

Laboratory Excellence Laboratory, No. 23/93, Fifth Street, Ram Nagar,
S.S. Colony, Madurai, Tamil Nadu

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6932 (in lieu of T-3807)

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Validity 15.02.2018 to 14.02.2020

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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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BIOLOGICAL TESTING

I.	WATER			
1.	(Drinking Water, Packaged Drinking Water, Surface Water & Ground Water)	Total Coliforms (MPN)	IS 1622:1981 (RA 2009)	≥2 MPN/100 ml
		Faecal Coliforms (MPN)	IS 1622:1981 (RA 2009)	≥2 MPN/100 ml
		Escherichia coli (MPN)	IS 1622:1981 (RA 2009)	≥2 MPN/100 ml
		Total Coliforms (MF)	IS 1622:1981 (RA 2009)	≥1CFU/100 ml
		Standard Plate Count	IS 1622:1981 (RA 2009)	≥1 CFU/ml
		Aerobic Microbial Count	IS 1622:1981 (RA 2009)	≥1 CFU/ml
		Total Plate Count	IS 1622:1981 (RA 2009)	≥1 CFU/ml
	Yeast & Mould	IS 5403:1999 (RA 2005)	≥1 CFU/ml	

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CHEMICAL TESTING

I.	WATER			
1.	Surface Water, Ground Water & Drinking Water	Colour	IS 3025 (Part 04) : 1983 (Reaffirmed 2012) Clause No.2	1 to 50 Hazen
		Odour	IS : 3025 (Part 05) 1983 (Reaffirmed 2017)	Qualitative
		pH value @ 25°C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	5.0 to 10.0
		Turbidity	IS : 3025 (Part 10) - 1984 (Reaffirmed 2017)	0.1 to 100 NTU
		Total Dissolved Solids @105 °C	IS 3025 (Part 16) - 1984 (Reaffirmed 2017)	5 to 10000 mg/L
		Aluminium (as Al)	IS 3025 (Part 55) : 2003 (Reaffirmed 2014) Clause No.5	0.02 to 2.0 mg/L
		Ammonia (as Total NH ₃ -N)	IS 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.2.5	0.1 to 10 mg/L
		Barium (as Ba)	IS 13428 : 2005 (Reaffirmed 2014)	0.1 to 5.0 mg/L
		Boron (as B)	IS 3025 (Part 57) : 2005 (Reaffirmed 2017) Clause No.6	0.1 to 5.0 mg/L
		Calcium (as Ca)	IS 3025 (Part 40) : 1991 (Reaffirmed 2014) Clause No.5	1 to 5000 mg/L
	Chloramines (as Cl ₂)	IS : 3025 (Part 26) - 1986 (Reaffirmed 2014) Clause No.4	0.1 to 5.0 mg/L	

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		Chlorides (as Cl)	IS : 3025 (Part 32) - 1988 (Reaffirmed 2014) Clause No.2	1 to 5000 mg/L
		Copper (as Cu)	IS 3025 (Part 42) : 1992 (Reaffirmed 2014) Clause No.6	0.02 to 2.0 mg/L
		Fluoride (as F)	APHA 23 rd Edition 2017 (4500 F – D)	0.1 to 5.0 mg/L
		Free Residual Chlorine (RFC)	IS : 3025 (Part 26) - 1986 (Reaffirmed 2014) Clause No.4	0.1 to 5.0 mg/L
		Iron (as Fe)	IS 3025 (Part 53) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to 5.0 mg/L
		Magnesium (as Mg)	IS 3025 (Part 46) : 1994 (Reaffirmed 2014) Clause No.6	1 to 2000 mg/L
		Manganese (as Mn)	IS 3025 (Part 59) : 2006 (Reaffirmed 2017) Clause No.6	0.01 to 5.0 mg/L
		Nitrate (as NO ₃)	IS : 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.3.3	1.0 to 100 mg/L
		Phenolic Compounds (as C ₆ H ₅ OH)	IS 3025 (Part 43) : 1992 (Reaffirmed 2014) Clause No.6	0.001to 3.0 mg/L
		Selenium (as Se)	IS 3025 (Part 56) : 2003 (Reaffirmed 2014) Clause No.6	0.01 to 2.0 mg/L
		Silver (as Ag)	Annex J of IS 13428 : 2005 (Reaffirmed 2014)	0.01 to 2.0 mg/L
		Sulphates (as SO ₄)	IS : 3025 (Part 24) - 1986 (Reaffirmed 2014) Clause No.2	5 to 5000 mg/L

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		Sulphide (as H ₂ S)	IS : 3025 (Part 29) - 1986 (Reaffirmed 2014) Clause No.3	0.05 to 5.0 mg/L
		Total Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014)	1 to 2000 mg/L
		Total Hardness (as CaCO ₃)	IS 3025 (Part 21) : 2009 (Reaffirmed 2014) Clause No.5	1 to 3000 mg/L
		Zinc (as Zn)	IS 3025 (Part 49) : 1994 (Reaffirmed 2014) Clause No.6	0.05 to 5.0 mg/L
		Cyanide (as CN)	IS 3025 (Part 27) : 1986 (Reaffirmed 2014) Clause No.2	0.02 to 1.0 mg/L
		Lead (as Pb)	IS 3025 (Part 47) : 1994 (Reaffirmed 2014) Clause No.8	0.01 to 5.0 mg/L
		Molybdenum (as Mo)	APHA 23 rd Edition 2017 (3500 – Mo)	0.05 to 2.0 mg/L
		Nickel (as Ni)	IS 3025 (Part 54) : 2003 (Reaffirmed 2014) Clause No.7	0.02 to 5.0 mg/L
		Total Chromium (as Cr)	IS 3025 (Part 52) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to 5.0 mg/L
		Specific Conductance @ 25 °C	IS 3025:Part 14:2013 ISO 7888:1985	1 to 60000 µS/Cm
		Reactive Silica (as SiO ₂)	IS : 3025 (Part 35) - 1988 (Reaffirmed 2014) Clause No.3	0.1 to 500 mg/L
		Phenolphthalein Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to 500 mg/L

