

Laboratory

Ultratec Research & Analytik Labs, 115, Daulatabad Road Industrial Area, Sector-104, Gurgaon, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number

TC-6744

Page 1 of 5

Validity

12.01.2018 to 11.01.2020

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.	POLLUTION & ENVIRONMENT			
1.	Waste water (Effluent / Sewage)	pH Value	IS 3025 (Part-11)	2 to 12
		Specific Conductance as $\mu\text{mho/cm}$ at 25°C	IS 3025 (Part-14)	2 $\mu\text{mho/cm}$ to 55000 $\mu\text{mho/cm}$
		Total Solids	IS 3025 (Part-15)	5 mg/L to 35000 mg/L
		Total Dissolved Solids,	IS 3025 (Part-16)	5 mg/L to 35000 mg/L
		Total Suspended Solids,	IS 3025 (Part-17)	5 mg/L to 10000 mg/L
		Total Hardness as $\text{CaCO}_3$	IS 3025 (Part-21)	5 mg/L to 5000 mg/L
		Total Alkalinity (or) Alkalinity to Methyl Orange as $\text{CaCO}_3$	IS 3025 (Part-23)	0.5 mg/L to 5000 mg/L
		Sulphate as $\text{SO}_4$	IS 3025(Part-24)	5 mg/L to 2000 mg/L
		Iron as Fe	IS 3025(Part-53)	0.01 mg/L to 100 mg/L
		Phosphorous as P	IS 3025 (Part-31)	0.02mg/L to 100 mg/L
		Chloride as Cl	IS 3025 (Part-32)	1.5 mg/L to 10000 mg/L
		Calcium as Ca	IS 3025(Part-40)	5 mg/L to 500 mg/L
		Magnesium as Mg	IS 3025(Part-46)	5 mg/L to 500 mg/L
		Sodium as Na and Potassium as K	IS 3025 (Part 45)	1 mg/L to 15000 mg/L
		Dissolved Oxygen	IS 3025 (Part 38)	0.5 mg/L to 10 mg/L
	Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44)	5 mg/L to 50000 mg/L	
	Chemical Oxygen Demand (COD)	IS 3025(Part-58)	10mg/L to 100000 mg/L	
	Hexavalent Chromium as $\text{Cr}^{+6}$	IS 3025(Part-52)	0.03 mg/L to 1000 mg/L	
	Nickel as Ni	IS 3025(Part-54)	0.03 mg/L to 1000 mg/L	
	Fluoride as F	IS 3025(Part-60)	0.05 mg/L to 10 mg/L	

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Page 2 of 5

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		Oil & Grease	IS 3025 (Part-39)	0.5 mg/L to 5000 mg/L
		Ammonical Nitrogen as NH <sub>3</sub> -N	IS 3025 (Part-34)	5 mg/L to 500 mg/L
		Nitrate Nitrogen	IS 3025 (Part-34)	1 mg/L to 100 mg/L
		Nitrite Nitrogen	IS 3025 (Part-34)	0.05 mg/L to 50 mg/L
		Boron	IS 3025 (Part-57)	0.1 mg/L to 5 mg/L
		Sodium Absorption Ratio	By Calculation	6 to 600
2.	Municipal Solid Wastes (Manure Grade)	pH Value	IS 10158	2 to 12
		Moisture	IS 9235	5 % to 80 %
		Bulk Density	UL/STM/SW/05	0.5 g/cc to 5 g/cc
		Carbon Contents (TOC),	IS 10158	0.2 % to 50 %
		Total Nitrogen (as N)	IS 10158	0.1 % to 5 %
		Total Phosphate (as P <sub>2</sub> O <sub>5</sub> )	IS 10158	0.05 % to 15 %
		Total Potassium (as K <sub>2</sub> O),	IS 10158	0.05 % to 10 %
		Particle size	UL/STM/SW/15	Quantitative
3.		Wastes (Liquid/Slurry/ Sludge/ Solid/Semi-Solid)	pH Value at 25°C	IS 10158
	Conductivity as µmho/cm at 25°C		USEPA Method 9050A,	0.01 µmho/cm to 55000 µmho/cm
	Hexavalent Chromium as Cr <sup>+6</sup>		UL/STM/6.31.3/03	0.05 mg/kg to 500 mg/kg
	Total Chromium as Cr,		UL/STM/6.31.3/03	1 mg/kg to 5000 mg/kg
	Nickel as Ni		UL/STM/6.31.3/04	1 mg/kg to 5000 mg/kg
4.	Soil and Sediments	pH Value at 25°C	IS 2720 Part 26	2 to 12
		Conductivity at 25°C	IS 14767	1 µmho/cm to 20000 µmho/cm
		Water Contents	IS 2720 Part 2	0.1 % to 60 %
		Water Holding Capacity	UL.STM.S.08 Method	5 % to 50 %
		Organic Matter	IS 2720 Part 22	0.1 % to 10 %
		Soluble Sulphate	IS 2720 Pt 27	1 ppm to 40 ppm
		Exchangeable Calcium	UL.STM.S.10 Method	0.5 meq/100g to 20 meq/100g
		Available Nitrogen (as N),	UL.STM.S.03 Method	50 kg/ha to 1000 kg/ha

