

Laboratory	Karnataka Waste Management Project Laboratory, NH-207, Towards Dobbabalapur Road, KIADB Industrial Area, Dabaspeta, Nelamangala (T), Bangalore (R), Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	18.09.2016
Certificate Number	T-1822	Valid Until	17.09.2018
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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
I.	POLLUTION AND ENVIRONMENT			
1.	Waste Water	pH	APHA (22 nd Edition) 4500 H ⁺ B: 2012	1 to 13.5
		Temperature	APHA (22 nd Edition) 2550 A, B: 2012	Ambient to (-) 50 °C
		Colour	APHA (22 nd Edition) 2550 B & C: 2012	1 Hazen to 500 Hazen
		Conductivity	APHA (22 nd Edition) 2510 B: 2012	2 µS/cm to 200 mS/cm
		Acidity as CaCO ₃	APHA (22 nd Edition) 2310 B: 2012	5 mg/L to 10000 mg/L
		Alkalinity as CaCO ₃	APHA (22 nd Edition) 2320 B: 2012	5 mg/L to 30000 mg/L
		Total Solids	APHA (22 nd Edition) 2540 B: 2012	10 mg/L to 100000 mg/L
		Total Dissolved Solids	APHA (22 nd Edition) 2540 C: 2012	10 mg/L to 100000 mg/L
		Total Suspended Solids	APHA (22 nd Edition) 2540 D: 2012	10 mg/L to 10000 mg/L
		Fixed Solids	APHA (22 nd Edition) 2540 E: 2012	10 mg/L to 50000 mg/L
		Volatile Solids	APHA (22 nd Edition) 2540 E: 2012	10 mg/L to 10000 mg/L

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	Waste Water	Chlorides as Cl ⁻	APHA (22 nd Edition) 4500 Cl ⁻ B & C: 2012	5 mg/L to 10000 mg/L
		Sulphates as SO ₄ ⁻²	APHA (22 nd Edition) 4500 SO ₄ ⁻² E: 2012	5 mg/L to 10000 mg/L
		Sulphides as S ⁻²	APHA (22 nd Edition) 4500 S ² F: 2012	5 mg/L to 5000 mg/L
		Sulphite as SO ₃ ⁻²	APHA (22 nd Edition) 4500 SO ₃ ⁻² , B: 2012	5 mg/L to 1000 mg/L
		Nitrate Nitrogen as N	IS 3025 (Part 34): 1998; (3.1b; Page. 10,11)	1 mg/L to 1000 mg/L
		Nitrite Nitrogen as N	APHA (22 nd Edition) 4500 NO ₂ – B: 2012	0.1 mg/L to 1000 mg/L
		Nitrogen (Ammonia) as N	APHA (22 nd Edition) 4500 NH ₃ B,C: 2012	1 mg/L to 1000 mg/L
		Nitrogen (Organic) as N	APHA (22 nd Edition) 4500 N(org) B: 2012	1 mg/L to 1000 mg/L
		Fluorides as F ⁻	APHA (22 nd Edition) 4500 F ⁻ D: 2012	0.2 mg/L to 1000 mg/L
		Residual Chlorine as Cl	APHA (22 nd Edition) 4500 Cl B: 2012	1 mg/L to 100 mg/L
		Cyanides Total as CN ⁻	APHA (22 nd Edition) 4500 CN ⁻ C, E: 2012	0.2 mg/L to 100 mg/L

