

Laboratory **Maharashtra Enviro Power Ltd. (Nagpur Unit), CHW-01, MIDC Industrial Area, Mandva, Butibori, Nagpur, Maharashtra**

Accreditation Standard **ISO/IEC 17025: 2005**

Certificate Number **TC-6743 (in lieu of T-2820)**

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Sl.	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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CHEMICAL TESTING

I.	WATER			
1.	Surface Water, Ground Water	Color	IS:3025(Part-4): 1983 (RA 2012)	1 Hazen to 100 Hazen
		Specific conductance at 25°C	IS:3025(Part-14)-1984 (RA 2002)	1 µS/cm to 5000 µS/cm
		pH Value at 25°C	IS:3025 (Part-11)-1983 (RA 2002) (Electrometric Method)	4 to 10
		Total Suspended Solids	IS:3025(Part-17)-1984 (RA 1996) (Gravimetric Method)	4 mg/L to 5000 mg/L
		Total Dissolved Solid	IS:3025(Part-16)-1984 (RA-2006) (Gravimetric Method)	4 mg/L to 2000 mg/L
		Total Solids	IS:3025(Part-15)-1984 (RA-2003) (Gravimetric Method)	4 mg/L to 5000 mg/L
		Turbidity	IS:3025(Part-10)-1984 (RA 2002) (Nephelometric Method)	0.2 NTU to 200 NTU
		Total Alkalinity as Calcium carbonate	IS:3025(Part-23)-1986 (RA 2003) (Indicator Method)	2 mg/L to 1000 mg/L
		Chemical Oxygen Demand (COD)	IS:3025(Part-58)-2006	4 mg/L to 5000 mg/L
		Biochemical Oxygen Demand (BOD), 3 days at 27°C	IS:3025(Part-44)-1993 (RA 2003)	3 mg/L to 1000 mg/L
		Chloride (As Cl)	IS:3025(Part-32)-1983 (RA 2009) (Argentometric Method)	2 mg/L to 1000 mg/L

Ajay Sharma
Convenor

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Program Director

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		Free Residual Chlorine	IS:3025(Part-26):1986 (RA 2009)	0.1 mg/L to 2.5 mg/L
		Calcium(Ca)	IS:3025(Part-40)-1991 (RA 2003) (EDTA Titrimetric method)	2 mg/L to 1000 mg/L
		Fluoride(as F)	APHA-22 nd Edition 2012-Method 4500-F- D (SPANDS Method)	0.1 mg/L to 10 mg/L
		Total Hardness (as CaCO ₃)	IS:3025(Part-21)-2009 (EDTA Method)	2 mg/L to 1500 mg/L
		Magnesium (as Mg)	IS:3025(Part-46)-1994 (RA 2003) (Volumetric Method using EDTA)	2.0 mg/L to 1000 mg/L
		Nitrite-Nitrogen(as NO ₂ -N)	IS:3025(Part 34)-1988 (Spectrophotometer Method)	0.01 mg/L to 20.0 mg/L
		Nitrate (as NO ₃)	IS:3025 (PART 34) : 1988	0.2 mg/L to 50 mg/L
		Oil &Grease	IS:3025(Part-39)-1991 (RA 2003) (Partition Gravimetric Method)	2.0 mg/L to 100 mg/L
		Sulphate (as SO ₄)	IS 3025(Part 24)-1986 (RA 2009)	1.0 mg/L to 500 mg/L
		Ammonia (as total ammonia-N)	IS 3025(Part 34):1988	0.1 mg/L to 10 mg/L
		Sulfide (as H ₂ S)	IS:3025 (Part-29)-1986 (RA 2009) APHA-22 nd Edition 2012-Method 4500-S ² F (Iodometric Method)	0.01 mg/L to 5.0 mg/L
		Phenolic Compound	IS:3025 (Part-43)-1992 (RA 2003)	0.2 mg/L to 150.0 mg/l
2.	Drinking Water	Color	IS:3025(Part-4): 1983 (RA 2012)	1 Hazen to 100 Hazen

