

Laboratory	Tamil Nadu Waste Management Limited Laboratory, Plot No. 5-15, 28-33, SIPCOT Industrial Complex, Gummidipoondi, Thiruvallur Dist., Tamil Nadu		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Chemical Testing	Issue Date	21.07.2014
Certificate Number	T-2290	Valid Until	20.07.2016
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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
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I. POLLUTION AND ENVIRONMENT

1. Waste water/ Effluent	pH		APHA 22 nd Edition, 2012; 4500 H ⁺ B	3 to 12
	Temperature		APHA 22 nd Edition, 2012; 2550 –A, B	Ambient to 50°C
	Color (Hue)		APHA 22 nd Edition, 2012; 2120 D	400 nm to 700 nm
	Conductivity		APHA 22 nd Edition, 2012; 2510 B	2 µS to 100 mS/Cm
	Acidity as CaCO ₃		APHA 22 nd Edition, 2012; 2310 B	5 mg/L to 10000 mg/L
	Alkalinity as CaCO ₃		APHA 22 nd Edition, 2012; 2320 B	5 mg/L to 30000 mg/L
	Total Solids		APHA 22 nd Edition, 2012; 2540 B	10 mg/L to 500000 mg/L
	Total Dissolved Solids		APHA 22 nd Edition, 2012; 2540 C	10 mg/L to 500000 mg/L
	Total Suspended Solids		APHA 22 nd Edition, 2012; 2540 D	10 mg/L to 10000 mg/L
Fixed Solids		APHA 22 nd Edition, 2012; 2540 E	10 mg/L to 500000 mg/L	

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	Waste water/ Effluent	Volatile Solids	APHA 22 nd Edition, 2012; 2540 E	10 mg/L to 10000 mg/L
		Chlorides as Cl ⁻	APHA 22 nd Edition, 2012; 4500 Cl ⁻ B	5 mg/L to 50000 mg/L
		Sulphates as SO ₄ ⁻²	APHA 22 nd Edition, 2012; 4500 SO ₄ ⁻² D	5 mg/L to 30000 mg/L
		Sulphide as S ⁻²	APHA 22 nd Edition, 2012; 4500 S ² F	5 mg/L to 10000 mg/L
		Sulphite as SO ₃ ⁻²	APHA 22 nd Edition, 2012; 4500 SO ₃ ⁻² , B	5 mg/L to 1000 mg/L
		Nitrate (Nitrogen) as N	IS: 3025 (Part 34) – 1988; (Re affirmed 2009);	1 mg/L to 1000 mg/L
		Nitrite (Nitrogen) as N	APHA 22 nd Edition, 2012; 4500 NO ₂ – B	1 mg/L to 1000 mg/L
		Nitrogen (Ammonia) as N	APHA 22 nd Edition, 2012; 4500 NH ₃ B, C	1 mg/L to 10000 mg/L
		Nitrogen (Organic) as N	APHA 22 nd Edition, 2012; 4500 N (org) B	1 mg/L to 10000 mg/L
		Fluorides as F ⁻	APHA 22 nd Edition, 2012; 4500 F D	1 mg/L to 1000 mg/L

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	Waste water/ Effluent	Residual Chlorine as Cl	APHA 22 nd Edition, 2012; 4500 Cl B	1 mg/L to 100 mg/L
		Total Cyanides as CN ⁻	APHA 22 nd Edition, 2012; 4500 CN ⁻ C, E	0.2 mg/L to 1000 mg/L
		Total Hardness as CaCO ₃	APHA 22 nd Edition, 2012; 2340 C	5 mg/L to 10000 mg/L
		Total Phosphorus as P	APHA 22 nd Edition, 2012; 4500 P B,C	1 mg/L to 1000 mg/L
		Dissolved Oxygen	APHA 22 nd Edition, 2012; 4500 O C	1 mg/L to 12 mg/L
		Oil & Grease	APHA 22 nd Edition, 2012; 5520 B	5 mg/L to 1000 mg/L
		Chemical Oxygen Demand	APHA 22 nd Edition, 2012; 5220 B	10 mg/L to 100000 mg/L
		Bio Chemical Oxygen Demand (3 Days @ at 27°C)	IS : 3025 (part 44): 1993, (Re affirmed 2009)	4 mg/L to 10000 mg/L
		Phenolic Compounds as C ₆ H ₅ OH	APHA 22 nd Edition, 2012; 5530 B & D	1 mg/L to 1000 mg/L
		Calcium as Ca	APHA 22 nd Edition, 2012; 3500 Ca B	5 mg/L to 10000 mg/L
		Magnesium as Mg	APHA 22 nd Edition, 2012; 3500-Mg B	5 mg/L to 1000 mg/L

