

Laboratory **Global Management and Engineering Consultants International-Test House and Research Centre, Saharan Tower, 308, Officers Campus Extension, Sirsi Road, Khatipura, Jaipur, Rajasthan**

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

Certificate Number **TC-6669**

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Validity **26.12.2017 to 25.12.2019**

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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. ATMOSPHERIC POLLUTION				
1.	Ambient Air	Suspended Particulate Matter (SPM)	IS 5182 (Part 4)	20.0 µg/m ³ to 1000.0 µg/m ³
		Particulate Matter (PM ₁₀)	IS 5182 (Part 23)	10.0 µg/m ³ to 1000.0 µg/m ³
		Particulate Matter (PM _{2.5})	GMEC/SOP/03 Date of issue 07/03/17 Rev-18/08/17	10.0 µg/m ³ to 500.0 µg/m ³
		Sulphur Di – Oxide (SO ₂)	IS 5182 (Part 2)	5.0 µg/m ³ to 1000.0 µg/m ³
		Nitrogen Oxides (NO _x)	IS 5182 (Part 6)	5.0 µg/m ³ to 500.0 µg/m ³
		Carbon Mono Oxide (CO)	IS 5182 (Part 10)	100.0 µg/m ³ to 10,000.0 µg/m ³
		Ammonia as (NH ₃)	GMEC/SOP/08 Date of issue 07/03/17 Rev-18/08/17	10.0 µg/m ³ to 500.0 µg/m ³
2.	Stack Emission Monitoring	Particulate Matter (PM)	IS 11255 (Part 1)	5.0 mg/Nm ³ to 1000.0 mg/Nm ³
		Sulphur Di – Oxide (SO ₂)	IS 11255 (Part 2)	1.0 mg/Nm ³ to 500.0 mg/Nm ³
		Nitrogen Oxides (NO _x)	IS 11255 (Part 7)	2 mg/Nm ³ to 400.0 mg/Nm ³
		Carbon Di-Oxide (CO ₂)	IS 13270	1.5 % to 20.0 %
		Carbon Mono Oxide (CO)	IS 13270	0.2 % to 10.0 %
		Oxygen (O ₂)	IS 13270	0.5 % to 20.0 %
3.	Noise - Ambient and Source	Ambient Noise	IS 9989	30.0 dB(A) to 130.0 dB(A)
		Source Noise (DG Sets)	IS 4758	30.0 dB(A) to 130.0 dB(A)

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II.	WATER			
1.	Surface Water/ Ground Water/ Drinking Water/Industrial Water	pH Value	IS 3025 (Part 11)	2.0 to 14.0
		Colour	IS 3025 (Part 4)	1.0 to 100.0 Hazen
		Odour	IS 3025 (Part 5)	Qualitative (Agreeable/Disagreeable)
		Taste	IS 3025 (Part 7)	Qualitative (Agreeable/Disagreeable)
		Total Suspended Solid (TSS)	IS 3025 (Part 17)	1.0 mg/L to 500.0 mg/L
		Total Dissolve Solid	IS 3025 (Part 16)	10.0 mg/L to 12000.0 mg/L
		Total Solids	IS 3025 (Part 15)	10.0 mg/L to 15000.0 mg/L
		Electrical Conductivity	IS 3025 (Part 14)	2.0 μ s/cm to 15000.0 μ s/cm
		Calcium as Ca	IS 3025 (Part 40)	5.0 mg/L to 1000.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	5.0 mg/L to 800.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	10.0 mg/L to 2000.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	0.50 mg/L to 5000.0 mg/L
		Fluoride as F ⁻	APHA (23 rd Edition)	0.1 mg/L to 20.0 mg/L
		Sulphates as SO ₄ ²⁻	APHA (23 rd Edition)	1.0 mg/L to 2000.0 mg/L
		Nitrate as NO ₃ ⁻	APHA (23 rd Edition)	0.1 mg/L to 500.0 mg/L
		Carbonate and Bicarbonate	IS 3025 (Part 51)	10.0 mg/L to 2000.0 mg/L
		Acidity	IS 3025 (Part 22)	10.0 mg/L to 1000.0 mg/L
		Total alkalinity as CaCO ₃	IS 3025 (Part 23)	10.0 mg/L to 2000.0 mg/L
		Oil & Grease	IS 3025 (Part 39)	5.0 mg/L to 50.0 mg/L
		Phenolic Compounds	IS 3025 (Part 43)	0.001 mg/L to 0.02 mg/L
		Turbidity	IS 3025 (Part 10)	0.5 NTU to 1000.0 NTU
		Iron as Fe	APHA (23 rd Edition)	0.001 mg/L to 100.0 mg/L
		Chromium (Hexavalent)	IS 3025 (Part 52)	0.03 mg/L to 30 mg/L
		Total Chromium	IS 3025 (Part 52)	0.05 to 10.0 mg/L