**Rozina
Convenor**

**N. Venkateswaran
Program Director**

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		Methyl Orange Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to 2000 mg/L
		Total Acidity (as CaCO ₃)	IS : 3025 (Part 22) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to 1000 mg/L
		Mineral Acidity (as CaCO ₃)	IS : 3025 (Part 22) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to 500 mg/L
		Total Suspended Solids @ 105 °C	IS : 3025 (Part 17) - 1984 (Reaffirmed 2017)	5 to 5000 mg/L
		Carbonate Hardness (as CaCO ₃)	IS 3025 (Part 21) : 2009 (Reaffirmed 2014) Clause No.7	1 to 1000 mg/L
		Non Carbonate Hardness (as CaCO ₃)	IS 3025 (Part 21) : 2009 (Reaffirmed 2014) Clause No.7	1 to 1000 mg/L
		Total Solids @105 °C	IS : 3025 (Part 15) - 1984 (Reaffirmed 2014) Edition 2.1 (2000-01)	5 to 2000 mg/L
		Anionic Detergents (as MBAS)	Annex K of IS 13428 : 2005 (Reaffirmed 2014)	0.01 to 5.0 mg/L
		Mercury (as Hg)	IS 3025 (Part 48) : 1994 (Reaffirmed 2014) Clause No.5	0.001 to 2.0 mg/L
		Total Arsenic (as As)	IS 3025 (Part 37) - 1988 (Reaffirmed 2014) Clause No.2	0.005 to 5.0 mg/L
		Appearance	APHA 23 rd Edition 2017 - (2110)	Qualitative
		Cadmium (as Cd)	IS 3025 (Part 41) - 1992 (Reaffirmed 2014) Clause No.6	0.003 to 5.0 mg/L

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		Calcium Hardness (as CaCO ₃)	APHA 23 rd Edition 2017 (3500 Ca B)	1 to 5000 mg/L
		Magnesium Hardness (as CaCO ₃)	APHA 23 rd Edition 2017 (3500 Mg B)	1 to 5000 mg/L
		Bicarbonate Alkalinity (as CaCO ₃)	IS 3025 (Part 51) : 2001 (Reaffirmed 2017) Clause No.9 (Table No.1)	1 to 1000 mg/L
		Carbonate Alkalinity (as CaCO ₃)	IS 3025 (Part 51) : 2001 (Reaffirmed 2017) Clause No.9 (Table No.1)	1 to 1000 mg/L
		Hydroxide Alkalinity (as CaCO ₃)	IS 3025 (Part 51) : 2001 (Reaffirmed 2017) Clause No.9 (Table No.1)	1 to 1000 mg/L
		Taste	IS 3025 (Part 8) : 1984 (Reaffirmed 2017)	Qualitative
		Free Carbon Dioxide	APHA 23 rd Edition 2017 (4500 CO ₂ C)	1 to 1000 mg/L
2.	Packaged Drinking Water	Colour (True Colour)	IS 3025 (Part 04) : 1983 (Reaffirmed 2017) Clause No.2	1 to 10 Hazen
		Odour	IS : 3025 (Part 05) 1983 (Reaffirmed 2017)	Qualitative
		Turbidity	IS : 3025 (Part 10) - 1984 (Reaffirmed 2017)	0.1 to 20 NTU
		Total Dissolved Solids @ 105 °C	IS 3025 (Part 16) - 1984 (Reaffirmed 2017)	5 to 500 mg/L
		pH value @ 25 °C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	5.0 to 10.0
		Barium (as Ba)	Annex F of IS 13428 : 2005 (Reaffirmed 2014)	0.1 to 2.0 mg/L
		Copper (as Cu)	IS 3025 (Part 42) : 1992 (Reaffirmed 2014) Clause No.6	0.02 to 2.0 mg/L

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		Iron (as Fe)	IS 3025 (Part 53) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to 2.0 mg/L
		Manganese (as Mn)	IS 3025 (Part 59) : 2006 (Reaffirmed 2012) Clause No.6	0.01 to 2.0 mg/L
		Nitrate (as NO ₃)	IS : 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.3.3	1.0 to 100 mg/L
		Nitrite (as NO ₂)	IS : 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.4	0.01 to 10 mg/L
		Fluoride (as F)	IS 3025 (Part 60) : 2008 (Reaffirmed 2013) Clause No.5	0.1 to 3.0 mg/L
		Zinc (as Zn)	IS 3025 (Part 49) : 1994 (Reaffirmed 2014) Clause No.6	0.05 to 5.0 mg/L
		Silver (as Ag)	Annex J of IS 13428 : 2005 (Reaffirmed 2014)	0.01 to 2.0 mg/L
		Aluminium (as Al)	IS 3025 (Part 55) : 2003 (Reaffirmed 2014) Clause No.5	0.02 to 2.0 mg/L
		Chlorides (as Cl)	IS : 3025 (Part 32) - 1988 (Reaffirmed 2014) Clause No.2	1 to 300 mg/L
		Selenium (as Se)	IS 3025 (Part 56) : 2003 (Reaffirmed 2014) Clause No.7	0.005 to 2.0 mg/L
		Sulphates (as SO ₄)	IS : 3025 (Part 24) - 1986 (Reaffirmed 2014) Clause No.4	1 to 200 mg/L
		Alkalinity (as HCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014)	1 to 200 mg/L

