

Laboratory **Superintendence Company of India Private Limited, Plot Y-23,
Block-EP, Sector-V, Salt Lake City, Kolkata, West Bengal**

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

Certificate Number **TC-8066 (in lieu of T-1230, T-4227)**

Page 1 of 14

Validity **22.09.2018 to 21.09.2020**

Last Amended on **03.11.2018**

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.	Drinking Water	pH	IS 3025 Part 11/2004, (RA 2014)	1 to 12
		Colour	APHA, 22 nd edition, (2012) 2120 B	1 Hazen Units to 50 Hazen Units
		Turbidity	IS 3025 (Part 10)/1984 (RA 2006)	1 NTU to 1000 NTU
		Residual, Free Chlorine	IS 3025 Part 26/1986 (RA 2014)	0.1 mg/L to 10 mg/L
		Alkalinity as CaCO ₃	APHA, 22 nd edition (2012), 2320 B IS 3025 (Part 23) 1986 (RA 2014)	20 mg/L to 2000 mg/L
		Total Hardness as CaCO ₃	APHA, 22 nd edition (2012), 2340 C IS 3025 (Part 21)/1983 (RA 2009)	1 mg/L to 2000 mg/L
		Chloride as Cl	APHA, 22 nd edition (2012), 4500 Cl-B IS 3025 (Part 32) 1988 (RA 2014)	2 mg/L to 250 mg/L
		Calcium as Ca	APHA, 22 nd edition (2012), 3500 Ca-B	5 mg/L to 1000 mg/L
		Magnesium as Mg	APHA, 22 nd edition (2012) 3500 Mg-B	0.2 mg/L to 200 mg/L
		Iron as Fe	APHA, 22 nd edition (2012) 3111 B IS 3025 (Part 53)/2003 (AAS) (RA 2014)	0.05 mg/L to 20 mg/L

Sunita Rawat
Convenor

N. Venkateswaran
Program Manager

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Page 2 of 14

Validity **22.09.2018 to 21.09.2020**

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		Sulphate as SO ₄	APHA, 22 nd edition (2012), 4500 E	1 mg/L to 200 mg/L
		Nitrate as NO ₃	APHA, 22 nd edition (2012), 4500 NO ₃ B	0.05 mg/L to 45 mg/L
		Copper as Cu	APHA, 22 nd edition (2012), 3111 B & C	0.04 mg/L to 10 mg/L
		Chromium as Cr	APHA, 22 nd edition (2012), 3500 B IS 13428/2005 (RA 2014)	0.2 mg/L to 1.0 mg/L
		Phenolic Compounds as C ₆ H ₅ OH	APHA, 22 nd edition (2012), 5530 D	0.001 mg/L to 0.1 mg/L
		Cyanide as CN	APHA, 22 nd edition (2012), 4500 E	0.01 mg/L to 5 mg/L
		Dissolve Solids	IS 3025 (Part 16)/1984 (RA 2012)	10 mg/L to 3000 mg/L
		Cadmium as Cd	APHA, 22 nd edition (2012), 3111 B & C (AAS)	0.002 mg/L to 3 mg/L
		Zinc as Zn	APHA, 22 nd edition (2012), 3111 B & C	0.01 mg/L to 10 mg/L
		Boron as B	APHA, 22 nd edition (2012), 4500B-B	0.1 mg/L to 10 mg/L
		Aluminium	APHA, 22 nd edition (2012), 3500. Al.B	0.02 mg/L to 0.3 mg/L
		Manganese	APHA, 22 nd edition (2012), 3111.B	0.03 mg/L to 6.0 mg/L
		Mineral Oil	IS 3025:1991(PART-39) (RA 2014)	0.1 mg/L to 10 mg/L
		Arsenic	APHA 22 nd . 3120-B	0.03 mg/L to 2 mg/L
		Lead	APHA 22 nd . 3120-B	0.01 mg/L to 2 mg/L
		Nickel	APHA 22 nd . 3120-B	0.01 mg/L to 2 mg/L
		Cadmium	APHA 22 nd . 3120-B	0.002 mg/L to 2 mg/L
		Fluoride	APHA 22 nd . 4500F-D	0 mg/L to 1.4 mg/L

