

Laboratory Ujwal Enviro Labs, H. No. 5-14/B, II Floor, Sumithra Nagar, Kukatpally, Hyderabad, Telangana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7875

Page 1 of 7

Validity 26.09.2018 to 25.09.2020

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.	Bore water/ Drinking water/ Domestic water	Color	IS 3025 (Part 4):1983 (RA 2012) APHA 23 <sup>rd</sup> Edn 2120 B:2017 Visual comparison method	1 Hazen to 500 Hazen Units
		Odour	IS 3025 (Part 5):1983 (RA 2012)	Qualitative (Agreeable/ Not Agreeable)
		pH @ 25 °C	IS 3025 (Part 11):1983 (RA 2012) APHA 23 <sup>rd</sup> Edn 4500 H <sup>+</sup> - B:2017	2 to 13
		Electrical Conductivity @ 25 °C	IS 3025 (Part 14):2013 APHA (23 <sup>rd</sup> Edn) 2510 B Laboratory	1 µS/cm to 10,000 µS/cm
		Total Dissolved Solids	IS 3025 (Part 16):1984 (RA 2006) APHA (23 <sup>rd</sup> Edn) 2540 C:2012	1 mg/L to 8000 mg/L
		Colour retention of KMnO <sub>4</sub> @27 ±2 °C	IS 1070:1992, Annexure:A	Pass/Fail
		Phenolphthalein Alkalinity as CaCO <sub>3</sub>	APHA (23 <sup>rd</sup> Edn) 2320 B:2017 Titration method	1.0 mg/L to 200 mg/L
		Total Alkalinity as CaCO <sub>3</sub>	IS 3025 (Part 23):1986 (RA 2009) APHA (23 <sup>rd</sup> Edn) 2320 B:2017	1.0 mg/L to 500 mg/L
		Total Hardness as CaCO <sub>3</sub>	IS 3025 (Part 21):2009 APHA (23 <sup>rd</sup> Edn) 2340 C:2017	1.0 mg/L to 5000 mg/L

**Nabo Gopal Roy**  
Convenor

**Avijit Das**  
Program Manager

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**Page 2 of 7**

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		Calcium As Ca	IS 3025 (Part 40):1991 (RA 2009) APHA (23 <sup>rd</sup> Edn) 3500 Ca B:2017	1 mg/L to 1000 mg/L
		Magnesium as Mg	APHA (23 <sup>rd</sup> Edn) 3500 Mg B:2017 Calculation method	1 mg/L to 1000 mg/L
		Chloride as Cl <sup>-</sup>	IS 3025 (Part 32):1988 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500 Cl B:2012	1 mg/L to 5000 mg/L
		Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 (Part 24):1986 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500 SO <sub>4</sub> E:2017	5.0 mg/L to 1000 mg/L
		Fluoride as F <sup>-</sup>	IS 3025 (Part 60):2008 APHA (23 <sup>rd</sup> Edn) 4500 F D:2017	0.2 mg/L to 15 mg/L
		Free Residual Chlorine	IS 3025 (Part 26 ):1986 (RA 2003) APHA (23 <sup>rd</sup> Edn) 4500 Cl- B:2017	1.0 mg/L to 10 mg/L
		Iron as Fe	IS 3025 (Part 53):2003 (RA 2009) APHA (23 <sup>rd</sup> Edn) 3500 Fe- B	0.2 mg/L to 5 mg/L
		Nitrate as NO <sub>3</sub>	IS 3025 (Part 34):1988 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500 NO <sub>3</sub> - B:2017	0.1 mg/L to 100 mg/L
		Nitrite as NO <sub>2</sub>	IS 3025 (Part 34):1988 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500- NO <sub>2</sub> B:2017	0.1 mg/ L to 50 mg/L