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		Calcium (as Ca)	IS 3025 (Part 40) : 1991 (Reaffirmed 2014) Clause No.5	1 to 200 mg/L
		Magnesium (as Mg)	IS 3025 (Part 46) : 1994 (Reaffirmed 2014) Clause No.6	1 to 100 mg/L
		Sodium (as Na)	IS 3025 (Part 45) : 1993 (Reaffirmed 2014) Clause No.6	1 to 200 mg/L
		Residual Free Chlorine (RFC)	IS : 3025 (Part 26) - 1986 (Reaffirmed 2014) Clause No.4	0.1 to 5.0 mg/L
		Phenolic Compounds (as C ₆ H ₅ OH)	IS 3025 (Part 43) : 1992 (Reaffirmed 2014) Clause No.6	0.001to 3.0 mg/L
		Sulphide (as H ₂ S)	IS : 3025 (Part 29) - 1986 (Reaffirmed 2014) Clause No.3	0.05 to 5.0 mg/L
		Antimony (as Sb)	Annex G of IS 13428 : 2005 (Reaffirmed 2014)	0.005 to 0.2 mg/L
		Borates (as B)	Annex H of IS 13428 : 2005 (Reaffirmed 2014)	0.1 to 10 mg/L
		Cadmium (as Cd)	IS 3025 (Part 41) : 1992 (Reaffirmed 2014) Clause No.6	0.005 to 2.0 mg/L
		Cyanide (as CN)	IS 3025 (Part 27) : 1986 (Reaffirmed 2014) Clause No.2	0.02 to 1.0 mg/L
		Lead (as Pb)	IS 3025 (Part 47) : 1994 (Reaffirmed 2014) Clause No.8	0.01 to 2.0 mg/L
		Chromium (as Cr)	Annex J of IS 13428 : 2005 (Reaffirmed 2014)	0.05 to 2.0 mg/L

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		Nickel (as Ni)	Annex L of IS 13428 : 2005 (Reaffirmed 2014)	0.02 to 2.0 mg/L
		Anionic surface active agents (MBAS)	Annex K of IS 13428 : 2005 (Reaffirmed 2014)	0.01 to 5.0 mg/L
		Mercury (as Hg)	IS 3025 (Part 48) : 1994 (Reaffirmed 2014) Clause No.5	0.001 to 0.5 mg/L
		Total Arsenic (as As)	IS 3025 (Part 37) - 1988 (Reaffirmed 2014) Clause No.2	0.005 to 0.5 mg/L
		Taste	IS 3025 (Part 8) : 1984 (Reaffirmed 2017)	Qualitative
3.	Construction Water	pH value @ 25 °C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	5.0 to 10.0
		Acidity	IS : 3025 (Part 22) - 1986 (Reaffirmed 2014) Clause No.8.1	0.1 to 50 mL
		Alkalinity	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014) Clause No.8.1	0.1 to 100 mL
		Volatile Residue (organic) @ 550°C	IS : 3025 (Part 18) - 1984 (Reaffirmed 2017)	5 to 5000 mg/L
		Fixed Residue (inorganic) @ 105°C	IS : 3025 (Part 18) - 1984 (Reaffirmed 2017)	5 to 5000 mg/L
		Sulphates (as SO ₄)	IS : 3025 (Part 24) - 1986 (Reaffirmed 2014) Clause No.2	5 to 5000 mg/L

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		Chlorides (as Cl)	IS : 3025 (Part 32) - 1988 (Reaffirmed 2014) Clause No.2	1 to 5000 mg/L
		Total Suspended Solids @ 105 °C	IS : 3025 (Part 17) - 1984 (Reaffirmed 2017)	5 to 5000 mg/L
4.	Irrigation Water	Boron (as B)	IS 3025 (Part 57) : 2005 (Reaffirmed 2017) Clause No.6	0.1 to 5.0 mg/L
		Specific Conductance @ 25 °C	IS 3025:Part 14:2013 ISO 7888:1985	1to10000 µS/Cm
		Residual Sodium Carbonate	IS:11624:1986 (Reaffirmed 2009) Clause No.4.1.3	1 to 25 meq/L
		Sodium Absorption Ratio (SAR)	IS:11624:1986 (Reaffirmed 2009) Clause No.4.1.2	1 to 100
5.	Reagent Grade Water	pH value @ 25 °C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	4.0 to 10.0
		Specific Conductance @ 25 °C	IS 3025:Part 14:2013 ISO 7888:1985	1 to 500 µS/Cm
		Reactive Silica (as SiO ₂)	IS : 3025 (Part 35) - 1988 (Reaffirmed 2014) Clause No.3	0.1 to 5.0 mg/L
		Total Solids @105°C	IS 3025 (Part 15) - 1984 (Reaffirmed 2014) Edition 2.1 (2000-01)	1 to 100 mg/L
		Color Retention of KMnO ₄ at 27°C	IS 1070: 2008 (Annexure A)	10 to 60 min
6.	Swimming Pool Water	Colour	IS 3025 (Part 04) : 1983 (Reaffirmed 2017) Clause No.2	1 to 50 Hazen
		Odour	IS : 3025 (Part 05) 1983 (Reaffirmed 2017)	Qualitative