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Page 3 of 5

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		Available Phosphorous (as P <sub>2</sub> O <sub>5</sub> )	UL.STM.S.04 Method	1 kg/ha to 50 kg/ha
		Available Potassium (as K <sub>2</sub> O)	UL.STM.S.05 Method	5 kg/ha to 500 kg/ha
II.	<b>WATER</b>			
1.	<b>Water: Surface Water, Ground Water, Drinking Water, Construction Water, Swimming Pool Water, Industrial Water and Irrigation Water</b>	Colour	IS 3025 (Part-10)	Qualitative
		Odour	IS 3025 (Part-5)	Qualitative
		Turbidity	IS 3025 (Part-10)	1 NTU to 400 NTU
		pH Value	IS 3025 (Part-11)	4 to10
		Specific Conductance or Conductivity at 25°C	IS 3025 (Part-14)	0.01 µmho/cm to 55000 µmho/cm
		Total Solids	IS 3025 (Part-15)	5 mg/L to 20000 mg/L
		Total Dissolved Solids	IS 3025 (Part-16)	5 mg/L to 10000 mg/L
		Total Suspended Solids	IS 3025 (Part-17)	5 mg/L to 100 mg/L
		Volatile Solids (Organic Solids)	IS 3025 (Part-18)	5 mg/L to 1000 mg/L
		Fixed Solids (Inorganic Solids)	IS 3025 (Part-18)	5 mg/L to 10000 mg/L
		Total Hardness as CaCO <sub>3</sub>	IS 3025 (Part-21)	5 mg/L to 1000 mg/L
		Acidity as CaCO <sub>3</sub>	IS 3025 (Part-22)	0.5 mg/L to 1000 mg/L
		Total Alkalinity (or) Alkalinity to Methyl Orange as CaCO <sub>3</sub>	IS 3025 (Part-23)	0.5 mg/L to 1000 mg/L
		Sulphate as SO <sub>4</sub>	IS 3025(Part-24)	1 mg/L to 200 mg/L
	Iron as Fe	IS 3025(Part-53)	0.01mg/L to 100 mg/L	
	Phosphorous as P	IS 3025 (Part-31)	0.02mg/L to 100 mg/L	
	Chloride as Cl	IS 3025 (Part-32)	1.5mg/L to 5000 mg/L	
	Silica as SiO <sub>2</sub>	IS 3025 (Part-35)	0.02 mg/L to 500 mg/L	
	Oil and Grease	IS 3025 (Part-39)	0.5 mg/L to 50 mg/L	
	Calcium as Ca	IS 3025(Part-40)	5 mg/L to 500 mg/L	
	Magnesium as Mg	IS 3025(Part-46)	5 mg/L to 500 mg/L	

