydride Generation	0.01 mg/L to 10 mg/L
		Copper as Cu	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/L to 50 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Chromium as Cr	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111BFlame AAS Method	0.1 mg/l to 500 mg/l
		Cadmium as Cd	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111BFlame AAS Method	0.1 mg/l to 500 mg/l
		Iron as Fe	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111BFlame AAS Method	0.1 mg/L to 500 mg/L
		Lead as Pb	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111BFlame AAS Method	0.1 mg/L to 500 mg/L
		Nickel as Ni	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111BFlame AAS Method	0.1 mg/L to 500 mg/L

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Zinc as Zn	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3111BFlame AAS Method	0.001 mg/L to 500 mg/L
		Mercury as Hg	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 7.5, LATS/16/2002-03 and APHA-23rd Ed 2017-3112B	0.001 mg/L to 50 mg/L
		Metals by Acid Digestion		
		Arsenic as As	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.6, LATS/16/2002-03 and APHA-23rd Ed 2017-3114C Hydride Generation	0.1 mg/Kg to 5000 mg/Kg
		Copper as Cu	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/Kg to 5000 mg/Kg
		Chromium as Cr	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/Kg to 5000 mg/Kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Cadmium	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/Kg to 5000 mg/Kg
		Iron as Fe	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.5 mg/Kg to 2000 mg/Kg
		Lead as Pb	Lab SOP No. EL/SOP/SS/23,Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/kg to 5000 mg/kg
		Nickel as Ni	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/kg to 5000 mg/kg
		Zinc as Zn	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.4, LATS/16/2002-03 and APHA-23rd Ed 2017-3111B Flame AAS Method	0.1 mg/kg to 5000 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Mercury as Hg	Lab SOP No. EL/SOP/SS/23, Issued No.-03 & Issued date-01.01.2016 based on 5.7, LATS/16/2002-03 and APHA-23rd Ed 2017-3112B	0.5 mg/kg to 100 mg/kg
4.	**Soil/Biomass**	pH	Cl-2, IS:2720 (Part-26) 1987 [Reaffirmed.2011]	2 -13
		Conductivity	IS:14767: 2000[Reaffirmed.2016]	0.1 to 199.9 mS/m
		Moisture Content	Sec-1, IS:2720 (Part-II) 1973 R 2015	0.1-100%
		Organic Matter	Sec-1, IS: 2720 (Part XXII) 1972 Reaafirmed. 2015	0.1-50%
		Texture	Cl 2,4, IS:2720 (Part-4) 1985[Reaffirmed.2015]	Qualitative Clay, Sand, Silt
		Bulk Density	IS: 2720 (Part– III): 1980 [Reaffirmed.2011]	1-4 gm/cc
		Total soluble salts	Lab SOP No. EL/SOP/SS/07, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	1 mg/kg to 1000 mg/kg
		Extractable Calcium as Ca	Lab SOP No. EL/SOP/SS/08, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	10 mg/kg to 10000 mg/kg
		Extractable Magnesium as Mg	Lab SOP No. EL/SOP/SS/09, Issued No.-	10 mg/kg to 10000mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	
		Extractable/ Available Sodium as Na	Lab SOP No. EL/SOP/SS/10, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	10 mg/kg to 10000 mg/kg
		Extractable/ Available Potassium as K	Lab SOP No. EL/SOP/SS/10, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	10 mg/kg to 10000 mg/kg
		Available Sulphur as S	Lab SOP No. EL/SOP/SS/11, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	10 mg/kg to 5000 mg/kg
		Available Nitrogen as N	Lab SOP No. EL/SOP/SS/12, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	1 mg/kg to 10000 mg/kg
		Total Kjeldhal Nitrogen as N	Lab SOP No. EL/SOP/SS/08, Issued	1 mg/kg to 1000 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			No.-01 & Issued date-01.01.2016 based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	
		Nitrate Nitrogen as N	Lab SOP No. EL/SOP/SS/09, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture &Cooperation,MoA, GoI& FAO Methods	1 mg/kg to 1000 mg/kg
		Available Phosphorus as P_2O_5	Lab SOP No. EL/SOP/SS/13, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	1 mg/kg to 5000 mg/kg
		Available Iron	Lab SOP No. EL/SOP/SS/11, Issued No.-01 & Issued date-01.01.2016 based on Department of Agriculture & Cooperation, MoA, GoI& FAO Methods	1 mg/kg to 5000 mg/kg
		Available Zinc	Lab SOP No. EL/SOP/SS/11, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI & FAO Methods	1 mg/kg to 10000 mg/kg
		Available Manganese	Lab SOP No. EL/SOP/SS/11, Issued	1 mg/kg to 5000 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			No.-01 & Issued date-01.01.2016 based on Department of Agriculture &Cooperation, MoA, GoI & FAO Methods	
		Available Copper	Lab SOP No. EL/SOP/SS/11, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI& FAO Methods	1 mg/kg to 5000 mg/kg
		Available Boron	Lab SOP No. EL/SOP/SS/12, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture &Cooperation, MoA, GoI & FAO Methods	1 mg/kg to 5000 mg/kg
		Available Molybdenum	Lab SOP No. EL/SOP/SS/13, Issued No.-01 & Issued date-01.01.2016based on Department of Agriculture & Cooperation, MoA, GoI& FAO Methods	1 mg/kg to 5000 mg/kg