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	Waste water/ Effluent	Sodium as Na	APHA 22 nd Edition, 2012; 3500 Na B	1 mg/L to 10000 mg/L
		Potassium as K	APHA 22 nd Edition, 2012; 3500 K B	1 mg/L to 1000 mg/L
		Cadmium Cd	APHA 22 nd Edition, 2012; 3111B	0.1 mg/L to 1000 mg/L
		Total Chromium as Cr	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 1000 mg/L
		Hexavalent Chromium as Cr ⁺⁶	APHA 22 nd Edition, 2012; 3500 Cr B	0.1 mg/L to 1000 mg/L
		Iron as Fe	APHA 22 nd Edition, 2012; 3500 Fe B	0.1 mg/L to 1000 mg/L
		Lead as Pb	APHA 22 nd Edition, 2012; 3111 B	0.1 mg/L to 1000 mg/L
		Zinc as Zn	APHA 22 nd Edition, 2012; 3111 B	0.1 mg/L to 1000 mg/L
		Copper as Cu	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 1000 mg/L
		Nickel as Ni	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 1000 mg/L
		Reactive Silica as SiO ₂	APHA 22 nd Edition, 2012; 4500 SiO ₂ C	0.5 mg/L to 1000 mg/L

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	Waste water/ Effluent	Arsenic as As	APHA 22 nd Edition, 2012; 3500 As B	0.2 mg/L to 1000 mg/L
		Vanadium as V	APHA 22 nd Edition, 2012; 3500 V B	0.1 mg/L to 1000 mg/L
		Manganese as Mn	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 1000 mg/L
		Cobalt as Co	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 1000 mg/L
2.	Hazardous Solid Waste	pH	USEPA 2009 SW- 846; 9045 D	1to 14
		Bulk Density	APHA 22 nd Edition, 2012; 4500 H ⁺ B;	0.2gm/cc to 5 gm/cc
		Calorific Value	ASTM D 5468- 02 (2007)	200cal/gm to15000 cal/gm
		Flash Point	USEPA 2009, SW- 846; 1020 B	Ambient to 300°C
		Moisture content	IS 326 (Part 21) :2001 APHA 22 nd Edition 2012, 2540 G	0.1%to 90%
		Loss on drying at 105°C	APHA 22 nd Edition, 2012; 2540 G	1%to 90%

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	Hazardous Solid Waste	Loss on ignition at 550°C	APHA 22 nd Edition, 2012; 2540 G	1% to 99.9%
		Paint Filter Liquid Test	USEPA 2009, SW - 846; 9095 A,B	Pass/ Fail
		Total & Amenable Cyanide as HCN	USEPA 2009, SW- 846; 9010B,C, 9014	1 mg/Kg to 10000 mg/Kg
		Acid Soluble & Insoluble Sulfide as H ₂ S	USEPA 2009, SW- 846; 9030 B, 9034	1 mg/Kg to 10000 mg/Kg
		Extractable Organics (using n- Hexane)	USEPA 2009, SW- 846; 3540 C & 9071 B (Soxlet Extraction)	1% to 90%
		Water Soluble Organics	TNWML/SOP/LA -110, 01/00, Dt. 01.12.2010 (Based on Hazardous Waste Management Series: HAZWAMS/2009-2010, APHA 22 nd Edition, 2012; 2540 E)	0.1% to 99%
		Water soluble inorganics	TNWML/SOP/LA- 110, 01/00, Dt. 01.12.2010 (Based on Hazardous Waste Management Series: HAZWAMS/2009-2010, APHA 22 nd Edition, 2012; 2540 E)	0.1% to 99%