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	Waste Water	Calcium as Ca	APHA (22 nd Edition) 3500 Ca B: 2012	1 mg/L to 5000 mg/L
		Magnesium as Mg	APHA (22 nd Edition) 3500-Mg B: 2012	1 mg/L to 5000 mg/L
		Sodium as Na	APHA (22 nd Edition) 3500 Na B: 2012	1 mg/L to 5000 mg/L
		Iron as Fe	APHA (22 nd Edition) 3500 Fe B: 2012	0.1 mg/L to 1000 mg/L
		Potassium as K	APHA (22 nd Edition) 3500 K B: 2012	1 mg/L to 5000 mg/L
		Arsenic as As	APHA (22 nd Edition) 3500 As B: 2012	0.2 mg/L to 100 mg/L
		Boron as B	APHA (22 nd Edition) 4500 B B: 2012 (Curcumin Method)	1 mg/L to 100 mg/L
		Cadmium Cd	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 100 mg/L
		Total Chromium as Cr	APHA (22 nd Edition) 3111 B: 2012	0.5 mg/L to 100 mg/L
		Hexavalent Chromium as Cr ⁺⁶	APHA (22 nd Edition) 3500 Cr B: 2012	0.1 mg/L to 100 mg/L
		Lead as Pb	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 1000 mg/L
		Manganese as Mn	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 1000 mg/L

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	Waste Water	Nickel as Ni	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 1000 mg/L
		Silica as SiO ₂	APHA (22 nd Edition) 4500 SiO ₂ C: 2012	0.1 mg/L to 1000 mg/L
		Zinc as Zn	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 1000 mg/L
2.	Waste (Sludge/ Slurry/ Liquid/Solid/ Semi Solid)	Copper as Cu	APHA (22 nd Edition) 3111 B: 2012	0.03 mg/L to 1000 mg/L
		Vanadium	APHA (22 nd Edition) 3500 V B: 2012 (Colorimetric)	0.03 mg/L to 100 mg/L
		Aluminum	APHA (22 nd Edition) 3500 Al B: 2012 (Colorimetric)	0.04 mg/L to 100 mg/L
		Turbidity	APHA (22 nd Edition) 2130 B: 2012	1 NTU to 100 NTU
		pH at 25 °C	USEPA 1998 SW-846; 9045 C	1 to 14
		Bulk Density	ASTM D 5057-90	0.3 g/cc to 10 g/cc
		Calorific Value	IS 1350: 1970	200 Cal/g to 15000 Cal/g
		Flash Point	USEPA 1998, SW-846; 1020 A	Ambient to (-) 300°C
		Moisture content	IS 326 (Part 21): 2001	0.1 % to 100 %
		Loss on drying at 105°C	APHA (22 nd Edition) 2540 D: 2012	1 % to 90 %

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	Waste (Sludge/ Slurry/ Liquid/Solid/ Semi Solid)	Loss on ignition at 550°C	APHA (22 nd Edition) 2540 E: 2012	1 % to 99 %
		Paint Filter Liquid Test	USEPA 1998, SW-846; 9095 A	Qualitative (Pass/ Fail)
		Reactive Cyanide as HCN	USEPA 1998, SW-846; 9014	1 mg/kg to 1000 mg/kg
		Total Cyanide as CN ⁻	USEPA 1998, SW-846; 9014 APHA (22 nd Edition) 4500 CN C&E: 2012	1 mg/kg to 5000 mg/kg
		Total Sulfide as S ⁻²	USEPA 1998, SW-846; 9215 Spot Test	5 mg/kg to 5000 mg/kg Qualitative
		Reactive Sulfide as H ₂ S	USEPA 1998, SW-846; 9034 Spot Test	1 mg/kg to 1000 mg/kg Qualitative
		Extractable organics	USEPA 1998, SW-846; 3540 C	1 % to 95 %
		Water soluble Inorganics	APHA (22 nd Edition) 2540 E: 2012	0.1 % to 99 %
		Water soluble organics	APHA (22 nd Edition) 2540 E: 2012	0.1 % to 99 %
		Arsenic as As	APHA (22 nd Edition): 2012 3500 As B	0.1 mg/kg to 1000 mg/kg
		Cadmium as Cd	USEPA 1998, SW-846; 7130	0.5 mg/kg to 10000 mg/kg
		Copper as Cu	USEPA 1998, SW-846; 7210	1 mg/kg to 10000 mg/kg