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Page 3 of 14

Validity 22.09.2018 to 21.09.2020

Last Amended on 03.11.2018

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2.	Construction Water	pH	IS 3025 (Part II)/2004 (RA 2009)	4 to 12
		Alkalinity	IS 3025 (PART 23)/1986 (RA 2009)	0.1 ml/100 ml to 50 ml/100 ml
		Acidity	IS 3025 (Part 22)/1986 (RA 2014)	0.1 ml/100 ml to 5 ml/100 ml
		Organic Matter	IS 3025 (Part 18)/1984 (RA 2012)	1 mg/L to 500 mg/L
		Inorganic Matter	IS 3025 (Part 18)/1984 (RA 2012)	1 mg/L to 500 mg/L
		Sulphate as SO ₃	IS 3025 (Part 24)/1986 (RA 2014)	1 mg/L to 80 mg/L
		Chloride as Cl	IS 3025 (Part 32)/1988 (RA 2009)	2 mg/L to 250 mg/L
		Suspended Matter	IS 3025 (Part 17)/1984 (RA 2012)	2 mg/L to 1000 mg/L
3.	Cooling Water	P ^H	IS 3025 Part II/2004 (RA 2009)	1 to 12
		Total Hardness (as CaCO ₃)	APHA, 22 nd edition (2012), 2340-C	1 mg/L to 1000 mg/L
		Iron as Fe	APHA, 22 nd edition (2012),- 3111B	0.05 mg/L to 20 mg/L
		Chloride as Cl	APHA, 22 nd edition (2012),- 4500 Cl B IS 3025 (Part-32) 1988 (RA 2009)	2 mg/L to 250 mg/L
		Calcium Ca	APHA, 22 nd edition (2012), 3500 Ca B	5 mg/L to 500 mg/L
		Magnesium Mg	APHA, 22 nd edition (2012), 3500 Mg B	0.2 mg/L to 200 mg/L
		Copper as Cu	APHA, 22 nd edition (2012), 3111 B & C	0.04 mg/L to 10 mg/L

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Block-EP, Sector-V, Salt Lake City, Kolkata, West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-8066 (in lieu of T-1230, T-4227)

Page 4 of 14

Validity 22.09.2018 to 21.09.2020

Last Amended on 03.11.2018

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		Sodium as Na	APHA, 22 nd edition (2012), 3500 Na B	2 mg/L to 200 mg/L
		Potassium as k	APHA, 22 nd edition, (2012) 3500 K B	1.0 mg/L to 200 mg/L
		Silica	APHA, 22 nd edition (2012) SiO ₂ C&D	0.4 mg/L to 25 mg/L
		Cadmium as Cd	APHA, 22 nd edition (2012), 3111 B & C	0.1 mg/L to 3 mg/L
		Cyanide as CN	APHA, 22 nd edition (2012), 4500 E	0.01 mg/L to 5 mg/L
		Zinc as Zn	APHA, 22 nd edition (2012), 3111 B & C (AAS)	0.01 mg/L to 2 mg/L
		Total Chromium	APHA, 22 nd edition (2012), 3111 B & C (AAS)	0.1 mg/L to 20 mg/L
		Chromium as Cr ⁺⁶	APHA, 22 nd edition (2012), 3500 B IS 13428/2005 (RA 2009)	0.1 mg/L to 1.0 mg/L
		Alkalinity as CaCO ₃	APHA, 22 nd edition (2012), 2320 B	20 mg/L to 500 mg/L
		Phosphorous as P	APHA, 22 nd edition (2012), 4500 P-C	1 mg/L to 20 mg/L
II.	POLLUTION & ENVIRONMENT			
1.	Waste Water Including Effluent Water	Colour (Hazen Units)	APHA, 22 nd edition (2012), 2120 B	1 HU to 50 HU
		pH	IS 3025 Part 11/2004 (RA 2009)	1 to 12
		Turbidity	IS 3025 (Part-10)/1984 (RA 2006)	1 NTU to 1 000 NTU
		Conductivity	IS 3025 (Part 14) 1984 (RA 2006)	1 μ mho/cm to 200 μ mho/cm

