

Laboratory **Parmar Testing Lab and Research Centre, Mothorowala Pargana, Dehradun, Uttarakhand**

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

Certificate Number **TC-7869**

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Validity **26.09.2018 to 25.09.2020**

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.	BUILDING MATERIALS			
1.	Chemical Admixture	Dry Material Content	IS 9103	10 % to 70 %
		Ash content	IS 9103	1.0 % to 20 %
		Relative Density	IS 9103	1.000 % to 1.500 %
		Chloride Content	IS 6925	0.001 % to 15 %
		pH	IS 9103	2 to 12
2.	Fly Ash	Loss on Ignition	IS 1727	0.10 % to 30 %
		Silica content (SiO ₂)	IS 1727	25 % to 70 %
		Mixed Oxides Fe ₂ O ₃ +Al ₂ O ₃	IS 1727	10 % to 50 %
		Lime as CaO	IS 1727	0.1 % to 40 %
		Sulphuric Anhydride (SO ₃)	IS 1727	0.1 % to 5 %
		Magnesia (MgO)	IS 1727	0.10 % to 10 %
3.	Cement (OPC/PPC)	Silica (SiO ₂)	IS 4032	10 % to 40 %
		Loss of Ignition	IS 4032	0.1 % to 10 %
		Insoluble residue	IS 4032	0.1 % to 50 %
		Total Sulphur (as SO ₃)	IS 4032	0.1 % to 5 %
		Calcium Oxide (as CaO)	IS 4032	1 % to 70 %
		Magnesia (as MgO)	IS 4032	0.1 % to 10 %
		Alumina (as Al ₂ O ₃)	IS 4032	1.0 % to 15 %
		Iron Oxide (as Fe ₂ O ₃)	IS 4032	1 % to 15 %
		Chloride (as Cl)	IS 4032	0.005 % to 1 %

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MECHANICAL TESTING

I.	BUILDING MATERIAL			
1.	Aggregate (Fine)	Sieve Analysis	IS 2386 (Part 1)	75 microns to 10 mm
		Water absorption	IS 2386 (Part 3)	0.1 % to 10 %
		Specific Gravity	IS 2386 (Part 3)	2 to 4
		Bulk Density	IS 2386 (Part 3)	1.2 kg/L to 2.5 kg/L
2.	Aggregate (Coarse)	Sieve Analysis	IS 2386 (Part 1)	4.75 mm to 80 mm
		Specific Gravity	IS 2386 (Part 3)	1.5 to 3.0
		Water Absorption	IS 2386 (Part 3)	0.2 % to 5.0 %
		Bulk Density	IS 2386 (Part 3)	1.0 kg/L to 2.0 kg/L
		Elongation Index	IS 2386 (Part 1)	7 % to 50 %
		Flakiness Index	IS 2386 (Part 1)	7 % to 50 %
		Crushing value	IS 2386 (Part 4)	5 % to 50 %
		Impact value	IS 2386 (Part 4)	7 % to 50 %
		10% Fines Value	IS 2386 (Part 4)	10 tons to 40 tons
3.	Hardened Concrete	Loss Angels Abrasion Test	IS 2386 (Part 4)	10 % to 50 %
		Compressive Strength	IS 516	10 N/mm ² to 88 N/mm ²
4.	Burnt Clay Bricks/ Fly Ash Bricks	Compressive Strength	IS 3495 (Part 1)	3.5 N/mm ² to 30 N/mm ²
		Water Absorption	IS 3495 (Part 2)	1 % to 35 %
		Efflorescence	IS 3495 (Part 3)	Qualitative
		Dimension	IS 1077	1300 mm to 5000 mm
5.	Concrete Paving Blocks	Compressive Strength	IS 15658	10 N/mm ² to 70 N/mm ²
		Water Absorption	IS 15658	2 % to 10 %
		Thickness of wearing layer	IS 15658	2 mm to 15 mm
		Length	IS 15658	100 mm to 400 mm
		Width	IS 15658	100 mm to 400 mm
		Thickness	IS 15658	20 mm to 100 mm
6.	Fly Ash	Density	IS 1727	1 g/cc to 3.5 g/cc

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		Fineness by air permeability apparatus	IS 1727	100 sqm/kg to 700 sqm/kg
		Compressive strength	IS 1727	5 N/mm ² to 80 N/mm ²
		Specific gravity	IS 1727	1 g/cc to 3 g/cc
		Retained on 45µm	IS 1727	1 % to 50 %
7.	Cement (OPC/PPC)	Normal Consistency	IS 4031 (Part 4)	20 % to 40 %
		Setting Time Initial	IS 4031 (Part 5)	5 minutes to 300 minutes
		Setting Time Final	IS 4031 (Part 5)	100 minutes to 600 minutes
		Fineness by Blain's air permeability	IS 4031 (Part 2)	150 sqm/kg to 700 sqm/kg
		Soundness By Le Chatelier Method	IS 4031 (Part 3)	0.1 mm to 10 mm
		Compressive Strength	IS 4031 (Part 6)	10 N/mm ² to 80 N/mm ²
		Density	IS 4031 (Part 11)	2.5 g/cc to 3.3 g/cc
8.	Bitumen	Penetration	IS 1203	30 mm to 100 mm 1/10 th mm
		Softening point	IS 1205	5°C to 100 °C
		Flash & Fire Point	IS 1209	30°C to 350 °C
		Ductility	IS 1208	2 cm to 100 cm
		Binder content	IS 1195	1 % to 15 %
		Marshal stability	ASTMD 1559	5 kN to 15 kN
		Flow value	ASTMD 1559	1 mm to 10 mm
II.	SOIL & ROCK			
1.	Soil/Granular Sub Base/ Wet Mix Macadam	Sieve Analysis	IS 2720 (Part 4)	5 % to 100 %
		Heavy Compaction	IS 2720 (Part 8)	MDD 1 g/cc to 3 g/cc OMC 1 % to 20 %
		Liquid limit (Casagrande Method)	IS 2720 (Part 5)	1 % to 30 %
		Plastic Limit	IS 2720 (Part 5)	0.1 % to 30 %

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		California Bearing Ratio (CBR)	IS 2720 (Part 16)	1 % to 90 %
		Moisture Content	IS 2720 (Part 2)	1 % to 20 %
		Free swell index	IS 2720 (Part 40)	1 % to 300 %
		Specific Gravity	IS 2720 (Part 3)	2.0 to 2.90
III.	MECHANICAL PROPERTIES OF METALS			
1.	Reinforcement Steel	Ultimate Tensile Strength	IS 1608	100 N/mm ² to 700 N/mm ²
		Yield Stress	IS 1608	100 N/mm ² to 700 N/mm ²
		Elongation %	IS 1608	5 % to 50 %
		Mass per meter	IS 1786	0.01 kg/m to 20 kg/m
		Bend Test	IS 1786 IS 1608	Qualitative (Mandrel Diameter: 16 mm, 22 mm)
		Re-Bend test	IS 1786 IS 1608	Qualitative (Mandrel Diameter: 16 mm, 22 mm)