

Laboratory **National Test House (NER), Citi Complex, Kalapahar, Guwahati, Assam**

Accreditation Standard **ISO/IEC 17025: 2017**

Certificate Number **TC-8294**

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Validity **23.08.2019 to 17.01.2021**

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

<b>I.</b>	<b>BUILDING MATERIALS</b>			
<b>1.</b>	<b>PPC Cement</b>	Loss on Ignition	IS 4032	0.5 % to 20.0 %
		Magnesium oxide	IS 4032	0.5 % to 20.0 %
		Sulfuric Anhydride	IS 4032	0.5 % to 10.0 %
		Insoluble residue	IS 4032	0.5 % to 40.0 %
		Chloride	IS 4032	0.01 % to 0.5 %
<b>2.</b>	<b>OPC Cement</b>	Loss on Ignition	IS 4032	0.5 % to 20.0 %
		Silica	IS 4032	1.0 % to 40.0 %
		Ferric oxide	IS 4032	1.0 % to 10.0 %
		Alumina oxide	IS 4032	1.0 % to 10.0 %
		Calcium oxide	IS 4032	1.0 % to 70.0 %
		Magnesium oxide	IS 4032	0.5 % to 20.0 %
		Sulfuric anhydride	IS 4032	0.5 % to 10.0 %
		Insoluble residue	IS 4032	0.5 % to 40.0 %
		Chloride	IS 4032	0.01 % to 0.5 %
<b>II.</b>	<b>METALS AND ALLOYS</b>			
<b>1.</b>	<b>Low-Alloy Steel</b>	Carbon	ASTM E415, IS 8811	0.01 % to 1.5 %
		Sulphur	ASTM E415, IS 8811	0.005 % to 0.10 %
		Phosphorous	ASTM E415, IS 8811	0.005 % to 0.080 %
		Silicon	ASTM E415, IS 8811	0.01 % to 2.0 %
		Manganese	ASTM E415, IS 8811	0.01 % to 1.50 %
<b>III.</b>	<b>WATER</b>			
<b>1.</b>	<b>Drinking Water</b>	Colour	IS 3025 (Part 4)	Upto 10 Hazen
	<b>Packaged</b>	Odour	IS 3025 (Part 5)	Qualitative
	<b>Drinking Water</b>	Taste	IS 3025 (Part 8)	Qualitative
		Turbidity	IS 3025 (Part 10)	0.2 NTU to 800 NTU
		pH	IS 3025 (Part 11)	3 to 12

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		Total Dissolved Solids	IS 3025 (Part 16)	50 mg/L to 1000 mg/L
		Total Hardness (as CaCO <sub>3</sub> )	IS 3025 (Part 21)	1.0 mg/L to 100 mg/L
		Iron	IS 3025 (Part 53)	0.05 mg/L to 100 mg/L
		Chloride (as Cl)	US EPA Method 300.1	0.1 mg/L to 10 mg/L
		Free Residual Chlorine	IS 3025 (Part 26)	0.2 mg/L to 10 mg/L
		Calcium (as Ca)	IS 3025 (Part 40)	5 mg/L to 200 mg/L
		Sulphate (as SO <sub>4</sub> )	US EPA Method 300.1	0.1 mg/L to 10 mg/L
		Nitrate (as NO <sub>3</sub> )	US EPA Method 300.1	0.1 mg/L to 10 mg/L
		Nitrite (as NO <sub>2</sub> )	US EPA Method 300.1	0.02 mg/L to 10 mg/L
		Fluoride (as F)	US EPA Method 300.1	0.1 mg/L to 10 mg/L
		Total Alkalinity (as Calcium carbonate)	IS 3025 (Part 23)	5.0 mg/L to 500 mg/L
<b>IV.</b>	<b>RESIDUES IN WATER</b>			
<b>1.</b>	<b>Drinking Water Packaged Drinking Water</b>	Magnesium (as Mg)	IS 3025 (Part 46)	5 mg/L to 100 mg/L
		Copper (as Cu)	IS 3025 (Part 42)	0.02 mg/L to 10 mg/L
		Manganese (as Mn)	IS 3025 (Part 59)	0.05 mg/L to 10 mg/L
		Mercury (as Hg)	IS 3025 (Part 48)	0.001 mg/L to 1.0 mg/L
		Selenium (as Se)	IS 3025 (Part 56)	0.01 mg/L to 1.0 mg/L
		Arsenic (as As)	IS 3025 (Part 37)	0.01 mg/L to 1.0 mg/L
		Total Chromium (as Cr)	IS 3025 (Part 52)	0.03 mg/L to 1.0 mg/L
		Aluminum (as Al)	IS 3025 (Part 55)	0.01 mg/L to 10 mg/L
		Boron (as B)	IS 3025 (Part 57)	0.1 mg/L to 1.0 mg/L
		Nickel (as Ni)	IS 3025 (Part 54)	0.01 mg/L to 0.1 mg/L
		Lead (as Pb)	IS 3025 (Part 47)	0.01 mg/L to 5.0 mg/L
		Zinc (as Zn)	IS 3025 (Part 49)	0.1 mg/L to 6.0 mg/L
		Sodium (as Na)	IS 3025 (Part 45)	0.1 mg/L to 300 mg/L
		Potassium (as K)	IS 3025 (Part 45)	0.1 mg/L to 100 mg/L
		Bromate	US EPA Method 300.1	0.01 mg/L to 10 mg/L
	Cadmium (as Cd)	IS 3025 (Part 41)	0.003 mg/L to 0.01 mg/L	

