

Laboratory **Namotech Consultancy Services LLP, 113/2, Vishvesariya Nagar,
Triveni Nagar Mode, Gopalpura Bypass, Jaipur, Rajasthan**

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

Certificate Number **TC-7612**

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Validity **25.07.2018 to 24.07.2020**

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.	BUILDING MATERIALS			
1.	Hydraulic Cement (OPC, PPC)	Loss On Ignition	IS 4032	0.5 % to 10 %
		Silica (SiO ₂)	IS 4032	15.0 % to 40 %
		Alumina (Al ₂ O ₃)	IS 4032	2.0 % to 20 %
		Ferric Oxide (Fe ₂ O ₃)	IS 4032	0.5 % to 10 %
		Calcium Oxide (CaO)	IS 4032	35 % to 70 %
		Magnesia (Mgo)	IS 4032	0.1 % to 10 %
		Sulphuric Anhydride (SO ₃)	IS 4032	0.5 % to 7 %
		Insoluble Residue	IS 4032	0.1 % to 35 %
		Sodium Oxide (Na ₂ O)	IS 4032	0.05 % to 2 %
		Potassium Oxide (K ₂ O)	IS 4032	0.05 % to 2 %
2.	Admixture	Chloride (Cl)	IS 4032	0.005 % to 2 %
		Dry Material Content	IS 9103	5 % to 50 %
		Ash Content	IS 9103	2 % to 35 %
		Relative Density	IS 9103	1.0 to 1.5
		Chloride Content	IS 6925 Clause. 5	0.001 % to 1 %
3.	Aggregate (Coarse & Fine)	pH	IS 9103	5 to 9
		Sulphate as (SO ₃)	IS 4032	0.005 % to 3 %
		pH	IS 2720 (Part 26)	2 to 12
		Alkali Aggregate Reactivity (Potential Reactivity Of Aggregates) Reduction In Alkalinity Silica Dissolved	IS 2386 (Part 7) Clause. 3	1 millimoles/l to 500 millimoles/l 1 millimoles/l to 500 millimoles/l
		Organic Impurities	IS 2386 (Part 2)	Qualitative
		Water Soluble Chloride	IS 14959 (Part 2)	0.0002 % to 3 %
II.	SOIL & ROCK			

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1.	Soil	pH	IS 2720 (Part 26)	4 to 12
		Electrical Conductivity	IS 14767	1 mS/cm to 200 mS/cm
		Total Soluble Sulphate	IS 2720 (Part 27) Gravimetric Method	0.01 % to 3 %
		Organic Matter	IS 2720 (Part 22)	5.0 % to 50.0 %
		Chloride	BS-1377 (Part 3)	0.005 % to 3 %
III.	WATER			
1.	Construction Water	Volume of 0.02 N NaOH Required to Neutralize 100 MI Sample of Water	IS 3025 (Part 22)	0.1 ml to 100 ml
		Volume Of 0.02N H ₂ SO ₄ Required To Neutralize 100 MI Sample Of Water	IS 3025 (Part 23)	0.1 ml to 100 ml
		Organic	IS 3025 (Part 18)	5 mg/l to 2000 mg/l
		Inorganic	IS 3025 (Part 18)	5 mg/l to 5000 mg/l
		Sulphate (As SO ₃)	IS 3025 (Part 24) Turbidity Method	5 mg/l to 2000 mg/l
		Chloride	IS 3025 (Part 32)	5 mg/l to 5000 mg/l
		Total Suspended Solids	IS 3025 (Part 17)	10 mg/l to 2500 mg/l
		pH Value	IS 3025 (Part 11)	2 to 12