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Page 3 of 7

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		Sodium as Na	IS 3025 (Part 45):1993 (RA 2003) APHA (23 <sup>rd</sup> Edn) 3500 Na B:2017	1.0 mg/L to 500 mg/L
		Potassium as K	IS 3025 (Part 45):1993 (RA 2003) APHA (23 <sup>rd</sup> Edn) 3500 K B:2017	1.0 mg/L to 100 mg/L
		Total Silica as SiO <sub>2</sub>	IS 3025 Part 35:1988, APHA (23 <sup>rd</sup> Edn) 4500 SiO <sub>2</sub> C:2017	1.0 mg/L to 1000 mg/L
		Reactive Silica as SiO <sub>2</sub>	IS 3025 Part 35:1988, APHA (23 <sup>rd</sup> Edn) 4500 SiO <sub>2</sub> C:2017	1.0 mg/L to 1000mg/L
		Manganese as Mn	IS 3025 Part 59:2006, (RA 2014) APHA 23 <sup>rd</sup> Edn 2017-3120B	0.2 mg/L to 100 mg/L
		Phosphate as P	IS 3025 Part 31:1988, RA 2014 by UV-VIS spectrophotometer	0.2 mg/L to 100 mg/L
		Hexavalent Chromium (Cr <sup>6+</sup> )	IS 3025 Part 52:2003, APHA 23 <sup>rd</sup> Edn. 2017-3500 Cr B	0.1 mg/L to 8.0 mg/L
		Aluminum as Al	APHA 3125B 23 <sup>rd</sup> Edn 2017	0.1 mg/L to 100 mg/L
		Vanadium as V	APHA 3120 B 23 <sup>rd</sup> Edn2017	0.1 mg/L to10 mg/L
<b>II.</b>	<b>ENVIRONMENT AND POLLUTION</b>			
<b>1.</b>	<b>Liquid Effluents/ Waste Water/ETP Water, STP Water</b>	Colour	IS 3025 (Part 4):1983 (RA 2012) APHA (23 <sup>rd</sup> Edn) 2120 B:2017 Visual comparison	1 Hazen to 500 Hazen Units

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**Page 4 of 7**

**Validity** 26.09.2018 to 25.09.2020

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			method	
		Odour	IS 3025 (Part 5):1983 (RA 2012)	Qualitative (Agreeable/ Not Agreeable)
		pH @ 25 °C	IS 3025 (Part 11):1983 (RA 2012) APHA (23 <sup>rd</sup> Edn) 4500 H <sup>+</sup> - B:2017 Electrometric method	2 to 13
		Electrical Conductivity @ 25 °C	IS 3025 (Part 14):2013 APHA (22 <sup>nd</sup> Edn) 2510 B Laboratory method	1 µS/cm to 10,000 µS/cm
		Total Dissolved Solids	IS 3025 (Part 16):1984 (RA 2006) APHA (23 <sup>rd</sup> Edn) 2540 C:2012 TDS dried at 180 <sup>o</sup> C	1.0 mg/L to 5000 mg/L
		Total Suspended Solids	IS 3025 (Part 17):1984, (RA 2012), APHA 23 <sup>rd</sup> Edn. 2017- 2540 D	1.0 mg/L to 5000 mg/L
		Total Solids	IS 3025 (Part 15):1984, (RA 2014), APHA 23 <sup>rd</sup> Edn. 2017- 2540 B	1.0 mg/L to 5000 mg/L
		Volatile Solids	IS 3025 (Part 18):1984, (RA 2012), APHA 23 <sup>rd</sup> Edn. 2017- 2540 E	1.0 mg/L to 1000 mg/L
		Fixed Solids	IS 3025 (Part 18):1984, (RA 2012), APHA 23 <sup>rd</sup> Edn. 2017- 2540 E	1.0 mg/L to 5000 mg/L
		Phenolphthalein Alkalinity as CaCO <sub>3</sub>	APHA (23 <sup>rd</sup> Edn) 2320 B:2017 Titration method	1.0 mg/L to 200 mg/L
		Total Alkalinity as CaCO <sub>3</sub>	IS 3025 (Part 23):1986 (RA 2009) APHA (23 <sup>rd</sup> Edn) 2320 B:2017, Titration method	1.0 mg/L to 500 mg/L

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Certificate Number TC-7875

Page 5 of 7

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		Total Hardness as CaCO <sub>3</sub>	IS 3025 (Part 21):2009 APHA (23 <sup>rd</sup> Edn) 2340 C:2017 EDTA Titrimetric method	1.0 mg/L to 5000 mg/L
		Calcium as Ca	IS 3025 (Part 40):1991 (RA 2009) APHA (23 <sup>rd</sup> Edn) 3500 Ca B:2017 EDTA Titrimetric method	1 mg/L to 1000 mg/L
		Magnesium as Mg	APHA (23 <sup>rd</sup> Edn) 3500 Mg B:2017 Calculation method	1 mg/L to 1000 mg/L
		Chloride as Cl <sup>-</sup>	IS 3025 (Part 32):1988 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500 Cl B:2017 Argentometric method	1 mg/L to 5000 mg/L
		Sulphate as SO <sub>4</sub> <sup>2-</sup>	IS 3025 (Part 24):1986 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500 SO <sub>4</sub> E:2017 Turbidimetric method	5.0 mg/L to 1000 mg/L
		Fluoride as F <sup>-</sup>	IS 3025 (Part 60):2008 APHA (23 <sup>rd</sup> Edn) 4500 F D:2017 SPADNS Method	0.2mg/L to 15 mg/L
		Free Residual Chlorine	IS 3025 (Part 26 ):1986 (RA 2003) APHA (23 <sup>rd</sup> Edn) 4500 Cl- B:2017 Iodometric method-I	1.0 mg/L to 10 mg/L
		Iron as Fe	IS 3025 (Part 53):2003 (RA 2009) APHA (23 <sup>rd</sup> Edn) 3500 Fe- B:2017 1,10 Phenanthroline method	0.2 mg/L to 5 mg/L