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Certificate Number **TC-8066 (in lieu of T-1230, T-4227)**

Page 5 of 14

Validity **22.09.2018 to 21.09.2020**

Last Amended on **03.11.2018**

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		Total Hardness (as CaCO ₃)	APHA, 22 nd edition (2012), 2340-C	1 mg/L to 2000 mg/L
		Iron as Fe	APHA, 22 nd edition (2012),- 3111B	0.05 mg/L to 20 mg/L
		Chloride as Cl	APHA, 22 nd edition (2012), 4500 Cl B IS 3025 (Part-32)/1988 (RA 2009)	2 mg/L to 250 mg/L
		Residual, Free Chloride	IS 3025 Part 26/1986 (RA 2006)	0.1 mg/L to 1.0 mg/L
		Total Non filterable Residue (TSS)	APHA, 22 nd edition (2012), 2540 D	2 mg/L to 80 mg/L
		Total filterable Residue (TDS)	IS 3025 (Part 16)/1984 (RA 2012)	1.0 mg/L to 200 mg/L
		Calcium Ca	APHA, 22 st edition (2012), 3500 Ca B	5 mg/L to 1000 mg/L
		Magnesium Mg	APHA, 22 nd edition (2012), 3500 Mg B	0.2 mg/L to 200 mg/L
		Copper as Cu	APHA, 22 nd edition (2012), 3111 B & C	0.04 mg/L to 10 mg/L
		Sodium as Na	APHA, 22 nd edition (2012), 3500 Na B	2 mg/L to 100 mg/L
		Potassium as k	APHA, 22 nd edition (2012), 3500 K B	1.0 mg/L to 100 mg/L
		Nitrogen (Organic) as NH ₃ (Kjeldahl)	IS 3025(Part 34) 1988 (nessler method) (RA 2014)	0.02 mg/L to 5.0 mg/L
		Amonical Nitrogen as NH ₃ -N	IS 3025(Part 34) 1988 (nessler method) (RA 2014)	0.02 mg/L to 5.0 mg/L
		Nitrate as NO ₃	APHA, 22 nd edition (2012), 4500 NO ₃ B & 4500 NO ₃ C	0.05 mg/L to 2 mg/L

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Page 6 of 14

Validity **22.09.2018 to 21.09.2020**

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		Nitrite as NO ₂	APHA, 22 nd edition (2012), 4500 NO ₃ B	0.05 mg/L to 1.0 mg/L
		Silica	APHA, 22 nd edition (2012), 4500 SiO ₂ C&D	0.4 mg/L to 25 mg/L
		Cadmium as Cd	APHA, 22 nd edition (2012), 3111 B & C	0.1 mg/L to 3 mg/L
		Cyanide as CN	APHA, 22 nd edition (2012), 4500 E	0.01 mg/L to 0.05 mg/L
		Zinc as Zn	APHA, 22 nd edition (2012), 3111 B & C (AAS)	0.1 mg/L to 2 mg/L
		Total Chromium	APHA, 22 nd edition (2012), 3111 B & C (AAS)	0.1 mg/L to 20 mg/L
		Chromium as Cr ⁺⁶	APHA, 22 nd edition, (2012) 3500 B IS 13428/2005 (RA 2009)	0.1 mg/L to 1.0 mg/L
		Oil & Grease	APHA, 22 nd edition (2012), 5520 B IS 3025 (Part 39)/1991 (RA 2009)	4 mg/L to 10 mg/L
		Alkalinity as CaCO ₃	APHA, 22 nd edition (2012), 2320 B	20 mg/L to 2000 mg/L
		Boron as B	APHA, 22 nd edition (2012), 4500 B-B	0.1 mg/L to 100 mg/L
		Phosphorous as P	APHA, 22 nd edition (2012), 4500 P-C	1 mg/L to 20 mg/L
		Phenolic Compounds as C ₆ H ₅ OH	APHA, 22 nd edition (2012), 5530 D	0.001 mg/L to 0.25 mg/L
		Dissolve Oxygen	APHA, 22 nd edition (2012), 4500 O ₂ C	1.0 mg/L to 8.0 mg/l
		BOD at 27°C for 3 days	IS 3025 (Part-44/1993), (RA 1999)	1.0 mg/L to 800 mg/L
		COD	APHA, 22 nd edition (2012), 5220 B	5 mg/L to 50 mg/L