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MECHANICAL TESTING

I.	BUILDING MATERIALS			
1.	Aggregate (Coarse)	Sieve Analysis	IS 2386 (Part 1)	80 mm to 4.75 mm (0 to 100%)
		Bulk Density Loose	IS 2386 (Part 3)	1.2 g/cc to 3 g/cc
		Bulk Density Compacted	IS 2386 (Part 3)	1.2 g/cc to 3 g/cc
		Los Angles Abrasion Value	IS 2386 (Part 4)	10 % to 60 %
		Impact Value	IS 2386 (Part 4)	10 % to 50 %
		Crushing Value	IS 2386 (Part 4)	10 % to 60 %
		Water Absorption	IS 2386 (Part 3)	0.1 % to 10 %
		Specific gravity	IS 2386 (Part 3)	2 to 4
		Flakiness Index	IS 2386 (Part 1)	5 % to 100 %
		Elongation Index	IS 2386 (Part 1)	5 % to 100 %
		10 % Fine Value	IS 2386 (Part 4)	50 kN to 250 kN
		Stripping Value	IS 6241	Qualitative
		Sieve Analysis	IS 2386 (Part 1)	4.75 mm to 150 μ (0 to 100%)
		Bulk Density Loose	IS 2386 (Part 3)	1.2 g/cc to 3 g/cc
2.	Aggregate (Fine)	Bulk Density Compacted	IS 2386 (Part 3)	1.2 g/cc to 3 g/cc
		Water Absorption	IS 2386 (Part 3)	0.1 % to 10 %
		Specific gravity	IS 2386 (Part 3)	2 to 4
3.	Solid & Hollow Blocks	Block Density	IS 2185 (Part 1)	1 000 kg/m ³ to 2200 kg/m ³
		Compressive Strength	IS 2185 (Part 1)	0.5 MPa to 10 MPa
		Water Absorption	IS 2185 (Part 1)	2 % to 20 %
		Dimension (Length, Width, Height)	IS 2185 (Part 1)	50 mm to 600 mm
4.	Bricks	Compressive Strength	IS 3495 (Part 1)	3.5 MPa to 35 MPa

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	(Clay Bricks/ Fly Ash Bricks)	Water Absorption	IS 3495 (Part 2)	1 % to 30 %
		Efflorescence	IS 3495 (Part 3)	Qualitative
		Dimensions	IS 12894/ IS 1077	1200 mm to 5000 mm
5.	Bituminous Mix	Bitumen content	ASTM D 2172	2 % to 15 %
		Bulk Specific Gravity of Bituminous Core (GMB)	ASTM D 2726	2.000 g/cc to 3.000 g/cc
6.	Concrete	Compressive Strength	IS 516	10 N/mm ² to 80 N/mm ²
7.	Cement	Fineness Test (Dry)	IS4031 (Part I)	1 % to 30 %
		Consistency	IS 4031 (Part 4)	20 % to 40 %
		Setting Time (Initial & Final)	IS 4031 (Part 5)	05 mins to 300 mins & 60 mins to 700 mins
		Soundness (Le-Chatelier Method)	IS 4031 (Part 3)	0.1 mm to 10 mm
		Compressive Strength	IS 4031 (Part 6)	8 N/mm ² to 80 N/mm ²
		Soundness (Autoclave)	IS 4031 (Part 3)	0.01 % to 2%
		Fineness (By Blain Air) (only OPC)	IS 4031 (Part 2)	200 m ² /kg to 500 m ² /kg
II.	SOIL & ROCK			
1.	Soil	Specific Gravity	IS 2720 (Part 3)	2 to 3.5
		Dry Sieve Analysis	IS 2720 (Part 4) Cl. 3	75 μ to 4.75 mm (0 to 100%)
		Wet Sieve Analysis	IS 2720 (Part 4) Cl. 4	75 μ to 10 mm (0 to 100%)
		Liquid Limit	IS 2720 (Part 5)	20 % to 80 %
		Plastic Limit	IS 2720 (Part 5)	15 % to 50 %
		Water Content	IS 2720 (Part 2)	0.5 % to 80 %
		Light compaction	IS 2720 (Part 7)	Moisture Content 1 to 1.25% Density 1.2 g/cc to 2.5 g/cc
		Heavy compaction	IS 2720 (Part 8)	Moisture Content 1 % to 20 %

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				Density 1.2 g/cc to 3 g/cc
		Free Swell Index	IS 2720 (Part 40)	0 % to 400 % Max.
		California Bearing Ratio (CBR)	IS 2720 (Part 16)	1 % to 100 %

NON-DESTRUCTIVE TESTING

Amit Kumar
Convenor

Anuja Anand
Program Manager

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I.	BUILDING MATERIALS-REINFORCED CONCRETE STRUCTURES			
1.	Reinforced Concrete Structure	Rebound Hammer	IS 13311 (Part 2)	20 RN to 80 RN
		Half Cell Potential Difference	ASTM C-876	(-) 10 mV to (-) 600 mV
		Carbonation Depth	BS EN 14630	Upto 75 mm