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### MECHANICAL TESTING

I.	MECHANICAL PROPERTIES OF METALS			
1.	High Strength Deformed Steel Bars and Wires for Concrete Reinforcement	Mass per meter run	IS 1786	Upto 30 Kg
		Tensile strength	IS 1608 (Part 1)	Upto 1000 kN 100 N/mm <sup>2</sup> to 1800 N/mm <sup>2</sup>
		Yield strength		100 N/mm <sup>2</sup> to 1500 N/mm <sup>2</sup>
		% Elongation		1 % to 70 %
		Total Elongation at maximum force		1 % to 50 %
	Bend test	IS 1599	Qualitative {Mandrel diameter (16, 20, 25, 32, 40, 50, 60, 80, 100, 120, 140, 160, 180, 200, 240, 280, 320) mm}	
	Re-bend test	IS 1786	Qualitative {Mandrel diameter (16, 20, 25, 32, 40, 50, 60, 80, 100, 120, 140, 160, 180, 200, 240, 280, 320) mm}	
2.	Ferrous and non-ferrous metal	Tensile strength	IS 1608 (Part 1)	Upto 1000 kN
		Yield strength		100 N/mm <sup>2</sup> to 2000 N/mm <sup>2</sup> 100 N/mm <sup>2</sup> to 1500 N/mm <sup>2</sup>
		% Elongation		1 % to 80 %
	Bend test	IS 1599	Qualitative {Mandrel diameter (06, 08, 10, 12, 16, 24, 25, 32, 36, 40, 48, 60, 80,	

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				100, 120, 126, 140, 150, 224, 320) mm}
<b>II.</b>	<b>BUILDING MATERIALS</b>			
<b>1.</b>	<b>Aggregate-Coarse</b>	Sieve Analysis	IS 2386 (Part 1)	0.1 % to 100 % (2.36 mm to 125 mm)
		Materials Finer than 75 micron	IS 2386 (Part 1)	0.1 % to 15 %
		Flakiness Index	IS 2386 (Part 1)	1 % to 90 %
		Elongation Index	IS 2386 (Part 1)	1 % to 90 %
		Clay Lumps	IS 2386 (Part 2)	Upto 10 %
		Light Weight Pieces (Coal & Lignite)	IS 2386 (Part 2)	Upto 5 %
		Specific Gravity	IS 2386 (Part 3)	1.5 to 3.5
		Water Absorption	IS 2386 (Part 3)	0.1 % to 15 %
		Crushing Value	IS 2386 (Part 4)	1 % to 50 %
		10 percent Fines Value	IS 2386 (Part 4)	5 kN to 500 kN
		Impact Value	IS 2386 (Part 4)	1 % to 50 %
		Abrasion Value-Los Angeles Machine	IS 2386 (Part 4)	1 % to 60 %
<b>2.</b>	<b>Aggregate-Fine</b>	Sieve Analysis	IS 2386 (Part 1)	Upto 100% (0.15 mm to 10 mm)
		Materials Finer than 75 micron	IS 2386 (Part 1)	0.1 % to 15 %
		Clay Lumps	IS 2386 (Part 2)	Upto 10 %
		Light Weight Pieces (Coal & Lignite)	IS 2386 (Part 2)	Upto 5 %
		Organic Impurities	IS 2386 (Part 2)	Qualitative
		Specific Gravity	IS 2386 (Part 3)	1.5 to 3.5
		Water Absorption	IS 2386 (Part 3)	0.1 % to 10 %
<b>3.</b>	<b>Bricks (Burnt Clay/ Pulverised Fuel Fly Ash)</b>	Dimensions- Burnt Clay Bricks	IS 1077	L 4000 mm to 5000 mm W 2100 mm to 2400 mm H 1300 mm to 1600 mm
		Dimensions- Fly Ash Bricks	IS 12894	L:4000 mm to 5000 mm W 2100 mm to 2400 mm

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				H 1300 mm to 1600 mm
		Compressive Strength	IS 3495 (Part 1)	2.5 N/mm <sup>2</sup> to 35 N/mm <sup>2</sup>
		Water Absorption	IS 3495 (Part 2)	1 % to 35 %
		Efflorescence	IS 3495 (Part 3)	Qualitative
4.	Precast Concrete Paving Block	Dimensions	IS 15658	L 100 mm to 600 mm W 100 mm to 300 mm H 50 mm to 200 mm
		Water Absorption	IS 15658	1 % to 20 %
		Compressive Strength	IS 15658	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Abrasion Resistance	IS 15658	2000 mm <sup>3</sup> to 30000 mm <sup>3</sup>
5.	Cement (OPC/PPC/PSC)	Fineness by Blaine's Air Permeability	IS 4031 (Part 2)	100 m <sup>2</sup> /kg to 500 m <sup>2</sup> /kg
		Soundness by Le-Chatelier Method	IS 4031 (Part 3)	0.1 mm to 10 mm
		Soundness by Autoclave Method	IS 4031 (Part 3)	0.01 % to 5 %
		Standard Consistency	IS 4031 (Part 4)	20 % to 50 %
		Initial Setting Time	IS 4031 (Part 5)	30 minutes to 300 minutes
		Final Setting Time	IS 4031 (Part 5)	100 minutes to 600 minutes
		Compressive Strength	IS 4031 (Part 6)	10 N/mm <sup>2</sup> to 75 N/mm <sup>2</sup>
		Drying Shrinkage	IS 4031 (Part 10)	0.01 % to 5 %
		Density	IS 4031 (Part 11)	1.5 gm/cc to 4.0 gm/cc
6.	Hardened Concrete	Compressive Strength- (Cube/Core)	IS 516	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>