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		pH value @ 25 °C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	5.0 to 10.0
		Turbidity	IS : 3025 (Part 10) - 1984 (Reaffirmed 2017)	0.1 to 50 NTU
		Total Dissolved Solids @ 105 °C	IS 3025 (Part 16) - 1984 (Reaffirmed 2017)	1 to 2000 mg/L
		Aluminium (as Al)	IS 3025 (Part 55) : 2003 (Reaffirmed 2014) Clause No.5	0.02 to 2.0 mg/L
		Chlorides (as Cl)	IS : 3025 (Part 32) - 1988 (Reaffirmed 2014) Clause No.2	1 to 1000 mg/L
		Total Residual Chlorine	IS : 3025 (Part 26) - 1986 (Reaffirmed 2014) Clause No.3	0.1 to 5.0 mg/L
		Iron (as Fe)	IS 3025 (Part 53) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to 1.0 mg/L
		Total Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014)	1 to 1000 mg/L
		Lead (as Pb)	IS 3025 (Part 47) : 1994 (Reaffirmed 2014) Clause No.8	0.01 to 2.0 mg/L
		Oxygen Absorbed in 4 h @27°C	IS 3025 (Part 63) : 2007 (Reaffirmed 2013)	0.2 to 10 mg/L
		Taste	IS 3025 (Part 8) : 1984 (Reaffirmed 2017)	Qualitative
7.	Food Industry Processed Water	Colour	IS 3025 (Part 04) : 1983 (Reaffirmed 2017) Clause No.2	5 to 50 Hazen
		Odour	IS : 3025 (Part 05) 1983 (Reaffirmed 2017)	Qualitative

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		pH value @ 25°C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	5.0 to 10.0
		Turbidity	IS : 3025 (Part 10) - 1984 (Reaffirmed 2017)	0.1 to 100 NTU
		Chlorides (as Cl)	IS : 3025 (Part 32) - 1988 (Reaffirmed 2014) Clause No.2	1 to 500 mg/L
		Copper (as Cu)	IS 3025 (Part 42) : 1992 (Reaffirmed 2014) Clause No.6	0.02 to 2.0 mg/L
		Fluoride (as F)	APHA 23 rd Edition 2017 - (4500 F-D)	0.1 to 5.0 mg/L
		Iron (as Fe)	IS 3025 (Part 53) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to 5.0 mg/L
		Magnesium (as Mg)	IS 3025 (Part 46) : 1994 (Reaffirmed 2014) Clause No.6	1 to 500 mg/L
		Manganese (as Mn)	IS 3025 (Part 59) : 2006 (Reaffirmed 2017) Clause No.6	0.01 to 5.0 mg/L
		Nitrate (as NO ₃)	IS : 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.3.3	1.0 to 100 mg/L
		Phenolic Compounds (as C ₆ H ₅ OH)	IS 3025 (Part 43) : 1992 (Reaffirmed 2014) Clause No.6	0.001 to 3.0 mg/L
		Selenium (as Se)	IS 3025 (Part 56) : 2003 (Reaffirmed 2014) Clause No.6	0.01 to 2.0 mg/L
		Sulphates (as SO ₄)	IS : 3025 (Part 24) - 1986 (Reaffirmed 2014) Clause No.2	5 to 500 mg/L

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		Total Hardness (as CaCO ₃)	IS 3025 (Part 21) : 2009 (Reaffirmed 2014) Clause No.5	1 to 3000 mg/L
		Zinc (as Zn)	IS 3025 (Part 49) : 1994 (Reaffirmed 2014) Clause No.6	0.05 to 5.0 mg/L
		Cyanide (as CN)	IS 3025 (Part 27) : 1986 (Reaffirmed 2014) Clause No.2	0.01 to 1.0 mg/L
		Lead (as Pb)	IS 3025 (Part 47) : 1994 (Reaffirmed 2014) Clause No.8	0.01 to 5.0 mg/L
		Total Solids @105°C	IS : 3025 (Part 15) - 1984 (Reaffirmed 2014) Edition 2.1 (2000-01)	5 to 2000 mg/L
		Total Arsenic (as As)	IS 3025 (Part 37) - 1988 (Reaffirmed 2014) Clause No.2	0.005 to 5.0 mg/L
		Hexavalent Chromium (as Cr ⁶⁺)	IS 3025 (Part 52) 2003 (Reaffirmed 2014) Clause No.6	0.05 to 5.0 mg/L
II.	POLLUTION & ENVIRONMENT			
1.	Waste Water (Effluents/ Sewage)	Color (Hue Units)	IS 3025 (Part 04) : 1983 (Reaffirmed 2017) Clause No.3	400 to 700 nm
		Odour	IS : 3025 (Part 05) 1983 (Reaffirmed 2017)	Qualitative
		Total Suspended Solids @ 105 °C	IS : 3025 (Part 17) - 1984 (Reaffirmed 2017)	5 to 5000 mg/L
		Dissolved Solids (Inorganic) @ 105 °C	IS 3025 (Part 16) - 1984 (Reaffirmed 2017)	5 to 10000 mg/L

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		pH value @ 25 °C	IS : 3025 (Part 11) - 1983 (Reaffirmed 2017) Clause No.2	4.0 to12.0
		Temperature	IS : 3025 (Part 9) - 1984 (Reaffirmed 2017)	20 to50°C
		Oil & Grease	IS 3025 (Part 39) : 1991 (Reaffirmed 2014) Clause No.5	4 to1000 mg/L
		Total Residual Chlorine	IS : 3025 (Part 26) - 1986 (Reaffirmed 2014) Clause No.3	0.1 to5.0 mg/L
		Ammonical Nitrogen (as N)	APHA 23 rd Edition 2017 - (4500 - NH ₃ C)	1 to50 mg/L
		Total Kjeldahl Nitrogen (as N)	APHA 23 rd Edition 2017 - (4500 - Norg C)	1 to100 mg/L
		Free Ammonia (as NH ₃)	APHA 23 rd Edition 2017 - (4500 - NH ₃ C)	1 to50 mg/L
		Biochemical Oxygen Demand (BOD) at 27°C for 3 days	IS 3025 (Part 44) : 1993 (Reaffirmed 2014)	2 to10000 mg/L
		Chemical Oxygen Demand (COD)	IS 3025 (Part 58) : 2006 (Reaffirmed 2017)	2 to20000 mg/L
		Arsenic (as As)	IS 3025 (Part 37):1988 (Reaffirmed 2014) Clause No.3	0.1 to2.0 mg/L
		Lead (as Pb)	IS 3025 (Part 47) : 1994 (Reaffirmed 2014) Clause No.7	0.01 to5.0 mg/L
		Cadmium (as Cd)	IS 3025 (Part 41) : 1992 (Reaffirmed 2014) Clause No.5	0.05 to5.0 mg/L
		Hexavalent Chromium (as Cr ⁶⁺)	IS 3025 (Part 52) 2003 (Reaffirmed 2014) Clause No.6	0.05 to5.0 mg/L