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Page 7 of 14

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Last Amended on **03.11.2018**

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		Total Solids	APHA 22 nd . Ed. (2012) 2540-B	2.5 mg/L to 3000 mg/L
		Arsenic	APHA 22 nd .3120-B	0.03 mg/L to 2 mg/L
		Lead	APHA 22 nd .3120-B	0.01 mg/L to 2 mg/L
		Nickel	APHA 22 nd .3120-B	0.01 mg/L to 2 mg/L
		Cadmium	APHA 22 nd .3120-B	0.00 2 mg/L to 2 mg/L
		Fluoride	APHA 22 nd .4500F-D	Upto 1.4 mg/L
III.	ORES & MINERALS			
1.	Limestone & Dolomite	Silica	IS 1760(Part II) 1991 (RA 2017)	0.1 % to 40 %
		Calcium Oxide	IS 1760(Part III) 1992 (RA 2017)	10 % to 56 %
		Magnesium Oxide	IS 1760(Part III) 1992 (RA 2017)	0.2 % to 35 %
		Ferric Oxide	IS 1760(Part III) 1992 (RA 2017)	0.1 % to 25 %
		Alumina	IS 1760(Part III) 1992 (RA 2017)	0.1 % to 25 %
		Potassium Oxide	IS 9497:1980, RA 2015	0.02 % to 2%
		Sodium Oxide	IS 9497:1980, RA 2015	0.05 % to 2%
		Loss on Ignition	IS 1760 (Part-1) 1991, (RA 2017)	10 % to 50 %
2.	Manganese Ore	Silica	IS 1473 2004 (RA 2016)	0.5 % to 40 %
		Manganese	IS 1473 2004 (RA 2016)	2.0 % to 65 %
		Manganese Dioxide	IS 1473 2004 (RA 2016)	10 % to 75 %
		Iron	IS 1473 2004 (RA 2016)	1 % to 40 %
		Alumina	IS 1473 2004 (RA 2016)	0.1 % to 25 %
		Sulphur	IS 1473 2004 (RA 2016)	0.01 % to 1%
		Phosphorous	IS 1473 2004 (RA 2016)	0.02 % to 1.0 %
		Calcium Oxide	IS 1473:2004 (RA 2016)	0.2 % to 5 %
		Magnesium Oxide	IS 1473:2004 (RA 2016)	0.2 % to 5 %

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Page 8 of 14

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		Sodium Oxide	IS 9497:1980, (RA 2015)	0.05 % to 2 %
		Potassium Oxide	IS 9497:1980, (RA 2015)	0.05 % to 2 %
		Bulk Density	IS 5842-1986 (RA 2014) and IS 1449/2010 (RA 2016)	1Kg/l to 5Kg/l
3.	Chrome Ore	Silica as SiO ₂	IS 4737 1982 (RA 2016)	0.1 % to 25 %
		Iron Oxide as FeO	IS 4737 1982 (RA 2016)	1 % to 30 %
		Chromic oxide as Cr ₂ O ₃	IS 4737 1982 (RA 2016)	5 % to 60 %
		Bulk Density	IS 5842-1986 (RA 2014) and IS 8562/77 (RA 2017)	1 Kg/l to 5 Kg/l
4.	Iron Ore	Silica	IS 1493 (Part I) 1981 (RA 2016)	0.5 % to 50 %
		Total Iron	IS 1493 (Part I) 1981 (RA 2016)	10 % to 70 %
		Alumina	IS 1493 (Part I) 1981 (RA 2016)	0.1 % to 40 %
		Phosphorous	IS 1493 (Part I) 1981 (RA 2016)	0.01 % to 2 %
		Sulphur	IS 1493:1959, (RA 2016)	0.005 % to 0.1 %
		Calcium Oxide	IS 1493:1959, (RA 2016)	0.05 % to 10 %
		Magnesium Oxide	IS 1493:1959, (RA 2016)	0.05 % to 10 %
		Sodium Oxide	IS 1493:Part 6:1990, (RA 2016)	0.01 % to 2 %
		Potassium Oxide	IS 1493:Part 6:1990, (RA 2016)	0.01 % to 2 %
		Bulk Density	IS 5842-1986(RA 2014)	1 Kg/l to 5 Kg/l
5.	Rock Phosphate	Total phosphates (as P ₂ O ₅)	IS 9386-1979(RA 2014)	2 % to 45 %
		Aluminium Oxide(Al ₂ O ₃)	IS 11224-1985(RA 2015)	0.1% to 10 %
		Calcium Oxide(as CaO)	IS 9386-1979(RA 2014)	2 % to 60 %
		Magnesium Oxide(MgO)	IS 11224-1985(RA 2015)	0.1 % to 10 %