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		pH Value at 25°C	IS:3025 (Part-11)-1983 (RA 2002) (Electrometric Method)	4 to 10
		Free Residual Chlorine	IS:3025(Part-26):1986 (RA 2009)	0.1 mg/L to 2.5 mg/L
		Total Dissolved Solid	IS:3025(Part-16)-1984 (RA 2006)	4 mg/L to 800 mg/L
		Turbidity	IS:3025(Part-10)-1984 (RA 2002)	0.2 NTU to 100 NTU
		Total Alkalinity as Calcium carbonate	IS:3025(Part-23)-1986 (RA 2003) (Indicator Method)	2 mg/L to 800 mg/L
		Chloride(as Cl)	IS:3025(Part-32)-1988 (RA 2009)	2 mg/L to 300 mg/L
		Calcium(Ca)	IS:3025(Part-40)-1991 (RA 2003)	2 mg/L to 100 mg/L
		Fluoride(as F)	APHA-22nd Edition 2012- Method 4500-F- D	0.5 mg/L to 2.0 mg/L
		Total Hardness(as CaCO ₃)	IS:3025(Part-21)-2009 (EDTA Method)	2 mg/L to 1500 mg/L
		Magnesium(as Mg)	IS:3025(Part-46)-1994 (RA 2003)	2.0 mg/L to 1000 mg/L
		Nitrate (as NO ₃)	IS:3025 (PART 34) : 1988	0.2 mg/L to 50 mg/L
		Phenolic compound (as C ₆ H ₅ OH)	IS:3025 (Part-43)-1992 (RA 2003)	0.2 mg/L to 150 mg/L
		Sulfide (as H ₂ S)	IS:3025 (Part-29)-1986 (RA 2009) APHA-22nd Edition 2012- Method 4500-S ₂ F (Iodometric Method)	0.01 mg/L to 5.0 mg/l
		Sulphate	IS 3025(Part 24)-1986 (RA 2009)	2.0 mg/L to 500 mg/L
		Ammonia (as total ammonia-N)	IS 3025(Part 34):1988	0.1 mg/L to 5 mg/L

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II.	POLLUTION AND ENVIRONMENT			
1.	Waste water	Specific conductance at 25°C	IS:3025(Part-14)-1984 (RA 2002)	1 µS/cm to 15000 µS/cm
		pH Value at 25°C	IS:3025 (Part-11)-1983 (RA 2002) (Electrometric Method)	1 to 14
		Total Suspended Solids	IS:3025(Part-17)-1984 (RA 1996)	4 mg/L to 5000 mg/L
		Total Dissolved Solid	IS:3025(Part-16)-1984 (RA 2006)	4 mg/L to 10000 mg/L
		Total Solids(Total Residue)	IS:3025(Part-15)-1984 (RA 2003)	4 mg/L to 10000 mg/L
		Turbidity	IS:3025(Part-10)-1984 (RA 2002)	1 NTU to 5000 NTU
		Total Alkalinity as Calcium carbonate	IS:3025(Part-23)-1986 (RA 2003) (Indicator Method)	2 mg/L to 1000 mg/L
		Cadmium	IS:3025(Part-41)-1992 (RA 2003) AAS Method	0.1 mg/L to 10 mg/L
		Chemical Oxygen Demand (COD)	IS:3025(Part-58)-2006	4 mg/L to 20000 mg/L
		Biochemical Oxygen Demand (BOD), 3 days at 27°C	IS:3025(Part-44)-1993 (RA 2003)	3 mg/L to 10000 mg/L
		Chloride (as Cl)	IS:3025(Part-32)-1988 (RA 2009) (Argentometric Method)	2 mg/L to 1000 mg/L
		Residual Chlorine	IS:3025(Part-26):1986 (RA 2009)	0.1 mg/L to 2.5 mg/L
		Chromium (As Cr)	IS:3025(Part 52):2003 AAS Method	0.1 mg/L to 10 mg/L

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		Copper (Cu)	IS:3025(Part-42)-1992 (RA 2003) (AAS Method)	0.1 mg/L to 10 mg/L
		Fluoride(As F)	APHA-22 nd Edition 2012-Method 4500-F- D (SPANDS Method)	0.1 mg/L to 10 mg/L
		Iron (as Fe)	IS:3025(Part-53)-2003 (Phenanthroline Method)	0.1 mg/L to 10 mg/L
		Lead (As Pb)	IS:3025(Part-47)-1994 (RA 2003) (AAS Method)	0.1 mg/L to 10 mg/L
		Nickel	IS 3025(Part 54):2003 (AAS Method)	0.1 mg/L to 10 mg/L
		Nitrite-(As NO ₂)	APHA-22 nd Edition 2012-Method 4500-NO ₂ - B	0.1 mg/L to 10 mg/L
		Nitrate (as NO ₃)	IS:3025 (Part 34) : 1988)	0.2 mg/L to 50 mg/L
		Oil &Grease	IS:3025(Part-39)-1991 (RA 2003) Partition Gravimetric Method	1.0 mg/L to 100 mg/L
		Sulphate	IS 3025(Part 24)-1986 (RA 2009) (Turbidity Method)	2.0 mg/L to 500 mg/L
		Zinc	IS:3025 (Part-49)-1994 (RA 2003) (AAS Method)	0.1 mg/L to 10 mg/L
		Manganese (as Mn)	APHA-22 nd Edition 2012-(Air Acetylene Method) 3111C, Page No. 3-20	0.05 mg/l to 2.0 mg/l
2.	Waste (Sludge, Slurry, Granular, Solid, Powder, Liquid)	Calorific Value	IS 1350:1970	500 cal/g to 10000 cal/g
		Loss on Drying at 105°C	ASTM D 2974-14	1.0% to 45.0 %
		Loss on Ignition	ASTM D 2974-14	1.0 % to 100 %
		Ash	ASTM D 2974-14	1 % to 100 %
		pH	USEPA 9040 C:2014	1 to 14
		Oil and Grease	USEPA 9071 B:1998	1 % to 30 %