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		Total Chromium (as Cr)	IS 3025 (Part 52) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to5.0 mg/L
		Copper (as Cu)	IS 3025 (Part 42) : 1992 (Reaffirmed 2014) Clause No.6	0.02 to5.0 mg/L
		Zinc (as Zn)	IS 3025 (Part 49) : 1994 (Reaffirmed 2014) Clause No.6	0.05 to5.0 mg/L
		Selenium (as Se)	IS 3025 (Part 56) : 2003 (Reaffirmed 2014) Clause No.6	0.01 to2.0 mg/L
		Nickel (as Ni)	IS 3025 (Part 54) : 2003 (Reaffirmed 2014) Clause No.7	0.02 to5.0 mg/L
		Boron (as B)	IS 3025 (Part 57) : 2005 (Reaffirmed 2017) Clause No.6	0.1 to5.0 mg/L
		Percent Sodium (% Na)	SOP No.EL-SOP-WRT-56 Issue No.01 Dated 01.01.2015	2 to90 %
		Residual Sodium Carbonate	IS:11624:1986 (RA 2009) Clause No.4.1.3	1 to25 meq/L
		Cyanide (as CN)	IS 3025 (Part 27) : 1986 (Reaffirmed 2014) Clause No.2	0.02 to2.0 mg/L
		Chlorides (as Cl ⁻)	IS : 3025 (Part 32) - 1988 (Reaffirmed 2014) Clause No.2	1 to5000 mg/L
		Fluoride (as F)	APHA 23 rd Edition 2017 - (4500 - F ⁻ D)	0.1 to10 mg/L
		Dissolved Phosphates (as P)	IS 3025 (Part 31) : 1988 (Reaffirmed 2014) Clause No.4	0.1 to10 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
		Sulphates (as SO ₄)	IS : 3025 (Part 24) - 1986 (Reaffirmed 2014) Clause No.2	5 to5000 mg/L
		Sulphide (as S)	IS : 3025 (Part 29) - 1986 (Reaffirmed 2014) Clause No.3	0.05 to5.0 mg/L
		Phenolic Compounds (as C ₆ H ₅ OH)	IS 3025 (Part 43) : 1992 (Reaffirmed 2014) Clause No.6	0.001 -5.0 mg/L
		Sodium (as Na)	IS 3025 (Part 45) : 1993 (Reaffirmed 2014) Clause No.6	1 to1000 mg/L
		Potassium (as K)	IS 3025 (Part 45) : 1993 (Reaffirmed 2014) Clause No.6	1 to1000 mg/L
		Total Residue @105 °C	IS : 3025 (Part 15) - 1984 (Reaffirmed 2014) Edition 2.1 (2000-01)	5 to5000 mg/L
		Particle Size of Suspended Solids (Pass through 850 µ IS Sieve)	SOP No.EL-SOP-WRT-68 Issue No.01 Dated 01.09.2015	Qualitative (Pass / Not Pass)
		Total Hardness (as CaCO ₃)	IS 3025 (Part 21) : 2009 (Reaffirmed 2014) Clause No.5	1 to5000 mg/L
		Calcium (as Ca)	IS 3025 (Part 40) : 1991 (Reaffirmed 2014) Clause No.5	1 to3000 mg/L
		Magnesium (as Mg)	IS 3025 (Part 46) : 1994 (Reaffirmed 2014) Clause No.6	1 to3000 mg/L
		Mercury (as Hg)	IS 3025 (Part 48) : 1994 (Reaffirmed 2014) Clause No.5	0.001 -0.5 mg/L

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		Dissolved Oxygen	IS 3025 (Part 38) : 1989 (Reaffirmed 2014) Clause No.4	0.1 to10 mg/L
		Oxygen Absorbed in 4 h @27°C	IS 3025 (Part 63) : 2007 (Reaffirmed 2013)	0.2 to50 mg/L
		Appearance	APHA 23 rd Edition 2017 (2110)	Qualitative (Physical Appearance)
		Oxidizable Matter	IS 1069 : 1993 (Reaffirmed 2013) Annexure A Clause No.3.2	Qualitative (Pass/ Not Pass)
		Sodium Absorption Ratio (SAR)	IS:11624:1986 (Reaffirmed 2009) Clause No.4.1.2	1 to100
		Turbidity	IS : 3025 (Part 10) - 1984 (Reaffirmed 2017)	0.5 to200 NTU
		Aluminum (as Al)	IS 3025 (Part 55) : 2003 (Reaffirmed 2014) Clause No.5	0.02 to20 mg/L
		Free Residual Chlorine (RFC)	IS : 3025 (Part 26) - 1986 (Reaffirmed 2014) Clause No.4	0.1 to5.0 mg/L
		Iron (as Fe)	IS 3025 (Part 53) : 2003 (Reaffirmed 2014) Clause No.7	0.05 to5.0 mg/L
		Nitrate (as NO ₃)	IS : 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.3.3	1.0 to100 mg/L
		Nitrite (as NO ₂)	IS : 3025 (Part 34) - 1988 (Reaffirmed 2014) Clause No.4	0.01 to10 mg/L
		Total Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014)	1 to1000 mg/L
		Specific Conductance @ 25 °C	IS 3025:Part 14:2013 ISO 7888:1985	1 to60000 µS/Cm