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	Hazardous Solid Waste	Cadmium as Cd	USEPA 2009, SW- 846; 3050B,7000B	5 mg/Kg to 10000 mg/Kg
		Total Chromium as Cr	USEPA 2009, SW- 846; 3050 B,7000 B	10 mg/Kg to 10000mg/Kg
		Hexavalent Chromium as Cr ⁺⁶	USEPA 1998, SW- 846; 3060 A,7196A	5 mg/Kg to 100 00mg/Kg
		Lead as Pb	USEPA 2009, SW- 846; 3050 B,7000 B	5 mg/Kg to 10000 mg/Kg
		Nickel as Ni	USEPA 2009, SW- 846; 3050 B,7000 B	5 mg/Kg to 10000 mg/Kg
		Zinc as Zn	USEPA 2009, SW - 846; 3050 B,7000 B	5 mg/Kg to 10000 mg/Kg
		Copper as Cu	USEPA 2009, SW- 846; 3050 B, 7000 B	5 mg/Kg to 10000 mg/Kg
		Manganese as Mn	USEPA 2009, SW- 846; 3050 B, 7000 B	5 mg/Kg to 10000 mg/Kg
		Cobalt as Co	USEPA 2009, SW - 846; 3050 B, 7000 B	5 mg/Kg to 10000 mg/Kg
		Total Chlorides	USEPA 2009, SW- 846; 5050, 9253	0.01% to 90%

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	Hazardous Solid Waste		ASTM D5233- 92 (Reapproved 2009), USEPA 2009, SW- 846; 1311 Hazardous Waste Management Series: HAZWAMS/2009- 2010	
		Cadmium as Cd (TCLP/WLT)	ASTM D5233to 92 (Reapproved 2009), USEPA 2009, SW - 846; 7000 B	0.1 mg//L to 1000mg/L
		Total Chromium as Cr (TCLP/WLT)	ASTM D5233to 92 (Reapproved 2009), USEPA 2009, SW- 846; 7000 B	0.5 mg//L to 1000mg/L
		Hexavalent Chromium as Cr ⁺⁶ (TCLP/WLT)	ASTM D5233to 92 (Reapproved 2009), USEPA 2009, SW- 846; 7196 A	0.1 mg//L to 1000mg/L
		Iron as Fe (TCLP/WLT)	TNWML/SOP/LAB- 156,01/00, Dt.01.12.2010 (Based on ASTM D5233- 92 (Reapproved 2009, APHA 22 nd Edition, 2012; 3500 Fe B)	0.1 mg//L to 1000mg/L

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	Hazardous Solid Waste	Lead as Pb (TCLP/WLT)	ASTM D5233- 92 (Reapproved 2009), USEPA 2009, SW-846; 7000 B	0.1 mg//L to 1000mg/L
		Nickel as Ni (TCLP/WLT)	ASTM D5233- 92 (Reapproved 2009), USEPA 2009, SW- 846; 7000 B	0.5 mg//L to 1000mg/L
		Zinc as Zn (TCLP/WLT)	ASTM D5233- 92 (Reapproved 2009), USEPA 2009, SW- 846; 7000 B	0.1 mg/L to 1000mg/L
		Copper as Cu (TCLP/WLT)	ASTM D5233- 92 (Reapproved 2009), USEPA 2009, SW- 846; 7000 B	0.5 mg/ L to 1000mg/L
		Arsenic as As (TCLP/WLT)	TNWML/SOP/LAB - 318,01/00, Dt.03.09.2012 (Based on ASTM D5233- 92 (Reapproved 2009), APHA 22 nd Edition, 2012; 3500 As B)	0.1 mg/ L to 1000mg/L
		Vanadium as V (TCLP/WLT)	TNWML/SOP/LAB- 319,01/00, Dt.03.09.2012 (Based On ASTM D5233- 92 (Reapproved 2009), APHA 22 nd Edition, 2012; 3500 V B)	0.1 mg/ L to 1000mg/L

