

Laboratory Laboratory Department, Aqua-Air Environmental Engineers Pvt. Ltd.,
403, Centre Point, Ring Road, Surat, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7328

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Validity 28.05.2018 to 27.05.2020

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
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CHEMICAL TESTING

I.	WATER			
1.	Surface Water, Ground Water, Drinking Water, Industrial Water & Water from Purifiers	Electrical Conductivity	IS 3025 (Part 14)	0.002 mS/cm to 100 mS/cm
		pH Value	IS 3025 (Part 11) Electrometric Method	1.0 to 12.0
		Temperature	IS 3025 (Part 9) By Mercury filled Thermometer	10 °C to 50 °C
		Total Suspended Solids (Non-Filterable Residue)	IS 3025 (Part 17) Gravimetric Method	10 mg/L to 5000 mg/L
		Total Dissolved Solids (Filterable Residue)	IS 3025 (Part 16) Gravimetric Method	10 mg/L to 5000 mg/L
		Volatile and fixed residue (Total filterable and Non-filterable)	IS 3025 (Part 18) Gravimetric Method	10 mg/L to 1000 mg/L
		Turbidity	IS 3025 (Part 10) Nephelometric Method	2 to 1000 NTU
		Color	APHA & AWWA 23 rd Ed. 2120 B. 2-6 Visual comparison Method	Qualitative Test
		Salinity	APHA & AWWA 23 rd Ed. 2520 A & B. 2-59, 2-60	1 µg/L to 40 µg/L
		Acidity (as CaCO ₃)	IS 3025 (Part 22) Indicator Method	10 mg/L to 1000 mg/L
		Alkalinity (as CaCO ₃)	IS 3025 (Part 23) Indicator Method	10 mg/L to 1000 mg/L
		Biochemical Oxygen Demand	IS 3025 (Part 44) BOD 3- days at 27 °C	1 mg/L to 200 mg/L
		Carbonate (as CO ₃ ²⁻) & Bicarbonate (as HCO ₃ ⁻)	IS 3025 (Part 51) Calculation Method	10 mg/L to 1000 mg/L

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		Chloride (as Cl ⁻)	IS 3025 (Part 32) Argentometric Titration	5 mg/L to 1000 mg/L
		Calcium (as Ca ⁺²)	APHA & AWWA 23 rd Ed. 3500 Ca-B.3-69 EDTA Titrimetric	5 mg/L to 600 mg/L
		Dissolved Oxygen	IS: 3025 (Part-38) Titrimetric Method -Azide Modification	0.1 mg/L to 10 mg/L
		Magnesium (as Mg ⁺²)	APHA & AWWA 23 rd Ed. 3500 Mg-B.3-86, Calculation Method	5 mg/L to 250 mg/L
		Total Hardness (as CaCO ₃)	IS 3025 (Part 21) EDTA Titration (Titrimetric method)	10 mg/L to 1000 mg/L
		Oil & Grease (Mineral Oil)	IS: 3025 (Part-39) Partition Gravimetric Method	0.1 mg/L to 50 mg/L
		Phosphorus (as P)	APHA & AWWA 23 rd Ed. 4500 P-B. (5)-4-161 & P-E. 4-164 Persulfate Digestion Method & Ascorbic Acid Method	0.05 mg/L to 50 mg/L
			APHA & AWWA 23 rd Ed. 4500 P-B. (5)-4-161 & P- D.4-163 Stannous Chloride Method	0.05 mg/L to 50 mg/L
		Sulphate (as SO ₄ ⁻²)	APHA & AWWA 23 rd Ed.- 4500-SO ₄ ²⁻ -E. 4-199, (Turbidimetric Method)	5 mg/L to 600 mg/L
		Nitrogen (Ammonia) (as NH ₃ -N)	APHA & AWWA 23 rd Ed. 4500 – NH ₃ -B & C.4 – 114, 115,116 Titrimetric Method	0.2 mg/L to 200 mg/L

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		Sulphides (as S ²⁻)	APHA & AWWA 23 rd Ed. 4500 – S ²⁻ - F.4-187 Iodometric Method	0.2 mg/L to 50 mg/L
		Phenols (as C ₆ H ₅ OH)	APHA & AWWA 23 rd Ed. 5530-B.5-49 & D.5-52 Cleanup Procedure & Direct Photometric Method	0.01 mg/L to 10 mg/L
		Chlorine, residual	APHA & AWWA 23 rd Ed. 4500 CI-B.4-63 Iodometric Method- I	0.1 mg/L to 5 mg/L
		Iron (as Fe)	IS 3025 (Part 53) 1, 10-Phenanthroline Method	0.05 mg/L to 10 mg/L
		Nitrate Nitrogen (as NO ₃ ⁻ -N)	APHA & AWWA 23 rd Ed. 4500 – NO ₃ ⁻ - B.4-127 Ultraviolet Spectrophotometric Screening Method	0.01 mg/L to 10 mg/L
		Nitrite Nitrogen (as NO ₂ ⁻ -N)	APHA & AWWA 23 rd Ed. 4500 – NO ₂ ⁻ - B.4-124 Colorimetric Method	0.01 mg/L to 10 mg/L
		Fluoride (as F ⁻)	APHA & AWWA 23 rd Ed. 4500 – F-D.4-87, 4-90 SPADNS Method	0.05 mg/L to 10 mg/L
		Copper (as Cu)	APHA & AWWA 23 rd Ed. 3500 – Cu-B.3-76 Neocuproine Method	0.05 mg/L to 10 mg/L
		Nickel (as Ni)	IS 3025 (Part 54) Dimethylglyoxime Method	0.05 mg/L to 10 mg/L
		Chromium (as Cr)	APHA & AWWA 23 rd Ed. 3030.E.3-10 & 3500-Cr- B.3-71 Colorimetric Method	0.05 mg/L to 10 mg/L
		Manganese (as Mn)	APHA & AWWA 23 rd Ed. 3500-Mn-B.3-87 Persulfate Method	0.07 mg/L to 10 mg/L