Laboratory	**ECO Laboratories & Consultants Pvt. Ltd., ECO Group, Eco Bhawan, E-207, Industrial Area, Phase VIII-B, (Sector-74), Mohali, Punjab**		
Accreditation Standard	**ISO/IEC 17025: 2017**		
Certificate Number	**TC-7477**	**Page 31 of 35**	
Validity	**09.07.2019 to 21.06.2020**	**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

CHEMICAL TESTING

AT SITE				
I.	**ATMOSPHERIC POLLUTION**			
1.	**Stack Emission**	Sulphur dioxide as SO_2	Lab SOP: EL/SOP/ SE/12 [Flue gas analyzer] issue date:01.01.2016	5- 5000 mg/Nm^3
		Oxides of Nitrogen	Lab SOP: EL/SOP/SE/12, [Flue gas analyzer] issue date:01.01.2016	4- 2000 mg/Nm^3
		Carbon dioxide as CO_2	Lab SOP: [EL/SOP/SE/12, Flue gas analyzer] Issue date:01.01.2016	0.5% to 15%
		Carbon monoxide as CO	Lab SOP: EL/SOP/SE/12 [Flue gas analyzer] Issue date:01.01.2016	1 mg /Nm^3 to 500 mg /Nm^3
		Oxygen as O_2	Lab SOP: EL/SOP/ SE/12 [Flue gas analyzer] Issue date:01.01.2016	1 % to 21%
2.	**Ambient Noise Level**	Noise Level Leqdb(A) Ambient	Lab SOP: EL/SOP/NL/01 [Based onIS9989-1981 and manufacturers l]	30 dB(A) to 130 dB(A)
3.	**Source Noise Level**	Noise Levels- Source	Lab SOP: EL/SOP/NL/02 [Based on IS 4758-1968 and manufacturers] Issue date:01.01.2016	30 dB(A) to 130 dB(A)
		Occupational noise exposure (By Noise Dosimeter)	IS 7194: 1994Reaffirmed. 2008)	40 dB(A) to 140 dB(A)

Sandeep Singh Tomar
Convenor

Pankaj Johri
Program Manager

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection

MECHANICAL TESTING

I.	**BUILDINGS MATERIALS**			
1.	**Concrete/ Concrete Cube/ Core/Beam**	Compressive Strength	IS 516:1959 (RA 2013)	10 to 70 N/mm^2
		Flexural Strength	IS 516:1959 (RA 2013)	2 N/mm^2 to10 N/mm^2
2.	**Aggregate (Coarse)**	Abrasion Value	IS 2386 (Part 4): 1963 (RA 2016)	5 % to 60 %
		Crushing Value	IS 2386 (Part 4): 1963 (RA 2016)	5 % to 50 %
		Impact Value	IS 2386 (Part 4): 1963 (RA 2016)	5 % to 50 %
		10% Fines Value	IS 2386 (Part 4): 1963 (RA 2016)	20 kN to 300 kN
		Sieve Analysis (Sieve Size of 100, 80, 75, 63, 53, 50, 45, 40, 37.5, 31.5, 26.5, 25, 22.4, 20, 19, 16, 14, 13.2, 12.5, 11.2, 10, 9.5, 8, 6.3, 5 and 4.75 mm)	IS 2386 (Part 1): 1963 (RA 2016)	1 % to 100 %
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2016)	1.0 % to10 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	1.5 to 3.0
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2016)	1.0 kg/l to 3.0 kg/l
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2016)	1 % to 50 %
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2016)	1 % to 50 %
		Stripping Value	IS 6241:1971 (RA 2017)	90 % to100 %