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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
	Waste (Sludge/ Slurry/ Liquid/Solid/ Semi Solid)	Total Chromium as Cr	USEPA 1998, SW-846; 7190	1 mg/kg to 10000 mg/kg
		Hexavalent Chromium as Cr ⁺⁶	USEPA 1998, SW-846; 7196A	1 mg/kg to 5000 mg/kg
		Iron as Fe	APHA (22 nd Edition) 3500 Fe B: 2012	1 mg/kg to 10000 mg/kg
		Lead as Pb	USEPA 1998, SW-846; 7420	1 mg/kg to 10000 mg/kg
		Manganese as Mn	USEPA 1998, SW-846; 7460	1 mg/kg to 10000 mg/kg
		Nickel as Ni	USEPA 1998, SW-846; 7520	1 mg/kg to 10000 mg/kg
		Zinc as Zn	USEPA 1998, SW-846; 7950	1 mg/kg to 10000 mg/kg
3.	Tclp (Toxicity Characteristic Leaching Procedure)/ Wlt (Water Leaching Test) Metals In Leachate	Arsenic as As	APHA (22 nd Edition) 3500 As B: 2012	0.1 mg/L to 1000 mg/L
		Cadmium as Cd	USEPA 1998, SW-846; 7130	0.1 mg/L to 1000 mg/L
		Total Chromium as Cr	USEPA 1998, SW-846; 7190	0.5 mg/L to 1000 mg/L
		Hexavalent Chromium as Cr ⁺⁶	APHA (22 nd Edition) 3500 Cr B: 2012	0.2 mg/L to 1000 mg/L
		Iron as Fe	APHA (22 nd Edition) 3500 Fe B: 2012	0.1 mg/L to 1000 mg/L
		Lead as Pb	USEPA 1998, SW-846; 7420	0.1 mg/L to 1000 mg/L
		Manganese as Mn	USEPA 1998, SW-846; 7460	0.2 mg/L to 1000 mg/L

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II. WATER				
1.	Surface Water/ Ground Water	pH at 25°C	APHA (22 nd Edition) 4500 H ⁺ B: 2012	1 to 13.5
		Temperature	APHA (22 nd Edition) 2550 A, B: 2012	Ambient to (-) 50 °C
		Colour	APHA (22 nd Edition) 2550 B & C: 2012	1 Hazen to 500 Hazen
		Conductivity	APHA (22 nd Edition) 2510 B: 2012	2 µS/cm to 200 mS/cm
		Acidity as CaCO ₃	APHA (22 nd Edition) 2310 B: 2012	5 mg/L to 10000 mg/L
		Alkalinity as CaCO ₃	APHA (22 nd Edition) 2320 B: 2012	5 mg/L to 30000 mg/L
		Total Solids	APHA (22 nd Edition) 2540 B: 2012	1 mg/L to 100000 mg/L
		Total Dissolved Solids	APHA (22 nd Edition) 2540 C: 2012	10 mg/L to 10000 mg/L
		Total Suspended Solids	APHA (22 nd Edition) 2540 D: 2012	10 mg/L to 10000 mg/L
		Fixed Solids	APHA (22 nd Edition) 2540 E: 2012	10 mg/L to 50000 mg/L
		Volatile solids	APHA (22 nd Edition) 2540 E: 2012	10 mg/L to 10000 mg/L