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Page 9 of 14

Validity **22.09.2018 to 21.09.2020**

Last Amended on **03.11.2018**

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		Iron Oxide(Fe_2O_3)	IS 11224-1985(RA 2015)	0.2% to 10 %
		Loss on Ignition	IS 11224-1985(RA 2015)	0.2 % to 25 %
		Silica(SiO_2)	IS 11224-1985(RA 2015)	0.2 % to 40 %
6.	Bauxite	Alumina(Al_2O_3)	IS 2000(Part 3):1985 (RA 2017)	5 % to 70 %
		Ferric Oxide (Fe_2O_3)	IS 2000(Part 4):1985 (RA 2017)	0.5 % to 50 %
		Silica(SiO_2)	IS 2000(Part 2):1985 (RA 2017)	0.2 % to 25 %
		Loss on Ignition	IS 2000(Part 1):1985 (RA 2017)	1 % to 50 %
		Titania(TiO_2)	IS 2000(Part 5):1985 (RA 2017)	0.2 % to 20 %
		Phosphorous Pentoxide (P_2O_5)	IS 2000(Part 7):2001 (RA 2017)	0.1 % to 5 %
		Bulk Density	IS 5842/1986, RA-2014 and IS 1999/1987, (RA 2014)	1 kg/l to 5 kg/l
IV.	METALS & ALLOYS			
1.	Mild Steel, Carbon Steel and Alloy Steel	Carbon	IS 228 (Part 1) 1987 (RA 2012)	0.05 % to 2.5 %
		Manganese	IS 228 (Part 2) 1987 (RA 2012)	0.1 % to 5.0 %
		Silicon	IS 228 (Part 8) 1989 (RA 2014)	0.05 % to 5.0 %
		Sulphur	IS 228 (Part 9) 1989 (RA 2014)	0.01 % to 0.30 %
		Phosphorous	IS 228 (Part 3) 1987 (RA 2012)	0.01 % to 1.0 %
		Nickel	IS 228 (Part 5)1987, (RA 2014)	0.1 % to 25.0 %
		Chromium	IS 228 (Part 6) 1987, (RA 2012)	0.1 % to 25.0 %

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Page 10 of 14

Validity **22.09.2018 to 21.09.2020**

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V.	SOLID FUELS			
1.	Coal	Total Moisture	IS 1350 (Part 1):1984, (RA 2013)	2 % to 40 %
		Air Dry Moisture	IS 1350 (Part 1):1984, (RA 2013)	0.1 % to 30 %
		Volatile Matter	IS 1350 (Part 1):1984, (RA 2013)	0.1 % to 50 %
		Ash	IS 1350 (Part 1):1984, (RA 2013)	0.1 % to 70 %
		Fixed Carbon	IS 1350 (Part 1):1984, (RA 2013)	By Calculation
		Sulphur	IS 1350 (Part 3):1969, Cl. 5.1, (RA 2015)	0.1 % to 10 %
		Gross Calorific Value	ASTM D5865-2013	500 Kcal/Kg to 8000 kcal/kg
		Equilibrium Moisture at 60% RH & 40°C	As per SOP No. SUP/SOP/M60% RH & 40°C date 01.01.2016	0.2 % to 30 %
VI.	BUILDING MATERIAL			
1.	Cement (OPC)	Calcium oxide	IS 4032:1985(RA 2014), Cl. 4.7.2	30 % to 70 %
		Magnesium oxide	IS 4032:1985(RA 2014), Cl. 4.8.2	0.5 % to 15 %
		Alumina	IS 4032:1985(RA 2014), Cl. 4.6.1	1 % to 10 %
		Ferric oxide	IS 4032:1985(RA 2014), Cl. 4.5.1	1 % to 10 %
		Silica	IS 4032:1985(RA 2014), Cl. 4.3	10 % to 35 %