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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
		Temperature	IS 3025 (Part 9)	5 °C to 70 °C
		Residual Chlorine	IS 3025 (Part 26)	0.1 mg/L to 20.0 mg/L
		Sulphide	APHA (23 edition) Iodometric method	1.0 mg/L to 5.00 mg/L
		Volatile and Fixed Residue (Total, filterable and non-filterable)	IS 3025 (Part 18)	10.0 mg/L to 2000.0 mg/L
		Sodium as Na	IS 3025 (Part 45)	1.0 mg/L to 2000.0 mg/L
		Potassium as K	IS 3025 (Part 45)	1.0 mg/L to 2000.0 mg/L
		Chemical Oxygen Demand (COD)	IS 3025 (Part 58)	4.0 mg/L to 1000.0 mg/L
		Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44)	2.0 mg/L to 500.0 mg/L
		Dissolved Oxygen (DO)	IS 3025 (Part 38)	0.5 mg/L to 12.0 mg/L
2.	Construction Water	pH Value	IS 3025 (Part 11)	2.0 to 12.0
		Electrical Conductivity	IS 3025 (Part 14)	100.0 µS/cm to 8000.0 µS/cm
		Volatile And Fixed Solids	IS 3025 (Part 18)	1.0 mg/L to 500.0 mg/L
		Total alkalinity as CaCO ₃	IS 3025 (Part 23)	10.0 mg/L to 1800 mg/L
		Acidity	IS 3025 (Part 22)	10.0 mg/L to 500.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	0.50 to 2000.0 mg/L
		Sulphates as SO ₄ ⁻	APHA (23 rd Edition)	0.50 to 2000.0 mg/L
		Total Dissolve Solid	IS 3025 (Part 16)	10.0 mg/L to 10000.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	10.0 mg/L to 2000.0 mg/L
		Calcium as Ca	IS 3025 (Part 40)	5.0 mg/L to 1000.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	5.0 mg/L to 1000.0 mg/L
		Sodium as Na	IS 3025 (Part 45)	1.0 mg/L to 1000.0 mg/L
		Potassium as K	IS 3025 (Part 45)	1.0 mg/L to 1000.0 mg/L
3.		Irrigation Water	Electrical Conductivity	IS 3025 (Part 14)