Pankaj Johri  
Convenor

N. Venkateswaran  
Program Director

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Page 4 of 5

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		Sodium as Na and Potassium as K	IS 3025 (Part 45)	1 mg/L to 500 mg/L
		Dissolved Oxygen	IS 3025 (Part 38)	0.5 mg/L to 10 mg/L
		Oxygen absorbed in 4 hours at 27 °C	IS 3025 (Part 51)	0.05 mg/L to 1 mg/L
		Biochemical Oxygen Demand (BOD)	IS 3025 (Part 44)	5 mg/L to 100 mg/L
		Chemical Oxygen Demand (COD)	APHA 22 <sup>nd</sup> Edition, Method 5220D	10mg/L to 250 mg/L
			IS 3025 (Part-58)	10mg/L to 250 mg/L
		Hexavalent Chromium as Cr <sup>+6</sup>	IS 3025 (Part-52)	0.03 mg/L to 20 mg/L
		Nickel as Ni	IS 3025 (Part-54)	0.03 mg/L to 20 mg/L
		Fluoride as F	IS 3025 (Part-60)	0.05 mg/L to 5 mg/L
		Chlorine (Residual)	IS 3025: Pt-26	0.01 mg/L to 1.5 mg/L
		Sodium Absorption Ratio	By Calculation	6 to 600
		Ammoniacal Nitrogen as NH <sub>3</sub> -N	IS 3025 (Part-34)	5 mg/L to 100 mg/L
		Nitrate Nitrogen	IS 3025 (Part-34)	1 mg/L to 10 mg/L
		Nitrite Nitrogen	IS 3025 (Part-34)	0.5 mg/L to 10 mg/L
		Phenols	APHA 22 <sup>nd</sup> Edition	0.001 mg/L to 0.25 mg/L
		Anionic Surfactants (as MBAS)	APHA 22 <sup>nd</sup> Edition, Method 5540C	0.05 mg/L to 2 mg/L
		Boron	IS 3025 (Part-57)	0.1 mg/L to 5 mg/L
<b>III.</b>	<b>ATMOSPHERIC POLLUTION</b>			
<b>1.</b>	<b>Stack Emission</b>	Particulate Matter	IS 11255(Part 1)	5 mg/Nm <sup>3</sup> to 1000 mg/Nm <sup>3</sup>
		Sulfur Dioxide	IS 11255(Part 2)	1 mg/Nm <sup>3</sup> to 10000 mg/Nm <sup>3</sup>
		Oxides of Nitrogen	IS 11255(Part 7)	2 mg/Nm <sup>3</sup> to 1000 mg/Nm <sup>3</sup>

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Page 5 of 5

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		Carbon Monoxide	IS 13270	0.2 % to 3 %
		Carbon Dioxide	IS 13270	0.2 % to 14 %
		Oxygen	IS 13270	0.2 % to 15 %
2.	<b>Ambient Air, Work Environment and Indoor Air Quality, Fugitive Emission</b>	PM <sub>2.5</sub>	UL/STM/A/11 (Gravimetric Method)	10 µg/m <sup>3</sup> to 250 µg/m <sup>3</sup>
		PM <sub>10</sub>	IS 5182(Part 23)	10 µg/m <sup>3</sup> to 5000 µg/m <sup>3</sup>
		Sulfur Dioxide	IS 5182(Part 2)	3 µg/m <sup>3</sup> to 1050 µg/m <sup>3</sup>
		Nitrogen Dioxide	IS 5182(Part 6)	6 µg/m <sup>3</sup> to 750 µg/m <sup>3</sup>
		Ozone	IS 5182(Part 9)	10.6 µg/m <sup>3</sup> to 19620 µg/m <sup>3</sup>
		Ammonia	APHA AIR 3 <sup>rd</sup> Edition and CPCB Guidelines	5 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>
		Total Fluorides	IS 5182 (Part-13)	0.5 µg/m <sup>3</sup> to 290 µg/m <sup>3</sup>
		Hydrogen Sulphide as H <sub>2</sub> S	IS 5182 (Part 7)	6 µg/m <sup>3</sup> to 600 µg/m <sup>3</sup>
	Acid Mist as H <sub>2</sub> SO <sub>4</sub>	UL/STM/A/05	3 µg/m <sup>3</sup> to 500 µg/m <sup>3</sup>	
	Chlorine as Cl <sub>2</sub>	IS 5182 (Part 19)	0.75 µg/m <sup>3</sup> to 14.5 µg/m <sup>3</sup>	
3.	<b>Ambient Noise Levels (Excluding Vibration)</b>	Ambient Noise Equivalent Levels (Leq) for Day and Night	IS 9989	30 dB(A) to 130 dB(A)
4.	<b>Source Noise Levels (excluding Vibration) from sources such as Generator Sets run with Diesel, Pump Room, Cooling Towers, industrial equipment and construction equipment</b>	Noise Level measurement	IS 7194	50 dB(A) to 130 dB(A)