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		Reactive Silica (as SiO ₂)	IS : 3025 (Part 35) - 1988 (Reaffirmed 2014) Clause No.3	0.1 to100 mg/L
		Phenolphthalein Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to500 mg/L
		Methyl Orange Alkalinity (as CaCO ₃)	IS : 3025 (Part 23) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to1000 mg/L
		Total Acidity (as CaCO ₃)	IS : 3025 (Part 22) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to1000 mg/L
		Mineral Acidity (as CaCO ₃)	IS : 3025 (Part 22) - 1986 (Reaffirmed 2014) Clause No.8.1	1 to 500 mg/L
		Calcium Hardness (as CaCO ₃)	APHA 23 rd Edition 2017 (3500 Ca B)	1 to2000 mg/L
		Magnesium Hardness (as CaCO ₃)	APHA 23 rd Edition 2017 (3500 Mg B)	1 to2000 mg/L
		Total Solids @105 °C	IS : 3025 (Part 15) - 1984 (Reaffirmed 2014) Edition 2.1 (2000-01)	5 to10000 mg/L
		Free Carbon Dioxide	APHA 23 rd Edition 2017 (4500 CO ₂ C)	1to1000 mg/L
		Fixed Solids	IS 3025 (Part 18): 1984 (Reaffirmed 2017)	1 to10000 mg/L
		Volatile Solids	IS 3025 (Part 18): 1984 (Reaffirmed 2017)	1 to1000 mg/L
		Mixed Liquid Suspended Solid (MLSS)	APHA 23 rd Edition 2017 (2540 D)	5 to10000 mg/L
		Mixed Liquid Volatile Solids (MLVS)	APHA 23 rd Edition 2017 (2540 E)	5-10000 mg/L

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		Mixed Liquid Fixed Solids (MLFS)	APHA 23 rd Edition 2017 (2540 E)	5 to10000 mg/L
		Sludge Volume Index (SVI)	APHA 23 rd Edition 2017 (2710 D)	1 to1000 ml/g
		Settleable Solids	APHA 23 rd Edition 2017 (2540 F)	1 to100 ml/L
		Total Phosphorous (as P)	IS 3025 (Part 31) : 1988 (Reaffirmed 2014) Clause No.4	0.02 to 50 mg/L
		Tannin	APHA 23 rd Edition 2017 (5550)	0.1 to 5.0 mg/L
2.	Soil	pH value @ 25 °C	IS: 2720 (Part 26) - 1987 (Reaffirmed 2011) Clause No.2	4.0 to10.0
		Specific Electrical Conductivity@25 °C	IS: 14767: 2000 (Reaffirmed 2016)	1 to1000 µS/Cm
		Water Content @ 110 °C	IS : 2720 (Part II) - 1973 (Reaffirmed 2015) Clause No.1	0.5 to50 %
		Organic Matter @ 155 °C	IS : 2720 (Part XXII): 1972 (Reaffirmed 2015) Clause No.9	0.5 to50 %
		Nitrogen (as N)	IS : 5194 - 1969 (Reaffirmed 2010)	0.05 to50 %
		Phosphate (as P)	IS : 10158 - 1982 (Reaffirmed 2009) Clause No.10	0.001 to10 %
		Potassium (as K)	IS 9497: 1980 (Reaffirmed 2010)	0.001 to10 %
		Iron (as Fe)	EPA 3050B: December 1996 (Revision 2) & EPA 7380: September 1986	1.0 to50000 mg/kg

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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
		Zinc (as Zn)	EPA 3050B: December 1996 (Revision 2) & EPA 7950: September 1986	1.0 to 50000 mg/kg
		Copper (as Cu)	EPA 3050B: December 1996 (Revision 2) & EPA 7210: September 1986	1.0 to 50000 mg/kg
		Total Soluble Sulphates (as SO ₄)	IS : 2720 (Part XXVII) - 1977 (Reaffirmed 2015) Clause No.2	5.0 to 50 %
		Calcium Carbonate (as CaCO ₃)	IS : 2720 (Part XXIII) - 1976 (Reaffirmed 2010)	0.5 to 50 %
		Sodium (as Na)	IS : 9497 : 1980 (Reaffirmed 2010)	0.001 to 80 %
		Cation Exchange Capacity	IS : 2720 (Part XXIV) – 1976 (Reaffirmed 2015) Clause No.3.2	1.0 to 20 meq%
		Specific Gravity	IS : 2720 (Part III/Sec 1) - 1980 (Reaffirmed 2011)	0.5 to 4
		Total Soluble Solids	IS : 2720 (Part XXI) – 1977 (RA 2016) Clause No.2	1.0 to 30 %
		Chromium (as Cr)	EPA 3050B: December 1996 (Revision 2) & EPA 7190: September 1986	1.0 to 10000 mg/kg
		Nickel (as Ni)	EPA 3050B: December 1996 (Revision 2) & EPA 7520: September 1986	1.0 to 10000 mg/kg
		Lead (as Pb)	EPA 3050B: December 1996 (Revision 2) & EPA 7420: September 1986	1.0 to 10000 mg/kg

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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
		Cadmium (as Cd)	EPA 3050B: December 1996 (Revision 2) & EPA 7130: September 1986	1.0 to10000 mg/kg
		Arsenic (as As)	EPA 3050B: December 1996 (Revision 2) & EPA 7061A: July 1994	1.0 to10000 mg/kg
		Selenium (as Se)	EPA 3050B: December 1996 (Revision 2) & EPA 7741A: September 1994 (Revision 1)	1.0 to10000 mg/kg
		Molybdenum (as Mo)	EPA 3050B: December 1996 (Revision 2) & EPA 7480: 1986	1.0 to10000 mg/kg
3.	Wastes (Slurry/Sludge/ Solid/ Semi-Solid)	Iron (as Fe)	EPA 3050B: December 1996 (Revision 2) & EPA 7380: September 1986	0.1 to50000 mg/kg
		Zinc (as Zn)	EPA 3050B: December 1996 (Revision 2) & EPA 7950: September 1986	0.1 to50000 mg/kg
		Copper (as Cu)	EPA 3050B: December 1996 (Revision 2) & EPA 7210: September 1986	0.1 to50000 mg/kg
		Nickel (as Ni)	EPA 3050B: December 1996 (Revision 2) & EPA 7520: September 1986	0.1 to 50000 mg/kg
		Chromium (as Cr)	EPA 3050B: December 1996 (Revision 2) & EPA 7190: September 1986	0.1 to 50000 mg/kg