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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
		pH Value	IS 3025 (Part 11)	6.5 to 9.2
		Total Dissolve Solid	IS 3025 (Part 16)	50.0 mg/L to 8000.0 mg/L
		Calcium as Ca	IS 3025 (Part 40)	20.0 mg/L to 900.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	20.0 mg/L to 900.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	50.0 mg/L to 1800.0 mg/L
		Sodium as Na	IS 3025 (Part 45)	20.0 mg/L to 1800.0 mg/L
		Potassium as K	IS 3025 (Part 45)	20.0 mg/L to 1500.0 mg/L
		Sulphates as SO ₄ ⁻	APHA (23 rd Edition)	20.0 mg/L to 1500.0 mg/L
		Carbonate and Bicarbonate	IS 3025 (Part 51)	40.0 mg/L to 1800.0 mg/L
		Total alkalinity as CaCO ₃	IS 3025 (Part 23)	40.0 mg/L to 1800.0 mg/L
		Iron as Fe	APHA (23 rd Edition)	0.1 mg/L to 80.0 mg/L
		Fluoride as F ⁻	APHA (23 rd Edition)	0.1 to 20.0 mg/L
		Nitrate as NO ₃	APHA (23 rd Edition)	1.0 to 80.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	5.0 to 800.0 mg/L
4.	Swimming Pool Water	Electrical Conductivity	IS 3025 (Part 14)	150.0 to 6000.0 µs/cm
		pH Value	IS 3025 (Part 11)	6.5 to 8.5
		Residual Chlorine	IS 3025 (Part 26)	0.1 mg/L to 10.0 mg/L
		Total alkalinity as CaCO ₃	IS 3025 (Part 23)	10.0 mg/L to 1500.0 mg/L
		Calcium as Ca	IS 3025 (Part 40)	20.0 mg/L to 1000.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	10.0 mg/L to 800.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	50.0 mg/L to 1800.0 mg/L
		Total Dissolve Solid	IS 3025 (Part 16)	10.0 mg/L to 3500.0 mg/L
		Dissolved Oxygen (DO)	IS 3025 (Part 38)	0.5 mg/L to 8.0 mg/L
		Phenolic Compounds	IS 3025 (Part 43)	0.001 mg/L to 0.20 mg/L
		Oil & Grease	IS 3025 (Part 39)	5.0 mg/L to 50.0 mg/L
		Turbidity	IS 3025 (Part 10)	0.50 NTU to 100.0 NTU
		Odour	IS 3025 (Part 5)	Qualitative (Agreeable/Disagreeable)

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5.	Mineral Water/ Water for Food, Water for Ice	pH Value	IS 3025 (Part 11)	5.0 to 9.0
		Electrical Conductivity	IS 3025 (Part 14)	50.0 μ S/cm to 800.0 μ S/cm
		Odour	IS 3025 (Part 5)	Qualitative (Agreeable/Disagreeable)
		Taste	IS 3025 (Part 7)	Qualitative (Agreeable/Disagreeable)
		Turbidity	IS 3025 (Part 10)	0.50 NTU to 50.0 NTU
		Total Solids	IS 3025 (Part 15)	10.0 mg/L to 1500.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	10.0 mg/L to 1000.0 mg/L
		Sulphates as SO ₄ ⁻	APHA (23 rd Edition)	1.0 mg/L to 400.0 mg/L
		Fluoride as F ⁻	APHA (23 rd Edition)	0.10 mg/L to 5.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	0.50 mg/L to 350.0 mg/L
		Iron as Fe	APHA (23 rd Edition)	0.01 mg/L to 50.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	5.0 mg/L to 500.0 mg/L
		Chromium (Hexavalent)	IS 3025 (Part 52)	0.03 mg/L to 2.0 mg/L
6.	Battery Water/ Reagent grade Water	Nitrate as NO ₃	APHA (23 rd Edition)	0.010 mg/L to 50.0 mg/L
		Phenolic Compounds	IS 3025 (Part 43)	0.001 mg/L to 0.01 mg/L
		Electrical Conductivity	IS 3025 (Part 14)	2.0 us/cm to 100 us/cm
		Total Dissolved Solid	IS 3025 (Part 16)	1.0 mg/L to 60.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	0.50 mg/L to 50.0 mg/L
		Nitrate as NO ₃	APHA (23 rd Edition)	0.10 to 10.0 mg/L
		Calcium as Ca	IS 3025 (Part 40)	5.0 mg/L to 20.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	5.0 mg/L to 20.0 mg/L
		Sodium as Na	IS 3025 (Part 45)	1.0 mg/L to 10.0 mg/L
		Potassium as K	IS 3025 (Part 45)	1.0 mg/L to 10.0 mg/L
		Total Chromium	IS 3025 (Part 52)	0.050 mg/L to 2.0 mg/L
		Total Solids	IS 3025 (Part 15)	1.0 mg/L to 80.0 mg/L
		Iron as Fe	APHA (23 rd Edition)	0.01 mg/L to 2.0 mg/L