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		Silica (as SiO ₂)	APHA & AWWA 23 rd Ed. 4500-SiO ₂ -C.4-175 Molybdosilicate Method	0.2 mg/L to 100 mg/L
			APHA & AWWA 23 rd Ed. 4500 – SiO ₂ -D.4-177 Heteropoly Blue Method	0.2 mg/L to 100 mg/L
II.	POLLUTION & ENVIRONMENT			
1.	Waste Water (Effluents/ Sewage)	Electrical Conductivity	IS 3025 (Part 14)	0.002 mS/cm to 100 mS/cm
		pH Value	IS 3025 (Part 11) Electrometric Method	1.0 to 12.0
		Temperature	IS 3025 (Part 9) By Mercury filled Thermometer	10 °C to 50 °C
		Total Suspended Solids (Non-Filterable Residue)	IS 3025 (Part 17) Gravimetric Method	10 mg/L to 5000 mg/L
		Total Dissolved Solids (Filterable Residue)	IS 3025 (Part 16) Gravimetric Method	10 mg/L to 100000 mg/L
		Total Solids (Dissolved & Suspended) (Total Residue)	IS 3025 (Part 15) Gravimetric Method	10 mg/L to 100000 mg/L
		Volatile and fixed residue (Total filterable and Non-filterable)	IS 3025 (Part 18) Gravimetric Method	10 mg/L to 10000 mg/L
		Turbidity	IS 3025 (Part 10) Nephelometric Method	0.1 NTU to 1000 NTU
		Color	APHA & AWWA 23 rd Ed. 2120 B. 2-6 Visual comparison Method	Qualitative
		Acidity (as CaCO ₃)	IS 3025 (Part 22) Indicator Method	2 mg/L to 5000 mg/L

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		Alkalinity (as CaCO ₃)	IS 3025 (Part 23) Indicator Method	2 mg/L to 5000 mg/L
		Biochemical Oxygen Demand	IS 3025 (Part 44): 1993 (RA 1999) (1 st Revision) BOD 3- days at 27° C	1 mg/L to 25000 mg/L
		Chloride (as Cl ⁻)	IS 3025 (Part -32) Argentometric Titration	1 mg/L to 10000 mg/L
		Calcium (as Ca ⁺²)	APHA & AWWA 23 rd Ed. 3500 Ca-B.3-69 EDTA Titrimetric	2 mg/L to 1000 mg/L
		Dissolved Oxygen	IS 3025 (Part 38) Titrimetric Method -Azide Modification	0.1 mg/L to 10 mg/L
		Magnesium (as Mg ⁺²)	Standard Methods – APHA & AWWA 23 rd Ed. 3500 Mg - B.3-86 Calculation Method	2 mg/L to 1000 mg/L
		Total Hardness (as CaCO ₃)	IS 3025(Part-21) EDTA Titration (Titrimetric method)	2 mg/L to 1000 mg/L
		Oil & Grease (Mineral Oil)	IS 3025 (Part 39) Partition Gravimetric Method	0.1 mg/L to 100 mg/L
		Phosphorus (as P)	APHA & AWWA 23 rd Ed. 4500 P-B. (5)-4-161 & P-E. 4-164 Persulfate Digestion Method & Ascorbic Acid Method	0.05 mg/L to 50 mg/L
			APHA & AWWA 23 rd Ed. 4500 P-B. (5)-4-161 & P-D.4-164 Stannous Chloride Method	0.05 mg/L to 50 mg/L
		Sulphate (as SO ₄ ⁻²)	APHA & AWWA 23 rd Ed.- 4500-SO ₄ ²⁻ -E. 4-199 (Turbidimetric Method)	5 mg/L to 2000 mg/L