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	Hazardous Solid Waste	Manganese as Mn (TCLP/WLT)	ASTM D5233-92 (Reapproved 2009), USEPA 2009, SW- 846; 3050 B, 7000 B	0.5 mg/ L to 1000mg/L
		Cobalt as Co (TCLP/WLT)	ASTM D5233-92 (Reapproved 2009), USEPA 2009, SW- 846; 3050 B,7000 B	0.5 mg/ L to 1000mg/L
		Ammonias as N (TCLP/WLT)	TNWML/SOP/LAB -120, 01/00, Dt. 01.12.2010 (Based on ASTM D5233 - 92 (Reapproved 2009), APHA 22 nd Edition, 2012; 4500 NH ₃ B,C)	1 mg L /to 10000 mg/L
		Nitrate as N (TCLP/WLT)	TNWML/SOP/LAB -122, 01/00, Dt. 01.12.2010 (Based on ASTM D5233 - 92 (Reapproved 2009), IS: 3025 (Part 34) – 1988; (RA 2009))	1 mg/ L to 1000 mg/L
		Fluorides as F ⁻ (TCLP/WLT)	TNWML/SOP/LAB- 113, 01/00, Dt. 01.12.2010 (Based On ASTM D5233- 92 (Reapproved 2009), APHA 22 nd Edition, 2012; 4500 F - D)	1 mg/ L to 1000 mg/L

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	Hazardous Solid Waste	Phenolic Compounds as C ₆ H ₅ OH (TCLP/WLT)	TNWML/SOP/LAB - 127, 01/00, Dt. 01.12.2010 (Based On ASTM D5233- 92 (Reapproved 2009), APHA 22 nd Edition, 2012; 5530 B,D)	1 mg/ L to 1000 mg/L
		Cyanide as CN ⁻ (TCLP/WLT)	TNWML/SOP/LAB - 115, 01/00, Dt. 01.12.2010 (Based on ASTM D5233- 92 (Reapproved 2009), APHA 22 nd Edition, 2012; 4500 CN ⁻ C,E))	0.2 mg/ L to 1000 mg/L

II. WATER

1. Water, Bore well water and surface Water	pH	APHA 22 nd Edition, 2012; 4500 H ⁺ B	3 to 12
	Temperature	APHA 22 nd Edition, 2012; 2550 – B	Ambient-50°C
	Color	APHA 21 st Edition, 2005; 2120 C	10 Pt- Co Units to 100 Pt- Co Units
	Conductivity	APHA 22 nd Edition, 2012; 2510 B	2 μS/Cm to 10000μS/Cm
	Acidity as CaCO ₃	APHA 22 nd Edition, 2012; 2310 B	2 mg/ L to 1000 mg/L

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	Water, Bore well water and surface Water	Alkalinity as CaCO ₃	APHA 22 nd Edition, 2012; 2320 B	2 mg/L to 1000 mg/L
		Total Solids	APHA 22 nd Edition, 2012; 2540 B	10 mg/ L to 10000 mg/L
		Total Dissolved Solids	APHA 22 nd Edition, 2012; 2540 C	10 mg/ L to 10000 mg/L
		Total Suspended Solids	APHA 22 nd Edition, 2012; 2540 D	10 mg/ L to 1000 mg/L
		Fixed Solids	APHA 22 nd Edition, 2012; 2540 E	10 mg/to 100000 mg/L
		Volatile Solids	APHA 22 nd Edition, 2012; 2540 E	10 mg/ L to 100000 mg/L
		Chlorides as Cl ⁻	APHA 22 nd Edition, 2012; 4500 Cl-B	5 mg/ L to 5000 mg/L
		Sulphates as SO ₄ ⁻²	APHA 22 nd Edition, 2012; 4500 SO ₄ ⁻² D	5 mg/ L to 5000 mg/L
		Sulphide as S ⁻²	APHA 22 nd Edition, 2012; 4500 S ² F	5 mg/ L to 1000 mg/L
		Sulphite as SO ₃ ⁻²	APHA 22 nd Edition, 2012; 4500 SO ₃ ⁻² , B	5 mg/ L to 1000 mg/L
		Nitrate Nitrogen as N	IS: 3025 (Part 34) – 1988; (RA 2009);	0.1 mg/ L to 100 mg/L