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7.	Packaged Drinking water/ Packaged Natural Mineral water	pH Value	IS 3025 (Part 11)	5.0 to 9.0
		Colour	IS 3025 (Part 4)	1.0 to 10.0 Hazen
		Odour	IS 3025 (Part 5)	Qualitative (Agreeable/Disagreeable)
		Taste	IS 3025 (Part 7)	Qualitative (Agreeable/Disagreeable)
		Total Suspended Solid (TSS)	IS 3025 (Part 17)	1.0 mg/L to 50.0 mg/L
		Total Dissolve Solid	IS 3025 (Part 16)	50.0 mg/L to 800.0 mg/L
		Total Solids	IS 3025 (Part 15)	50.0 mg/L to 1000.0 mg/L
		Electrical Conductivity	IS 3025 (Part 14)	50.0µS/cm to 1500.0 µS/cm
		Calcium as Ca ⁺⁺	IS 3025 (Part 40)	5.0 mg/L to 200.0 mg/L
		Magnesium as Mg ⁺⁺	IS 3025 (Part 46)	5.0 mg/L to 100.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	10.0 mg/L to 500.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	5.0 mg/L to 400.0 mg/L
		Fluoride as F ⁻	APHA (23 rd Edition)	0.1 mg/L to 5.0 mg/L
		Sulphates as SO ₄ ⁻	APHA (23 rd Edition)	1.0 mg/L to 400.0 mg/L
		Nitrate as NO ₃ ⁻	APHA (23 rd Edition)	0.1 mg/L to 100.0 mg/L
		Carbonate and Bicarbonate	IS 3025 (Part 51)	10.0 mg/L to 300.0 mg/L
		Total alkalinity as CaCO ₃	IS 3025 (Part 23)	10.0 mg/L to 400.0 mg/L
Oil & Grease	IS 3025 (Part 39)	5.0 mg/L to 20.0 mg/L		
Phenolic Compounds	IS 3025 (Part 43)	0.001 mg/L to 0.20 mg/L		
Turbidity	IS 3025 (Part 10)	0.50 NTU to 10.0 NTU		
Iron as Fe	APHA (23 rd Edition)	0.10 mg/L to 10.0 mg/L		
Residual Chlorine	IS 3025 (Part 26)	0.10 mg/L to 0.50 mg/L		
Sodium as Na ⁺	IS 3025 (Part 45)	1.0 mg/L to 400.0 mg/L		
Potassium as K ⁺	IS 3025 (Part 45)	1.0 mg/L to 300.0 mg/L		
Sulphide	APHA (23 edition) Iodometric method	1.0 mg/L to 5.0 mg/L		
Total Chromium	IS 3025 (Part 52)	0.050 mg/L to 0.50 mg/L		

