

Laboratory Indicative Consultant India, B1-1/22/1-2 Santoshpur (M), Block-B, Maheshtala, Kolkata, West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6560

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Validity 15.11.2017 to 14.11.2019

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.	METALS & ALLOYS			
1.	Plain Carbon Steel, Mild Steel, Stainless Steel	Carbon	IS 228 (Part 1)	0.05 % to 2.5 %
		Manganese	IS 228 (Part 2)	0.02 % to 3.0 %
		Sulphur	IS 228 (Part 9)	0.002 % to 0.15 %
		Phosphorous	IS 228 (Part 3)	0.02 % to 0.15 %
		Carbon Equivalent	IS 1786	Qualitative
2.	Stainless Steel	Carbon	IS 228 (Part 1)	0.05 % to 2.5 %
		Manganese	IS 228 (Part 2)	0.02 % to 3.0 %
		Silicon	IS 228 (Part 8)	0.05 % to 5.0 %
		Sulphur	IS 228 (Part 9)	0.002 % to 0.15 %
		Phosphorous	IS 228 (Part 3)	0.02 % to 0.15 %
		Chromium	IS 228 (Part 6)	2 % to 30 %
		Nickel	IS 228 (Part 5)	2 % to 20 %
Molybdenum	IS 228 (Part 7)	1 % to 8 %		
II.	BUILDING MATERIALS			
1.	Cement - OPC	Silica	IS 4032	10 % to 30 %
		Alumina	IS 4032 (Clause 4.6.1)	1 % to 15 %
		Iron Oxide	IS 4032 (Clause 4.5.1)	1 % to 15 %
		Magnesia	IS 4032 (Clause 4.8.1)	0.5 % to 15 %
		Calcium Oxide	IS 4032 (Clause 4.7.1)	25 % to 70 %
		Sulphuric Anhydride	IS 4032	0.5 % to 5 %
		Insoluble Residue	IS 4032	0.5 % to 10 %
		Loss on ignition	IS 4032	0.5 % to 10 %
		Total Chloride	IS 4032	0.01 % to 2 %
2.	Cement - PPC	Magnesia	IS 4032 (Clause 7.2.1)	1 % to 15 %
		Sulphuric Anhydride	IS 4032	0.5 % to 5 %
		Insoluble Residue	IS 4032	5 % to 40 %
		Loss on ignition	IS 4032	0.5 % to 10 %
		Total Chloride	IS 4032	0.01 % to 0.2 %

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3.	Cement - PSC	Magnesia (as MgO)	IS 4032	0.5 % to 15 %
		Sulphur Trioxide (as SO ₃)		0.5 % to 15 %
		Sulphide Sulphur (as S)		0.1 % to 5 %
		Insoluble Residue		0.5 % to 10%
		Loss on ignition		0.5 % to 10%
4.	Fly Ash	Loss on ignition	IS 1727	0.5 % to 10 %
		Total Chloride	IS 4032	0.01 % to 2 %
		Sulphates	IS 1727	0.1 % to 5 %
		Magnesia (MgO)	IS 1727	0.1 % to 15 %
		Silica (SiO ₂)	IS 1727	10 % to 75 %
		Combined Oxide (R ₂ O ₃)	IS 1727	1 % to 30 %
		Sodium Oxide (Na ₂ O)	IS 4032	0.5 % to 2.0 %
		Potassium Oxide (K ₂ O)	IS 4032	0.5% to 2.0 %
5.	Aggregate	Water Soluble Chlorides	BS EN 1744-1 + A1	0.01 % to 3 %
		Water Soluble Sulphates	BS EN 1744-1 + A1	0.5 % to 5 %
6.	Concrete	Water Soluble Chlorides	IS 14959 (Part 1 & 2)	0.005 % to 2 %
		Acid Soluble Chlorides	BS EN 1881 (Part 124)	0.005 % to 2 %
		Sulphates	BS 1881 (Part 124)	0.01% to 2%
7.	Admixture	pH	IS 9103	2 to 12
		Dry Material Content	IS 9103	5 % to 50 %
		Ash Content	IS 9103	0.5 % to 15 %
		Chloride Content	ISL 6925 (Clause 3)	0.01 % to 0.5 %
		Relative Density	IS 9103	0.6 % to 2.5 %