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Page 6 of 7

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		Nitrate as NO <sub>3</sub>	IS 3025 (Part 34):1988 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500 NO <sub>3</sub> - B:2017	0.1 mg/L to 100 mg/L
		Nitrite As NO <sub>2</sub>	IS 3025 (Part 34):1988 (RA 2009) APHA (23 <sup>rd</sup> Edn) 4500- NO <sub>2</sub> B:2017 Colorimetric method	0.1 mg/ L to 50 mg/L
		Sodium	IS 3025 (Part 45):1993 (RA 2003) APHA (23 <sup>rd</sup> Edn) 3500 Na B:2017 Flame Emission photometric	1.0 mg/L to 500 mg/L
		Potassium	IS 3025 (Part 45):1993 (RA 2003) APHA (23 <sup>rd</sup> Edn) 3500 K B:2017 Flame Emission photometric	1.0 mg/L to 100 mg/L
		Total Silica as SiO <sub>2</sub>	IS 3025 (Part 35):1988, APHA (23 <sup>rd</sup> Edn) 4500 SiO <sub>2</sub> C:2017	0.1 mg/L to 1000 mg/L
		Reactive Silica as SiO <sub>2</sub>	IS 3025 (Part 35):1988, APHA (23 <sup>rd</sup> Edn) 4500 SiO <sub>2</sub> C:2017	0.1 mg/L to 1000 mg/L
		Manganese as Mn	IS 3025 (Part 59):2006, (RA 2014) APHA 23 <sup>rd</sup> Edn 2017- 3120B	0.2mg/L to 100 mg/L
		Chemical Oxygen Demand	IS 3025 (Part 58):2006, (RA 2012) APHA 23 <sup>rd</sup> Edn. 2017- 5220 B	5 mg/L to 5000 mg/L
		Phosphate as P	IS 3025 (Part 31):1988, (RA 2014) by UV-VIS spectrometer	0.1 mg/L to 100 mg/L
		Hexavalent Chromium (Cr <sup>6+</sup> )	IS 3025 (Part 52):2003, APHA 23 <sup>rd</sup> Edn. 2017-	0.1 mg/L to 2.0 mg/L

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Page 7 of 7

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			3500 Cr B	
		Aluminium as Al	APHA 3125B 23 <sup>rd</sup> Edn 2017	0.1 mg/L to 100 mg/L
		Vanadium as V	APHA-23 <sup>rd</sup> Edn 2017 (3120 B)	0.1 mg/L to 10 mg/L
<b>III.</b>	<b>GASES</b>			
<b>1.</b>	<b>Compressed Gases/Dry air</b>	Oxygen as O <sub>2</sub>	NIOSH 6601 by Gas Analyzer Electrochemical (SOP-UEL/STP-285)	18 % to 23 %
		Carbon Monoxide as CO	NIOSH 6604 by Gas Analyzer Electrochemical (SOP-UEL/STP-285)	1.1 mg/m <sup>3</sup> to 500 mg/m <sup>3</sup>
		Carbon Di Oxide as CO <sub>2</sub>	IS/ISO 8573-6 (Gas detector tubes with colour change)	1.52 mg/m <sup>3</sup> to 5000 mg/m <sup>3</sup>
		Moisture/ Water Content	IS/ISO 8573-3 Annexure C (By Dew point Comparison)	0.74 mg/m <sup>3</sup> to 7362 mg/m <sup>3</sup>
		Dew Point	ISO 8573-3 Annexure C (Condensation Method)	(-)70°C to (+)30°C
		Particulate Matter	ISO:8573-8 (Extraction Method)	0.1 mg/m <sup>3</sup> to 10 mg/m <sup>3</sup>
		Oil Mist	ISO:8573-2 (Extraction Method)	0.01 mg/m <sup>3</sup> to 5.0 mg/m <sup>3</sup>
		Nitrogen oxides (NO <sub>x</sub> )	IS/ISO 8573-6 (Gas detector tubes with colour change)	0.1 mg/m <sup>3</sup> to 5 mg/m <sup>3</sup>
		Sulphur dioxide (SO <sub>2</sub> )	IS/ISO 8573-6 (Gas detector tubes with colour change)	1 mg/m <sup>3</sup> to 150 mg/m <sup>3</sup>
		Hydrogen Sulfide (H <sub>2</sub> S)	IS/ISO 8573-6 (Gas detector tubes with colour change)	0.06 mg/m <sup>3</sup> to 5 mg/m <sup>3</sup>