

Laboratory

Mukesh A. Patel Technical Consultancy & Civil Engineering
Laboratory, E/1, L/23 & L/27, Darshan Complex, Ranna Park,
Ghatlodia, Ahmedabad, Gujarat

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7069 (in lieu of T-1079)

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Validity 31.03.2018 to 30.03.2020

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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MECHANICAL TESTING

I. BUILDING MATERIALS				
1.	Fine Aggregates	Sieve analysis	IS 2386 (Part 1)	0.1 % to 100.0 % (0.075 mm to 4.75 mm)
		Finer than 75 micron	IS 2386 (Part 1)	1 % to 100 %
		Specific gravity	IS 2386 (Part 3)	1.50 to 4.0
		Water absorption	IS 2386 (Part 3)	0.01 % to 10.0%
		2.	Coarse Aggregates	Sieve analysis
Finer than 75 micron	IS 2386 (Part 1)			1 % to 100 %
Flakiness index	IS 2386 (Part 1)			1 % to 70 %
Elongation index	IS 2386 (Part 1)			1 % to 70 %
Specific gravity	IS 2386 (Part 3)			1.50 to 4.0
Water absorption	IS 2386 (Part 3)			0.01 % to 10.0 %
Aggregates crushing value	IS 2386 (Part 4)			1 % to 20 %
Aggregate impact value	IS 2386 (Part 4)			1 % to 50 %
Los Angeles abrasion	IS 2386 (Part 4)			1 % to 50 %
10% Fines Value	IS 2386 (Part 4)			1 Ton to 20 Ton
3.	Burnt clay building bricks			Compressive strength
		Water absorption	IS 3495 (Part 2)	1 % to 50 %
		Efflorescence	IS 3495 (Part 3)	Qualitative
		Dimension	IS 1077	
4.	Concrete	Length		3800 mm to 5800 mm
		Width		1800 mm to 2200 mm
		Height		1200 mm to 1600 mm
4.	Concrete	Compressive strength	IS 516	5 N/mm ² to 75 N/mm ²
		Workability (Slump)	IS 1199	1 mm to 300 mm
		Flexural Strength	IS 516	1 N/mm ² to 20 N/mm ²

Nikhil Kumar
Convenor

N. Venkateswaran
Program Director

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5.	Bitumen	Penetration Value	IS 1203	1 to 400 (1/10 th mm)
		Ductility	IS 1208	10 cm to 100 cm
		Softening point	IS 1205	1°C to 100 °C
		Specific gravity	IS 1202	0.5 to 1.5
		Absolute Viscosity	IS 1206	1200 poises to 24000 poises
6.	Bituminous Mix	Kinematic Viscosity @ 135°C	IS 1206	60 cSt to 1000 cSt
		Loss on heating	IS 1212	0.1% to 100.0 %
		Marshall Stability	ASTM D 6927	6 kN to 50 kN
		Marshall Flow	ASTM D 6927	0.01 mm to 25 mm
		Bitumen content	ASTM D 2172	0.1 % to 10.0 %
7.	Cement	Consistency	IS 4031 (Part 4)	20 % to 40 %
		Initial Setting time	IS 4031 (Part 5)	5 min to 300 min
		Final Setting time	IS 4031 (Part 5)	5 min to 600 min
		Compressive Strength	IS 4031 (Part 6)	1 N/mm ² to 85 N/mm ²
		Soundness by Le-chatelier	IS 4031 (Part 3), Cl. no. 5	0.01 mm to 10 mm
		Fineness by Blaine air permeability	IS 4031 (Part 2)	150 m ² /kg to 600 m ² /kg
II.	SOIL AND ROCK			
1.	Stone	Apparent Specific gravity	IS 1124	2.20 to 3.15
		Water absorption	IS 1124	0.01 % to 10.0 %
		True specific gravity	IS 1122	2.20 to 3.15
		Unconfined Compressive Strength	IS 9143	1 N/mm ² to 1000 N/mm ²
2.	Soil	Light Compaction MDD	IS 2720 (Part 7)	1.40 g/cc to 2.50 g/cc
		Light Compaction OMC	IS 2720 (Part 7)	0.1 % to 30.0 %
		Heavy Compaction MDD	IS 2720 (Part 8)	1.40 g/cc to 2.50 g/cc
		Heavy Compaction OMC	IS 2720 (Part 8)	0.1 % to 30.0 %
		Free Swell Index	IS 2720 (Part 40)	0.1 % to 100 %
		Consolidation test	IS 2720 (Part 15)	0.1 kg/cm ² to 8.0 kg/cm ²

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		California Bearing Ratio	IS 2720 (Part 16)	0.1 % to 50 %
		Direct shear	IS 2720 (Part 13)	C : Upto 2.0 kg/cm ² Φ : 0° to 45° (For soil up to 4.75 mm)
		Liquid limit	IS 2720 (Part 5)	0.1 % to 300 %
		Plastic limit	IS 2720 (Part 5)	0.1 % to 300 %
		Particle size Distribution	IS 2720 (Part 4)	75 micron to 125 mm
		Permeability	IS 2720 (Part 17)	10 ¹ cm/sec to 10 ⁻⁷ cm/sec
		Unconfined Compression Strength	IS 2720 (Part 10)	0.2 kg/cm ² to 4 kg/cm ²
		Swelling Pressure	IS 2720 (Part 41)	0.01 kg/cm ² to 3.0 kg/cm ²
		Specific gravity	IS 2720 (Part 3)	2.20 to 2.80
		Moisture Content	IS 2720 (Part 2)	1 % to 50 %
		Shrinkage Limit	IS 2720 (Part 6)	5 % to 20 %

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MECHANICAL TESTING

<u>AT SITE</u>				
I.	SOIL AND ROCK			
1.	Soil	Field Density by Core cutter method	IS 2720 (Part 29)	1.0 g/cc to 3.00 g/cc
		Field Density by Sand Replacement	IS 2720 (Part 28)	1.0 g/cc to 3.00 g/cc
		Standard Penetration	IS 2131	1 blow to 300 blow
		Field Moisture Content	IS 2720 (Part 2)	1 % to 50 %