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<u>MECHANICAL TESTING</u>				
I.	MECHANICAL PROPERTIES OF METALS			
1.	FERROUS MATERIALS/ PRODUCTS			
a.	(Bar, Flat, Plate, Angle, Channel, Beam, Square & Welded Pipe, Tube & Plate, H.S.D Steel, Bars, Wire, Bolts)	Tensile Strength, Yield Stress, 0.2% Proof Stress	IS 1608 ASTM A370	100 MPa to 1500MPa
		% Elongation		1 % to 100 %
		% Reduction Area		1 % to 75 %
		Weight/Meter	IS 1786	0.1 kg to 30 kg
	Bend	IS 1599	Mandrel diameter in mm (16, 18, 20, 24, 30, 32, 36, 40, 48, 50, 56, 60, 64, 70, 72, 75, 80, 84, 96, 100, 108, 112, 120, 128, 140, 144, 150, 160, 168, 175, 180, 192, 200, 216, 224, 240, 252, 256, 280, 288, 320)	
Reinforcement Steel Bar	Re-Bend	IS 1786		
b.	Welded Plates , Pipes & Tubes	Root & Face Bend, Side Bend, Nick Bend, Fracture, Macro Etch	ASME Section IX IS 3600 (Part 5, 6, 8 & 9)	Mandrel Diameter (16, 18, 20, 24, 30, 32, 36, 40, 48, 50, 56, 60, 64, 70, 72, 75, 80, 84, 96, 100, 108, 112, 120, 128, 140, 144, 150, 160, 168, 175, 180, 192, 200, 216, 224, 240) mm
		Tensile Strength (Transverse)	ASME Section IX IS 3600 (Part 3)	100 MPa to 1500MPa
c.	Metallic Tubes & Pipes	Flattening	IS 2328	Upto 600 mm Outside diameter
		Tensile Strength Yield Stress	IS 1608	100 MPa to 1500 MPa
		% Elongation		1 % to 100 %
		Weight/Meter	IS 1239 (Part 1 & 2)	0.1 kg to 30 kg

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d.	Mild Steel Rivet Bar	Dump	IS 3298	Diameter 16 mm to 30 mm
e.	Ferrous Metals & Alloy	Rockwell Hardness	IS 1586 (Part 1)	20 HRB to 100 HRB 20 HRC to 70 HRC
f.	Fasteners (M-6 to M-39)	Nut Proof Load	IS 1367 (Part 6)	20 kN to 900 kN
		Bolt Proof Load	IS 1367 (Part 3)	20 kN to 900 kN
		Wedge Load	IS 1367 (Part 3)	100 MPa to 1500 MPa
II. BUILDING MATERIALS				
1.	Coarse Aggregate	Sieve Analysis	IS 2386 (Part 1)	2.36 mm to 40 mm Upto 100%
		Aggregate Crushing Value	IS 2386 (Part 4)	1 % to 50 %
		Aggregate Impact Value	IS 2386 (Part 4)	1 % to 50 %
		10 % Fines Value	IS 2386 (Part 4)	Upto 50 Ton
		Flakiness Index	IS 2386 (Part 1)	2 % to 45 %
		Elongation Index	IS 2386 (Part 1)	2 % to 45 %
		Water Absorption	IS 2386 (Part 3)	0.1 % to 20 %
		Specific Gravity	IS 2386 (Part 3)	1 to 4
2.	Fine Aggregate	Sieve Analysis	IS 2386 (Part 1)	150 micron to 10mm/ Upto 100%
		Water Absorption	IS 2386 (Part 3)	0.1 % to 20 %
		Specific Gravity	IS 2386 (Part 3)	1 to 4
3.	Bricks	Dimension: Length	IS 1077	3000 mm to 6000 mm
		Dimension: Width		1500mm to 3000 mm
		Dimension: Height		500 mm to 2500 mm
		Compressive strength	IS 3495 (Part 1)	2.5 N/mm ² to 20 N/mm ²
		Water absorption	IS 3495 (Part 2)	0.5 % to 40 %
		Efflorescence	IS 3495 (Part 3)	Qualitative
4.	Concrete	Compressive Strength	IS 516	2 N/mm ² to 80 N/mm ²
		Water Permeability of concrete	DIN-1048 (Part 5) MORTH (Clause 1716.5)	1 mm to 30 mm

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5.	Cement (OPC / PPC/ PSC)	Rapid chloride penetration	ASTM C 1202	200 Coulomb to 4000 Coulomb
		Water Absorption	IS 2185 (Part 1)	0.5 % to 10 %
		Flexural Strength	IS 516	1 MPa to 20 MPa
		Consistency	IS 4031 (Part 4)	20 % to 40 %
		Initial Setting time	IS 4031(Part. 5)	10 min to 300 min
		Final Setting time		30 min to 600 min
		Soundness (La-chatelier)	IS 4031(Part 4)	1 mm to 15 mm
		Fineness By Blaine's Apparatus	IS 4031(Part 2)	200 m ² /kg to 400 m ² /kg 1 % to 20 %
		Fineness By Dry Sieving	IS 4031 (Part 1)	
		Compressive strength	IS 4031(Part 6)	10 MPa to 100 MPa
6.	Pozzolana/ Flyash	Fineness – Specific surface by Blaine Permeability apparatus	IS 1727	200 m ² /kg to 400 m ² /kg.
		Lime Reactivity- Average Compressive Strength	IS 1727	1 MPa to 20 MPa
		Particle retained on 45 micron on IS sieve (wet sieving)	IS 1727	5 % to 50 %
		Compressive Strength at 28 days	IS 1727 IS 4031	10 MPa to 80 MPa
		Specific Gravity	IS 1727	1 to 3