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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
		Lead (as Pb)	EPA 3050B: December 1996 (Revision 2) & EPA 7420: September 1986	0.1 to 20000 mg/kg
		Cadmium (as Cd)	EPA 3050B: December 1996 (Revision 2) & EPA 7130: September 1986	0.1 to 20000 mg/kg
		pH value @ 25°C	IS : 10158 - 1982 (Reaffirmed 2003) Clause No.7	4.0 to 12.0
		Specific Electrical Conductivity @ 25°C	IS : 14767 : 2000 (Reaffirmed 2016)	1.0 to 10000 µs/cm
		Water Content @ 110°C	IS : 2720 (Part II) – 1973 (Reaffirmed 2015) Clause No.1	0.5 – 50 %
		Non Volatile Substance @ 600°C	IS : 10158 - 1982 (Reaffirmed 2009) Clause No.3	0.5 to 90 %
		Volatile Substance @ 600°C	IS : 10158 - 1982 (Reaffirmed 2009) Clause No.3	0.5 to 90 %
		Loss on Drying @ 550°C	APHA 23 rd Edition 2017 – (2540 G)	0.5 to 90 %
		Arsenic (as As)	EPA 3050B: December 1996 (Revision 2) & EPA 7061A: July 1994	0.1 to 10000 mg/kg
		Selenium (as Se)	EPA 3050B: December 1996 (Revision 2) & EPA 7741A: September 1994 (Revision 1)	0.1 to 10000 mg/kg
		Molybdenum (as Mo)	EPA 3050B: December 1996 (Revision 2) & EPA 7480: 1986	0.1 to 10000 mg/kg

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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
		Mercury (Hg)	EPA 3050B: December 1996 (Revision 2) & EPA 7471A: September 1994 (Revision 1)	0.1 to 10000 mg/kg
		Organic Matter @ 155 °C	IS : 2720 (Part XXII): 1972 (Reaffirmed 2015) Clause No.9	0.5 to 80 %
		Organic Nitrogen (as N)	IS : 5194 – 1969 (Reaffirmed 2010)	0.05 to 50 %
		Phosphate (as P)	IS : 10158 - 1982 (Reaffirmed 2009) Clause No.10	0.001 to 10 %
		Specific Gravity	IS : 2720 (Part III/Sec 1) - 1980 (Reaffirmed 2011)	0.5 to 4
		Loss on drying @ 105°C	IS 9235 -1979 (Reaffirmed 2009)	0.1 to 50 %
4.	Used Oil	Nickel (as Ni)	EPA 3031: 1996	0.1 to 100 mg/kg
		Lead (as Pb)	EPA 3031: 1996	0.1 to 100 mg/kg
		Cadmium (as Cd)	EPA 3031: 1996	0.1 to 100 mg/kg
		Arsenic (as As)	EPA 3031: 1996	0.1 to 100 mg/kg
		Chromium (as Cr)	EPA 3031: 1996	0.1 to 100 mg/kg
		Copper (as Cu)	EPA 3031: 1996	0.1 to 100 mg/kg
		Relative Density/Density	IS 1448 (Part 32): 1992 (Reaffirmed 2003)	0.5 to 1.5 g/ml
		Water Content	IS 1448 (Part 40): 1987 (Reaffirmed 2006)	0 to 25 %
		Ash Content	IS 1448 (Part 4): 1984 (Reaffirmed 2002)	0.01 to 10 %
III.	ATMOSPHERIC POLLUTION			
1.	Ambient Air	Suspended Particulate Matter (SPM)	IS 5182 (Part 4) : 1999 (Reaffirmed 2014)	5 to 5000 µg/m ³

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		Particulate Matter (as PM10)	IS 5182 (Part 23) : 2006 (Reaffirmed 2017)	5 to1000 µg/m ³
		Particulate Matter (as PM 2.5)	EPA 40 CFR Part 50 - Appendix L	5 to1000 µg/m ³
		Sulphur Dioxide (as SO ₂)	IS 5182 (Part 2) : 2001 (Reaffirmed 2017)	5 to1050 µg/m ³
		Oxides of Nitrogen (as NO ₂)	IS 5182 (Part 6) : 2006 (Reaffirmed 2017)	6 to750 µg/m ³
		Lead (as Pb)	IS 5182 (Part 22) : 2004 (Reaffirmed 2014) Clause No.5	0.5 to10 µg/m ³
		Oxidants (as Ozone O ₃)	IS : 5182 (Part IX) – 1974 (Reaffirmed 2014)	10 to 200 µg/m ³
		Nickel (as Ni)	CPCB Guidelines, Volume I, NAAQMS/36/2012-13	1 to 1000 ng/m ³
		Ammonia (as NH ₃)	CPCB Guidelines, Volume I, NAAQMS/36/2012-13	5 to 500 µg/m ³
		Chlorine (as Cl ₂)	IS : 5182 (Part XIX) - 1982 (Reaffirmed 2014)	2 to 200 µg/m ³
		Arsenic (as As)	CPCB Guidelines, Volume I, NAAQMS/36/2012-13	0.1 to 1000 ng/m ³
		Benzene (as C ₆ H ₆)	IS 5182 (Part 11) : 2006 (Reaffirmed 2017)	0.5 to 500 µg/m ³
		Benzo [α] Pyrene (as C ₂₀ H ₁₂)	CPCB Guidelines, Volume I, NAAQMS/36/2012-13	0.5 to 2000 ng/m ³
		Toluene (as C ₇ H ₈)	IS 5182 (Part 11) : 2006 (Reaffirmed 2017)	0.5 to500 µg/m ³
		Xylene (as C ₈ H ₁₀)	IS 5182 (Part 11) : 2006 (Reaffirmed 2017)	0.5 to500 µg/m ³
2.	Work Zone Air	Ammonia (as NH ₃)	CPCB Guidelines, Volume I, NAAQMS/36/2012-13	5 to500 µg/m ³
		Formaldehyde	NIOSH 3500, Issue 2, Dated 15 August 1994	1 to50 µg/m ³