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Certificate Number **TC-8066 (in lieu of T-1230, T-4227)**

Page 11 of 14

Validity **22.09.2018 to 21.09.2020**

Last Amended on **03.11.2018**

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		Sulphuric Anhydride	IS 4032:1985(RA 2014), Cl. 4.9	0.2 % to 10 %
		Loss on ignition	IS 4032:1985(RA 2014), Cl. 4.2	0.2 % to 10 %
		Insoluble residue	IS 4032:1985(RA 2014), Cl. 4.10	0.2 % to 10 %
2.	Cement (PPC)	Magnesium oxide	IS 4032:1985(RA 2014), Cl. 7.2.2	0.5 % to 15 %
		Sulphuric Anhydride	IS 4032:1985(RA 2014), Cl. 7.3 & 4.9	0.2 % to 10 %
		Loss on ignition	IS 4032:1985(RA 2014), Cl. 7.1 & 4.2	0.2 % to 10 %
		Insoluble residue	IS 4032:1985(RA 2014), Cl. 7.4 & 4.10	5 % to 50 %
3.	Cement (PSC)	Magnesium oxide	IS 4032:1985(RA 2014), Cl. 6.8.2	0.5 % to 15 %
		Sulphur Trioxide	IS 4032:1985(RA 2014), Cl. 6.11	0.2 % to 5 %
		Loss on ignition	IS 4032:1985(RA 2014), Cl. 6.2 & 4.2	0.2 % to 10 %
		Insoluble residue	IS 4032:1985(RA 2014), Cl. 6.9 & 4.10	0.2 % to 5 %
VII.	ATMOSPHERIC POLLUTION			
1.	Ambient Air/ Fugitive Emissions	Nitrogen dioxide as NO ₂	IS 5182(Part 6):2006	6 µg/m ³ to 750 µg/m ³
		Sulphur dioxide SO ₂	IS 5182(Part 2):2001 (RA 2006)	4 µg/m ³ to 200 µg/m ³
		PM10	IS 5182(Part 23):2006	5 µg/m ³ to 1000 µg/m ³
		PM2.5	USEPA-CFR-40Part-50), Appendix-L	2 µg/m ³ to 200 µg/m ³
		Ammonia	SOP No.-SUP/SOP/401 Issue No.-01 & issue date-28.1.13	20 µg/m ³ to 700 µg/m ³
		Ozone	IS 5182(Part 9):1974	20 µg/m ³ to 200 µg/m ³

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Certificate Number **TC-8066 (in lieu of T-1230, T-4227)**