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III.	POLLUTION & ENVIRONMENT			
1.	Waste Water (Sewage/Effluent)	pH Value	IS 3025 (Part 11)	2 to 12
		Total Suspended Solid(TSS)	IS 3025 (Part 17)	5.0 mg/L to 5000.0 mg/L
		Total Dissolve Solid	IS 3025 (Part 16)	50.0 mg/L to 20000.0 mg/L
		Total Solids	IS 3025 (Part 15)	50.0 mg/L to 20000.0 mg/L
		Odour	IS 3025 (Part 5)	Qualitative (Agreeable/Disagreeable)
		Electrical Conductivity	IS 3025 (Part 14)	50.0 to 50000.0 us/cm
		Calcium as Ca	IS 3025 (Part 40)	5.0 mg/L to 1000.0 mg/L
		Magnesium as Mg	IS 3025 (Part 46)	2.0 mg/L to 500.0 mg/L
		Total Hardness as CaCO ₃	IS 3025 (Part 21)	10.0 mg/L to 10000.0 mg/L
		Chloride as Cl ⁻	IS 3025 (Part 32)	5.0 mg/L to 10000.0 mg/L
		Fluoride as F ⁻	APHA (23 rd Edition)	0.1 mg/L to 20.0 mg/L
		Sulphates as SO ₄ ⁻²	APHA (23 rd Edition)	1.0 mg/L to 2000.0 mg/L
		Nitrate as NO ₃ ⁻¹	APHA (23 rd Edition)	0.1 mg/L to 500.0 mg/L
		Total Chromium	IS 3025 (Part 52)	0.05 mg/L to 10.0 mg/L
		Carbonate and Bicarbonate	IS 3025 (Part 51)	10.0 mg/L to 2000.0 mg/L
		Acidity	IS 3025 (Part 22)	5.0 mg/L to 1500.0 mg/L
	Total alkalinity as CaCO ₃	IS 3025 (Part 23)	10.0 mg/L to 2000.0 mg/L	
	Oil & Grease	IS 3025 (Part 39)	0.5 mg/L to 100.0 mg/L	
	Phenolic Compounds	IS 3025 (Part 43)	0.01 mg/L to 1000.0 mg/L	
	Turbidity	IS 3025 (Part 10)	5 NTU to 1000.0 NTU	
	Iron as Fe	APHA (23 rd Edition)	0.01 mg/L to 100.0	
	Chromium (Hexavalent)	IS 3025 (Part 52)	0.03 mg/L to 10.0 mg/L	
	Temperature	IS 3025 (Part 9)	5.0 °C to 70.0 °C	
	Sulphide	IS 3025 (Part 29)	0. 1 mg/L to 5.00 mg/L	

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		Volatile and Fixed Residue (Total, filterable and non-filterable)	IS 3025 (Part 18)	10.0 mg/L to 20000.0 mg/L
		Sodium as Na	IS 3025 (Part 45)	1.0 mg/L to 2000.0 mg/L
		Potassium as K	IS 3025 (Part 45)	1.0 mg/L to 2000.0 mg/L
		Dissolved Oxygen (DO)	IS 3025 (Part 38)	0.5 mg/L to 10.0 mg/L
		Chemical Oxygen Demand (COD)	IS 3025 (Part 58)	2.0 mg/L to 5000.0 mg/L
		Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44)	2.0 mg/L to 2000.0 mg/L
2.	Soil	pH	IS 2720 (Part 26)	1 to 14
		Texture	Ministry of Agriculture Govt. of India	NA
		Electrical Conductivity	IS 14767	0.10 mS/cm to 700.0 mS/cm
		Total Soluble Solids	IS 2720 (Part 21)	0.1 % to 10.0 %
		Calcium carbonate	IS 2720 (Part 23)	0.1 % to 20.0 %
		Total Phosphorous (as P)	Ministry of Agriculture Govt of India	1.0 kg/hect to 2000.0 kg/hect
		Organic Matter	IS 2720 (Part 22)	0.1 % to 25.0 %
		Water Soluble Sulphate	IS 2720 (Part 27)	0.01 % to 5.0 %
		Sodium as Na	IS 9497	5.0 µg/mL to 1000.0 µg/mL
		Potassium as K	IS 9497	5.0 µg/mL to 500.0 µg/mL
		Total Nitrogen (TKN)	IS 14684	0.01 % to 10 %
		Moister Content	IS 2720(Part 9)	0.1 % to 60.0 %
		Bulk Density	IS 2720 (Part 8)	1.0 gm/cc to 60.0 gm/cc
		Water Holding Capacity	IS 14765	10.0 % to 80.0 %