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	Surface Water/ Ground Water	Chlorides as Cl ⁻	APHA (22 nd Edition) 4500 Cl ⁻ B & C: 2012	5 mg/L to 10000 mg/L
		Sulphates as SO ₄ ⁻²	APHA (22 nd Edition) 4500 SO ₄ ⁻² E: 2012	5 mg/L to 10000 mg/L
		Sulphides as S ⁻²	APHA (22 nd Edition) 4500 S ² F: 2012	5 mg/L to 5000 mg/L
		Sulphite as SO ₃ ⁻²	APHA (22 nd Edition) 4500 SO ₃ ⁻² E: 2012	5 mg/L to 1000 mg/L
		Nitrate Nitrogen as N	IS 3025 (Part 34): 1998;(3.1b; Page10,11)	1 mg/L to 1000 mg/L
		Nitrite Nitrogen as N	APHA (22 nd Edition) 4500 NO ₂ B : 2012	0.1 mg/L to 1000 mg/L
		Nitrogen (Ammonia) as N	APHA (22 nd Edition) 4500 NH ₃ B,C: 2012	1 mg/L to 1000 mg/L
		Nitrogen (Organic) as N	APHA (22 nd Edition) 4500 N(org) B: 2012	1 mg/L to 1000 mg/L
		Fluorides as F ⁻	APHA (22 nd Edition) 4500 F ⁻ D: 2012	0.2 mg/L to 1000 mg/L
		Residual Chlorine as Cl	APHA (22 nd Edition) 4500 Cl B: 2012	0.1 mg/L to 100 mg/L
		Cyanides Total as CN ⁻	APHA (22 nd Edition) 4500 CN ⁻ C, E: 2012	0.2 mg/L to 100 mg/L
		Calcium as Ca	APHA (22 nd Edition) 3500 Ca B: 2012	1 mg/L to 5000 mg/L

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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
	Surface Water/ Ground Water	Magnesium as Mg	APHA (22 nd Edition) 3500 Mg B: 2012	1 mg/L to 5000 mg/L
		Sodium as Na	APHA (22 nd Edition) 3500 Na B: 2012	1 mg/L to 5000 mg/L
		Potassium as K	APHA (22 nd Edition) 3500 K B: 2012	1 mg/L to 5000 mg/L
		Arsenic as As	APHA (22 nd Edition) 3500 As B: 2012	0.2 mg/L to 100 mg/L
		Boron as B	APHA (22 nd Edition) 4500-B B: 2012 (Curcumin Method)	1 mg/L to 100 mg/L
		Cadmium Cd	APHA (22 nd Edition) 3111 B: 2012	0.2 mg/L to 100 mg/L
		Total Chromium as Cr	APHA (22 nd Edition) 3111 B: 2012	0.5 mg/L to 100 mg/L
		Copper as Cu	APHA (22 nd Edition) 3111 B: 2012	0.03 mg/L to 1000 mg/L
		Hexavalent Chromium as Cr ⁺⁶	APHA (22 nd Edition) 3500 Cr B: 2012	0.2 mg/L to 100 mg/L
		Iron as Fe	APHA (22 nd Edition) 3500 Fe B: 2012	0.2 mg/L to 1000 mg/L
		Lead as Pb	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 1000 mg/L

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	Surface Water/ Ground Water	Manganese as Mn	APHA (22 nd Edition) 3111 B: 2012	0.2 mg/L to 1000 mg/L
		Nickel as Ni	APHA (22 nd Edition) 3111 B: 2012	0.2 mg/L to 1000 mg/L
		Silica as SiO ₂	APHA (22 nd Edition) 4500 SiO ₂ C: 2012	0.2 mg/L to 1000 mg/L
		Zinc as Zn	APHA (22 nd Edition) 3111 B: 2012	0.1 mg/L to 1000 mg/L
		Vanadium	APHA (22 nd Edition) 3500 V B: 2012 (Colorimetric)	0.01 mg/L to 100 mg/L
		Aluminum	APHA (22 nd Edition) 3500 Al B: 2012 (Colorimetric)	0.02 mg/L to 100 mg/L
		Turbidity	APHA (22 nd Edition) 2130 B: 2012	1 NTU to 100 NTU
III. ATMOSPHERIC POLLUTION				
1.	Ambient Air Quality Monitoring	Sulphur Dioxide	IS 5182 (Part 2): 2001,	5 µg/m ³ to 1050 µg/m ³
		Oxides of Nitrogen	IS 5182 (Part 6): 2006,	5 µg/m ³ to 750 µg/m ³

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