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		Carbon Dioxide (as CO ₂)	SOP No.EL-SOP-ARS-23 Issue No.01 Dated 10.10.2016	300 to3000 ppm
		Lead (as Pb)	NIOSH 7105, Issue. 2, Dated. 15 Aug 1994	50 to2000 µg/m ³
		Cadmium (as Cd)	NIOSH 7048, Issue. 2, Dated. 15 Aug 1994	50 to2000 µg/m ³
		Arsenic (as As)	NIOSH 7900, Issue. 2, Dated. 15 Aug 1994	50 to2000 µg/m ³
		Chromium (as Cr)	NIOSH 7024, Issue. 2, Dated. 15 Aug 1994	50 to2000 µg/m ³
		Copper (as Cu)	NIOSH 7029, Issue. 2, Dated. 15 Aug 1994	50 to2000 µg/m ³
		Zinc (as Zn)	NIOSH 7030, Issue. 2, Dated. 15 Aug 1994	50 to2000 µg/m ³
3.	Stack Emission	Particulate Matter (PM)	IS : 11255 (Part 1) - 1985 (Reaffirmed 2014)	1 to500 mg/Nm ³
		Sulphur Dioxide (as SO ₂)	IS : 11255 (Part 2) - 1985 (Reaffirmed 2014)	1 to500 mg/Nm ³
		Oxides of Nitrogen (as NO ₂)	IS 11255 (Part 7) : 2005 (Reaffirmed 2017)	1 to500 mg/Nm ³
		Carbon Monoxide (as CO)	IS 13270 : 1992 (Reaffirmed 2014) Clause No.4	0.2 to10 % (v/v)
		Oxygen (as O ₂)	IS 13270 : 1992 (Reaffirmed 2014) Clause No.4	0.2 to22 % (v/v)
		Carbon Dioxide (as CO ₂)	IS 13270 : 1992 (Reaffirmed 2014) Clause No.4	0.2 to15 % (v/v)
		Lead (as Pb)	USEPA Method-29, Dt. 08.02.2017	0.1-10 mg/Nm ³
		Nickel (as Ni)	USEPA Method-29, Dt. 08.02.2017	0.1-10 mg/Nm ³

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		Zinc (as Zn)	USEPA Method-29, Dt. 08.02.2017	0.1-10 mg/Nm ³
		Copper (as Cu)	USEPA Method-29, Dt. 08.02.2017	0.1-10 mg/Nm ³
		Chromium (as Cr)	USEPA Method-29, Dt. 08.02.2017	0.1-10 mg/Nm ³
		Acid Mist (as H ₂ SO ₄)	SOP No. EL-SOP-SKT-07, Issue No.1,Dt. 01.01.2015	0.1-50 mg/Nm ³
		Mercury (as Hg)	EPA Method 29 (Title 40)	0.1-10 mg/Nm ³

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CHEMICAL TESTING

AT SITE				
1.	ATMOSPHERIC POLLUTION			
1.	Ambient Air	Carbon Monoxide (as CO)	SOP No.EL-SOP-ARS-17 Issue No.01 Dated 01.01.2015	1.2 to 115 mg/m ³
		Oxygen (as O ₂)	SOP No.EL-SOP-ARS-18 Issue No.01 Dated 01.01.2015	18 to 22 % (v/v)
		Hydrocarbon (as CH ₄)	SOP No.EL-SOP-ARS-19 Issue No.01 Dated 01.01.2015	0.1 – 5 % (LEL)
2.	Stack Emission	Flue Gas Temperature	IS 11255 (Part 3) : 2008 Clause No.6	25 to 500°C
		Flue Gas Velocity	IS 11255 (Part 3) : 2008 Clause No.5	2.0 to 50 m/s
		Gaseous Flow Discharge	IS 11255 (Part 3): 2008 Clause No.10	10 to 100000 Nm ³ / Hr
3.	Noise Levels	Ambient Noise Level (L min, L max, Leq & SPL)	IS : 9989 - 1981 (Reaffirmed 2008)	35 to 130 dB(A)
		Source Noise Level (L min, L max, Leq & SPL)	IS 4758 – 1968 (Reaffirmed 2017)	35 to 130 dB(A)
4.	Illumination Monitoring	Atmosphere Light Level (Minimum & Maximum)	IS 3646 (Part 1): 1992 (Reaffirmed 2008)	0 to 10000 lux
5.	Meteorological Parameters	Relative Humidity	SOP No.EL-SOP-ARS-14 Issue No.01 Dated 01.01.2015	10 to 95 %

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Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6932 (*in lieu of T-3807*)

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Validity 15.02.2018 to 14.02.2020

Last Amended on 20.02.2018

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Temperature	SOP No.EL-SOP-ARS-15 Issue No.01 Dated 01.01.2015	20 to 50 °C

Rozina
Convenor

N. Venkateswaran
Program Director