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		Organic Impurities	IS 2386 (Part 2): 1963 (RA 2016)	Qualitative
3.	**Aggregate (Fine)**	Sieve Analysis (Sieve Size 10.0, 4.75, 2.36, 1.18, 0.600, 0.300, 0.150 mm)	IS 2386 (Part 1): 1963 (RA 2016)	1 % to 100 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	1.5 to 3.0
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2016)	0.2 % to 10 %
		Bulk Density	IS 2386 (Part 3): 1963 (RA 2016)	1.0 kg/l to 3.0 kg/l
		Material Finer than 75 mic. IS Sieve	IS 2386 (Part 1): 1963 (RA 2016)	Qualitative
		Organic Impurities	IS 2386 (Part 2): 1963 (RA 2016)	Qualitative
4.	**Burnt Clay Bricks/ Pulverized Fuel Ash Lime Bricks/Burnt Clay Fly Ash Bricks**	Compressive Strength	IS 3495 (Part 1): 1992 (RA 2016)	1 N/mm^2 to 20 N/mm^2
		Water Absorption	IS 3495 (Part 2): 1992 (RA 2016)	2 % to 20 %
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2016)	Qualitative
		Dimensions		
		Length	IS 1077:1992 (RA 2016)	Length: 4000 mm to 5000 mm
		Width	IS 12894:2002 (RA 2017)	Width: 2100 mm to 2400 mm
		Height	IS 13757:1993 (RA 2016)	Height: 1300 mm to 1600 mm
5.	**Precast Concrete Pavers**	Compressive Strength	IS 15658:2006 (RA 2017)	5 N/mm^2 to 70 N/mm^2
		Water Absorption	IS 15658:2006 (RA 2017)	1 % to 10 %
		Dimension	IS 15658:2006 (RA 2017)	
		Length		200 mm to 600 mm
		Width		200 mm to 400 mm

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		Thickness		20 mm to 200 mm
6.	**Fly Ash**	Fineness (Sieving)	IS 1727:1967 (RA 2013)	45 micron to 90 micron
7.	**Cement**	Consistency	IS 4031 (Part 4): 1988 (RA 2014)	20 % to 40 %
		Initial Setting Time	IS 4031 (Part 5): 1988 (RA 2014)	20 mins. to 250 mins.
		Final Setting Time	IS 4031 (Part 6): 1988 (RA 2014)	200 mins. to 800 mins.
		Compressive Strength		10 N/mm^2 to 60 N/mm^2
		Soundness	IS 4031 (Part 3): 1988 (RA 2014)	
		Le- Chatelier		0.1 mm to 5 mm
		Autoclave	IS 4031 (Part 2): 1999 (RA 2013)	0.01 % to 2 %
		Fineness by Blains Method		200 m^2/kg to 600 m^2/kg
		Fineness by dry sieving	IS 4031 (Part 1): 1988 (RA 2016)	1 % to 10 %
II.	**SOIL AND ROCK**			
1.	**Soil/Granular Sub Base(GSB)/Wet Mix Macadam (WMM)/Bentonite Powder/Polymud**	Grain Size Analysis	IS 2720 (Part 4): 1985 (RA 2015)	0.1 % to 100 %
		Moisture content	IS 2720 (Part 2): 1973 (RA 2015)	0.1 % to 30 %
		Determination of Water Content- Dry Density Relation using Light Compaction.	IS 2720 (Part 7): 1980 (RA 2016)	MDD: 1 gm/cc to 3 gm/cc OMC: 5 % to 20 %
		Determination of Water Content- Dry Density Relation using Heavy Compaction	IS 2720 (Part 8): 1983 (RA 2015)	MDD: 1 gm/cc to 3 gm/cc OMC: 5 % to 20 %
		California Bearing Ratio (CBR)	IS 2720 (Part 16): 1987 (RA 2016)	1 % to 60 %
		Liquid Limit	IS 2720 (Part 5): 1985 (RA 2015)	10 % to 30 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Plastic Limit	IS 2720 (Part 5): 1985 (RA 2015)	5 % to 30 %
		Free Swell Index	IS 2720 (Part 40): 1977 (RA 2016)	1 % to 30 %
III.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Reinforcement Steel, Structural Steel, Mild Steel, HT Strand Wire**	Tensile Strength	IS 1608:2005 (RA 2011)	100 N/mm^2 to 1200 N/mm^2
		Yield Stress / 0.2 % Proof	IS 1608:2005 (RA 2011)	75 N/mm^2 to 1000 N/mm^2
		Elongation	IS 1608:2005 (RA 2011)	5 % to 50 %
		Reduction in Area	IS 1608:2005 (RA 2011)	5 % to 50 %
		Bend	IS 1599:1985 (RA 2006)	Qualitative Mandrel Dia. (16, 24, 30, 32, 36, 40, 44, 48, 50, 56, 64, 80, 100, 112, 113, 125, 140, 160, 212 , 224) mm
		Rebend	IS 1786:2008 (RA 2013)	Qualitative Mandrel Dia. (16, 24, 30, 32, 36, 40, 44, 48, 50, 56, 64, 80, 100, 112, 113, 125,140,160, 212 , 224) mm
		Mass per unit Length	IS 1786:2008 (RA 2013)	0.05 kg/m to 10 kg/m
		Rib Area per unit Length	IS 1786:2008 (RA 2013)	0.2 mm^2 to 10 mm^2