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	Water, Bore well water and surface Water	Nitrite (Nitrogen) as N	APHA 22 nd Edition, 2012; 4500 NH ₃ B, C	1 mg/L to 500 mg/L
		Nitrogen (Ammonia) as N	APHA 22 nd Edition, 2012; 4500 N (org) B	1 mg/L to 1000 mg/L
		Nitrogen (Organic) as N	APHA 22 nd Edition, 2012; 4500 F D	1 mg/L to 100 mg/L
		Fluorides as F ⁻	APHA 22 nd Edition, 2012; 4500 Cl ⁻ B	1 mg/L to 50 mg/L
		Residual Chlorine as Cl	APHA 22 nd Edition, 2012; 4500 Cl ⁻ B	0.2 mg/L to 100 mg/L
		Total Cyanides as CN ⁻	APHA 22 nd Edition, 2012; 4500 CN ⁻ C, E	0.2 mg/L to 10 mg/L
		Total Hardness as CaCO ₃	APHA 22 nd Edition, 2012; 2340 C	5 mg/L to 10000 mg/L
		Dissolved Phosphorus as P	APHA 22 nd Edition, 2012; 4500 P C	0.5 mg/L to 100 mg/L
		Dissolved Oxygen	APHA 22 nd Edition, 2012; 4500 O C	1 mg/L to 12 mg/L
		Oil & Grease	APHA 22 nd Edition, 2012; 5520 B	5 mg/L to 100 mg/L
	Chemical Oxygen Demand	APHA 22 nd Edition, 2012; 5220 B	10 mg/L to 1000 mg/L	

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	Water, Bore well water and surface Water	Biological Oxygen Demand 3 Days At 27°C	IS : 3025 (part 44): 1993, (RA 2009)	4 mg/L to 100 mg/L
		Phenolic Compounds as C ₆ H ₅ OH	APHA 22 nd Edition, 2012; 5530 C,D	0.1 mg/L to 100 mg/L
		Calcium as Ca	APHA 22 nd Edition, 2012; 3500 Ca B	5 mg/L to 1000 mg/L
		Magnesium as Mg	APHA 22 nd Edition, 2012; 3500to Mg B	5 mg/L to 1000 mg/L
		Sodium as Na	APHA 22 nd Edition, 2012; 3500 Na B	1 mg/L to 1000 mg/L
		Potassium as K	APHA 22 nd Edition, 2012; 3500 K B	1 mg/L to 1000 mg/L
		Cadmium Cd	APHA 22 nd Edition, 2012; 3111 B	0.1 mg/L to 100 mg/L
		Total Chromium as Cr	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 100 mg/L
		Hexavalent Chromium as Cr ⁺⁶	APHA 22 nd Edition, 2012; 3500 Cr B	0.1 mg/L to 100 mg/L
	Iron as Fe	APHA 22 nd Edition, 2012; 3500 Fe B	0.1 mg/L to 100 mg/L	

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	Water, Bore well water and surface Water	Lead as Pb	APHA 22 nd Edition, 2012; 3111 B	0.1 mg/L to 50 mg/L
		Zinc as Zn	APHA 22 nd Edition, 2012; 3111 B	0.1 mg/L to 100 mg/L
		Copper as Cu	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 100 mg/L
		Nickel as Ni	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 100 mg/L
		Reactive Silica as SiO ₂	APHA 22 nd Edition, 2012; 4500 SiO ₂ C & D	0.5 mg/L to 100 mg/L
		Arsenic as As	APHA 22 nd Edition, 2012; 3500 As B	0.2 mg/L to 50 mg/L
		Vanadium	APHA 22 nd Edition, 2012; 3500 V B	0.1 mg/L to 50 mg/L
		Manganese as Mn	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 100mg/L
		Cobalt as Co	APHA 22 nd Edition, 2012; 3111 B	0.5 mg/L to 100mg/L

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III. AIR, GASES & ATMOSPHERE

1.	Ambient air monitoring	Sulphur Dioxide	IS 5182 (Part 2) : 2001 (RA 2006)	6 µg/m ³ to 1050µg/m ³
		Oxides of Nitrogen	IS 5182 (Part 6) : 2006	6 µg/m ³ to 750 µg/m ³
		Respirable suspended particulate matter (PM 10)	IS 5182 (Part 23) : 2006	5 µg/m ³ to 1000 µg/m ³
		Particulate Matter 2.5 (PM 2.5)	USEPA Quality Assurance Hand Book, Vol.II, Part II, Quality Assurance guide document 2.12	4 µg/m ³ to 200 µg/m ³

~~-X-X-X-X-X-X-X-X-X-X-X-X-X-X-~~

Note: TCLP (Toxicity Characteristic Leaching Procedure)/WLT (Water Leachate)