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		Cadmium	USEPA 1311:1992, USEPA 7000B:2007	0.1 mg/L to 100 mg/L
		Copper	USEPA 1311:1992, USEPA 7000B:2007	0.1 mg/L to 100 mg/L
		Chromium	USEPA 1311:1992, USEPA 7000B:2007, USEPA 7196A:1992	0.1 mg/L to 100 mg/L
		Nickel	USEPA 1311:1992, USEPA 7000B: 2007	0.1 mg/L to 100 mg/L
		Lead	USEPA 1311:1992, USEPA 7000B: 2007	0.1 mg/L to 100 mg/L
		Zinc	USEPA 1311:1992, USEPA 7000B: 2007	0.1 mg/L to 100 mg/L
III.	ATMOSPHERIC POLLUTION			
1.	Ambient Air Monitoring	Oxide of Nitrogen	IS:5182 (Part-6) 2006 (RA 2014)	9.0 µg/m ³ to 200 µg/m ³
		Sulphur Dioxide	IS:5182(Part-2) 2001 (RA 2012)	4 µg/m ³ to 200 µg/m ³
		Particulate Matter (PM _{2.5})	LAB SOP/AIR/22.11.2014	10 µg/m ³ to 300 µg/m ³
		Particulate Matter (PM ₁₀)	IS:5182(Part-23) 2006	10 µg/m ³ to 1000 µg/m ³
		Ammonia	Standard method of air sampling and analysis, 3 rd edition 1989, Method 401	1.0 µg/m ³ to 20 µg/m ³
		Nickel	Standard method of air sampling and analysis, 3 rd edition 1989, Method 501	10.0 ng/m ³ to 2000 ng/m ³
		Lead	IS 5182 (Part-22) 2004	0.4 µg /m ³ - 20 µg /m ³
2.	Source Emission	Total Particulate Matter	IS:11255 (Part-1) 1985 (RA 2009)	1.0 mg/Nm ³ to 1500 mg/Nm ³
		Sulphur Dioxide	IS:11255 (Part-2) 1985 (RA 2003)	4.0 mg/Nm ³ to 8000 mg/Nm ³

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		Carbon Dioxide	IS:13270 –1992 (Orsat)	1 % to 34 %
		Oxygen	IS:13270 –1992 (Orsat)	1% to 25 %
IV.	RESIDUES IN WATER			
1.	Trace Metals	Iron (as Fe)	IS:3025(Part-53)-2003 (Phenanthroline Method)	0.02 mg/L to 10 mg/L
		Zinc (as Zn)	IS:3025 (Part-49)-1994 (RA 2003) (AAS Method)	0.1 mg/L to 10 mg/L
		Cadmium (as Cd)	IS 3025(Part 41):1992 (RA 2003) (AAS Method)	0.001 mg/l to 1.0 mg/l
		Total Chromium (as Cr)	IS 3025(Part 52):2003 (AAS Method) (Spectrophotometer)	0.02 mg/l to 5.0 mg/l
		Copper (as Cu)	IS 3025(Part 42):1992 (RA 2003) (AAS Method)	0.02 mg/l to 5.0 mg/l
		Lead (as Pb)	IS 3025(Part 47):1994 (RA 2003) (AAS Method)	0.01 mg/L to 1.0 mg/L
		Nickel (as Ni)	IS:3025 (Part-54)-2003 (AAS Method)	0.02 mg/l to 1.0 mg/l
		Manganese (as Mn)	APHA-22 nd Edition 2012, 3111C (Air Acetylene Method)	0.05 mg/l to 2.0 mg/l
V.	SOLID FUELS			
1.	Coal and Coke	Total Moisture (Dry Basis)	IS:1350 (Part 1)-1984 RA 2001	1.0 % to 30 %

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		Ash Content	IS:1350 (Part 1)-1984 RA 2001	2.0 % to 60 %
		Volatile Matter	IS:1350 (Part 1)-1984 RA 2001	5.0 % to 70 %
		Fixed Carbon	IS:1350 (Part 1)-1984 RA 2001	5.0 % to 70 %
		Calorific Value	IS:1350 (Part 2)-1970 RA 2000)	500 cal/g to 6000 cal/g
		Total Sulphur	IS:1350(Part 3)-1969 RA 2000)	0.5 % to 10 %

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