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		Chromium (as Cr)	APHA & AWWA 23 rd Ed. 3030.E.3-10 & 3500-Cr-B.3-71 Colorimetric Method	0.05 mg/L to 20 mg/L
		Manganese (as Mn)	APHA & AWWA 23 rd Ed. 3500-Mn-B.3-87 Persulfate Method	0.07 mg/L to 20 mg/L
		Silica (as SiO ₂)	APHA & AWWA 23 rd Ed. 4500-SiO ₂ -C.4-175 Molybdosilicate Method	0.2 mg/L to 1000 mg/L
			APHA & AWWA 23 rd Ed. 4500-SiO ₂ -D.4-177 Heteropoly Blue Method	0.2 mg/L to 1000 mg/L
		Nitrogen (Organic) (as N _{org})	APHA & AWWA 23 rd Ed. 4500-N _{org} -B.4-139 Macro-Kjeldahl Method	0.05 mg/L to 20 mg/L
2.	Soil/ Sediments	Bulk Density and Pore Space	USDA Method	1.2 g/cm ³ to 3.0 g/cm ³
		Moisture Content	IS 2720 (Part 2)	1 % to 60 %
		Water Holding Capacity (WHC)	USDA Method	10 % to 95 %
		pH Value	IS 2720 (Part 26)	1.0 to 14.0
		Electrical Conductivity	USDA Method	0.002 mS/cm to 100 mS/cm
		Organic Carbon	IS 2720 (Part 22)	0.5 % to 30 %
		Organic Matter (OM)	IS 2720 (Part 22)	0.5 % to 30 %
		Total Nitrogen	USDA Method	15 to 900 kg/hectare
		Available Nitrogen	USDA Method	15 to 900 kg/hectare
		Total Phosphorus	USDA Method	2 to 90 kg/hectare
		Total Soluble Sulphates (as SO ₄ ⁻²)	IS 2720 (Part 27)	1 mg/L to 1000 mg/L
		Calcium (as Ca ⁺²)	IS 2720 (Part 24)	0.1 % to 5 %

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		Magnesium (as Mg ⁺²)	IS 2720 (Part 24)	0.1 % to 5 %
		Chloride (as Cl ⁻)	USDA Method	0.1 % to 5 %
III.	ATMOSPHERIC POLLUTION			
1.	Ambient Air	Sulphur Dioxide (as SO ₂)	IS 5182 (Part 2) Colorimetric (TCM) Method	12 µg/Nm ³ to 1050 µg/Nm ³
		Oxides of Nitrogen (as NO ₂)	IS 5182 (Part 6) Colorimetric (NEDA) method	6 µg/Nm ³ to 750 µg/Nm ³
		Suspended Particulate Matter (SPM)	IS 5182 (Part 4) and by RDS Sampler (Operation Manual)	10 µg/Nm ³ to 2000 µg/Nm ³
		Respirable Suspended Particulate Matter (RSPM) (PM ₁₀)	IS 5182 (Part 23) (Cyclonic flow Technique) (Operation Manual)	10 µg/Nm ³ to 1000 µg/Nm ³
		Particulate Matter (Size less than 2.5 µm) or PM _{2.5} µg/Nm ³	Guidelines for Manual Sampling & Analysis Vol.I (May-2011) : CPCB (MoEF, Govt. of India) Contents Sr. No. (4),P.g. no.15-30 & Operation Manual (Using Fine Particulate Machine) Gravimetric Method	10 µg/Nm ³ to 500 µg/Nm ³
		Ozone (as O ₃)	IS 5182 (Part - 9) Spectrophotometric Method	20 µg/Nm ³ to 1500 µg/Nm ³
		Ammonia (as NH ₃)	Guidelines for Manual Sampling & Analysis Vol.I (May-2011): CPCB (MoEF, Govt. of India) Contents Sr. No. (6),P.g. no.35-38	0.7 µg/Nm ³ to 10 µg/Nm ³

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			Indophenol Blue Method	
		Chlorine (as Cl ₂)	IS 5182 (Part 19) Methyl Orange Method	140 µg/Nm ³ to 3000 µg/Nm ³
		Hydrogen Sulphide (as H ₂ S)	IS 5182 (Part 7) Colorimetric Method	6 µg/Nm ³ to 500 µg/Nm ³
		Carbon Disulphide (as CS ₂)	IS 5182 (Part 20) Colorimetric Method	600 µg/Nm ³ to 21000 µg/Nm ³
2.	Stack Emission Monitoring/ Process/Vent Emissions	Particulate Matter (PM)	IS 11255 (Part 1) Isokinetically Method	4 mg/Nm ³ to 2000 mg/Nm ³
		Oxides of Nitrogen (as NO ₂)	IS 11255 (Part 7) Colorimetric (Phenoldisulphonic Acid (PDA) Method	5 mg/Nm ³ to 500 mg/Nm ³
		Sulphur Dioxide (as SO ₂)	IS 11255 (Part 2) IPA-Thorin Method	2.6 mg/Nm ³ to 100 mg/Nm ³
		Ammonia (as NH ₃)	IS 11255 (Part 6) Method B-Nessler Reagent Method/ Spectrophotometric Method	5 mg/Nm ³ to 500 mg/Nm ³
		Hydrogen Sulphide (as H ₂ S)	IS 11255 (Part 4) Titrimetric Method	2 mg/Nm ³ to 100 mg/Nm ³
		Carbon Disulphide (as CS ₂)	IS 11255 (Part 4) Titrimetric Method	5 mg/Nm ³ to 100 mg/Nm ³