Page 12 of 14

Validity **22.09.2018 to 21.09.2020**

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			(RA 2009)	
		SPM	IS 5182(Part-4): 1999 (RA 2010)	10 µg/m ³ to 2000 µg/m ³
		Carbon monoxide	IS 5182 (Part-10)	Upto 50mg/m ³
		Arsenic	EPA (Chapter IO-3, Method IO-3.4)	0.5 ng/m ³ to 30 ng/m ³
		Nickel	EPA (Chapter IO-3, Method IO-3.4)	0.2 ng/m ³ to 30 ng/m ³
		Lead	EPA (Chapter IO-3, Method IO-3.4)	0.001 µg/m ³ to 1µg/m ³
2.	Stack emission	Particulate matter	IS 11255(Part 1):1985 (RA 2003) & C.P.C.B. Emission Regulation(Part-3)	10 mg/Nm ³ to 10000 mg/Nm ³
		Sulphur dioxide	IS 11255(Part 2):1985 (RA 2003) & C.P.C.B. Emission Regulation(Part-3)	5 mg/Nm ³ to 80,000 mg/Nm ³
		Oxides of Nitrogen	IS 11255(Part 7):2005 & EPA method-7	5 mg/Nm ³ to 400 mg/Nm ³
3.	Noise Monitoring	Ambient noise in Leq(A)	IS 9989-1981 (RA 2001) SOP No.-SUP/SOP/4033 SD Issue No-1 & Issue date-04.07.2016	5(db) to 140 (db)
VIII	SOIL & ROCK			
1.	Soil	pH	IS 2720(Part-26):1987 (RA 2011)	2 to 12
		Organic Matter	IS 2720(Part-22):1972 (RA 2010)	0.03% to 6 %
		Total soluble Sulphate	IS 2720(Part-27):1977 (RA 2005)	2 mg/kg to 2000 mg/kg
		Available Nitrogen	SUP/SOP/98 Issue No-1,	0.01 % to 0.04 %

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

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Page 13 of 14

Validity **22.09.2018 to 21.09.2020**

Last Amended on **03.11.2018**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			date-17.01.2013	
		Available Phosphorous	SUP/SOP/104 Issue No-1, date-17.01.2013	5 mg/kg to 200 mg/kg
		Available Potassium	SUP/SOP/110 Issue No-1, date-17.01.2013	10 mg/kg to 1000 mg/kg
		Chloride	SUP/SOP/137 Issue No-1, date-17.01.2013	5 mg/kg to 5000 mg/kg
		Conductivity	SUP/SOP/87 Issue No-1, date-17.01.2013	12 mS/cm to 200 mS/cm
		Sodium	SUP/SOP/118 Issue No-1, date-17.01.2013	5 mg/kg to 1000mg/kg
		Calcium	SUP/SOP/119 Issue No-1, date-17.01.2013	5 mg/kg to 1000mg/kg
		Magnesium	SUP/SOP/119 Issue No-1, date-17.01.2013	5 mg/kg to 1000 mg/kg
		Carbonate	SUP/SOP/135 Issue No-1, date-17.01.2013	5 mg/100g to 5000 mg/100g
		Bicarbonate	SUP/SOP/135 Issue No-1, date-17.01.2013	5 mg/100g to 5000 mg/100g
		Zinc	SUP/SOP/125 Issue No-1, date-17.01.2013	0.5 mg/kg to 4 mg/kg
		Copper	SUP/SOP/125 Issue No-1, date-17.01.2013	0.08 mg/kg to 20 mg/kg
		Iron	SUP/SOP/125 Issue No-1, date-17.01.2013	0.5 mg/kg to 40 mg/kg
		Manganese	SUP/SOP/125 Issue No-1, date-17.01.2013	0.5 mg/kg to 12 mg/kg

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Page 14 of 14

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MECHANICAL TESTING

I.	MECHANICAL PROPERTIES METALS			
1.	Ferrous & Non Ferrous Metals & Alloy of Tube, Wire, Bar, Flat, Plate, Angle, channel, Beam, Square, Welded Pipe, HSD Steel Bars	Tensile (YS/0.2% Proof Stress, UTS, %Elongation, %Reduction of area)	IS 1608:2005 (RA 2010) IS 1786:2008 (RA 2013)	2 to 100 kN
Brinell Hardness		IS 1500-1:2013	100 to 600 HBW 5/750 100 to 600 HBW 10/3000	
Rockwell Hardness		IS 1586-1:2012	20 to 100 HRBW 20 to 70 HRC	
Bend		IS 1599:2012 IS 1786:2008 (RA 2013)	Mandrel dia. (12, 20, 20.4, 24, 30, 36, 40, 48, 60, 64, 80, 85, 100, 112, 125, 128, 140, 160, 175, 185, 200, 205, 230, 310 mm) dia 180° Bend	
Rebend		IS 1786:2008 (RA 2013)	Mandrel dia. (12, 20, 20.4, 24, 30, 32, 36, 40, 48, 60, 64, 80, 85, 100, 112, 125, 128, 140, 160, 175, 185, 200, 205, 230, 310 mm) dia 157.5° Bend	