

Laboratory Spectro Testing Private Limited, 6-B, 2nd Rotary EPIP, Bari Brahmana, Jammu, Jammu & Kashmir

Accreditation Standard ISO/IEC 17025: 2005

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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. METAL & ALLOYS				
1.	Steel & Steel Alloys (Plain, Medium & High Carbon Steel)	Carbon	IS 228 (Part 1) 1987 (RA 2018)	0.05% to 2.0%
		Silicon	IS 228 (Part 8) 1989 (RA 2014)	0.05% to 0.5%
		Manganese	IS 228 (Part 2) 1987 (RA 2018)	0.10% to 15.0%
		Sulphur	IS 228 (Part 9):1989 (RA 2014)	0.01 %to 0.20%
		Phosphorous	IS 228 (Part 3) 1987 (RA 2018)	0.005% to 0.12%
II. BUILDING MATERIAL				
1.	Cement (OPC, PPC &PSC)	Loss on Ignition (LOI)	IS 4032-1985 (RA 2014) (Clause 4.2)	0.1 %to 20.0 %
		Silica (SiO ₂)	IS 4032-1985 (RA 2014) (Clause 4.3)	16.0% to 40.0 %
		Alumina (Al ₂ O ₃)	IS 4032-1985 (RA 2014) (Clause 4.6.1)	3.0 %to 12.0 %
		Iron Oxide (Fe ₂ O ₃)	IS 4032-1985 (RA 2014) (Clause 4.5.1)	0.2 %to 10.0 %
		Sulphuric Anhydride (SO ₃)	IS 4032-1985 (RA 2014) (Clause 4.9)	0.2% to 5.0 %
		Chlorides (Cl)	IS 4032-1985 (RA 2014) (Ammd. 2)	0.01%to 0.5 %
		Lime (CaO)	IS 4032-1985 (RA 2014) (Clause 4.7.1)	30.0% to 70.0 %
		Magnesia (MgO)	IS 4032-1985 (RA 2014) (Clause 4.8.1)	0.1 %to 10.0 %
		Insoluble Residue (IR)	IS 4032-1985 (RA 2014) (Clause 4.10)	0.2% to 40.0 %

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2.	Concrete	Chlorides	IS 14959 (Part 2):2001 (RA 2016)	0.01% to 1.0 %
		Sulphates	BS 1881 (Part 124):2015	0.01% to 1.0 %
3.	Admixture	Dry Material Content	IS 9103-1999 (RA 2013)	1.0 %to 60.0 %
		Chlorides	IS 6925-1973 (RA 2013)	0.01% to 1.0 %
		Ash Content	IS 9103-1999 (RA 2013)	0.1% to 20.0 %
		pH	IS 9103-1999 (RA 2013)	4 to 13
		Relative Density	IS 9103-1999 (RA 2013)	1 to 2
4.	Aggregates	i) Chlorides	IS 4032:1985 (RA 2014)	0.01% to 1.0 %
		ii) Sulphates	IS 4032:1985 (RA 2014)	0.01 %to 1.0 %

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<u>MECHANICAL TESTING</u>				
I	BUILDING MATERIALS			
1.	Aggregate - Coarse	Sieve Analysis	IS 2386 (Part 1): 1963 RA 2016	0.1 % to 100 % (80 mm to 4.75 mm)
		Flakiness Index	IS 2386 (Part 1): 1963 RA 2016	1 % to 50 %
		Elongation Index	IS 2386 (Part 1): 1963 RA 2016	1% to 50 %
		Materials Finer than 75 micron	IS 2386 (Part 1): 1963 RA 2016	0.1% to 10 %
		Clay Lumps	IS 2386 (Part 2): 1963 RA 2016	0.01% to 10%
		Light Weight Pieces (Coal & Lignite)	IS 2386 (Part 2): 1963 RA 2016	0.01% to 10%
		Specific Gravity	IS 2386 (Part 3): 1963 RA 2016	1.5 to 3.5
		Water Absorption	IS 2386 (Part 3): 1963 RA 2016	0.1% to 10 %
		Bulk Density	IS 2386 (Part 3): 1963 RA 2016	1 kg/L to 2 kg/L
		Crushing Value	IS 2386 (Part 4): 1963 RA 2016	10 % to 50 %
		10 percent Fines Value	IS 2386 (Part 4): 1963 RA 2016	1 Ton to 50 Ton
		Impact Value	IS 2386 (Part 4): 1963 RA 2016	5 % to 50 %
		Abrasion Value - Los Angeles	IS 2386 (Part 4): 1963 RA 2016	0.1% to 50 %
		Soundness- Na ₂ SO ₄	IS 2386 (Part 5): 1963 RA 2016	0.1% to 20%
2.	Aggregate - Fine	Sieve Analysis	IS 2386 (Part 1): 1963 RA 2016	0.1% to 100 % (4.75 mm to 75μ)

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		Material Finer than 75 Micron	IS 2386 (Part 1): 1963 RA 2016	0.1% to 10 %
		Clay Lumps	IS 2386 (Part 2): 1963 RA 2016	0.01% to 10%
		Light Weight Pieces (Coal & Lignite)	IS 2386 (Part 2): 1963 RA 2016	0.01% to 10%
		Organic Impurities	IS 2386 (Part 2): 1963 RA 2016	Qualitative
		Specific Gravity	IS 2386 (Part 3): 1963 RA 2016	1.5 to 3.5
		Water Absorption	IS 2386 (Part 3): 1963 RA 2016	0.1% to 10 %
		Bulk Density	IS 2386 (Part 3): 1963 RA 2016	1 kg/L to 2 kg/L
		Soundness- Na ₂ SO ₄	IS 2386 (Part 5): 1963 RA 2016	0.1% to 20%
3.	Bricks (Burnt Clay / Fly Ash)	Dimensions - Burnt Clay Bricks	IS 1077:1992 RA 2016	L 2000 to 4800mm W 1000 to 2000mm T 600 to 2000mm
		Dimensions - Fly Ash Bricks	IS 12894 : 2002 RA 2017	L 3600 to 4800 mm W 1600 to 2400 mm H 500 to 1900 mm
		Compressive Strength	IS 3495 (Part 1):1992 RA 2016	2 N/mm ² to 40 N/mm ²
		Water Absorption	IS 3495 (Part 2): 1992 RA 2016	1% to 30 %
		Efflorescence	IS 3495 (Part 3): 1992 RA 2016	Qualitative
4.	Cement Concrete Flooring Tiles	Dimensions	IS: 1237 - 2012 RA 2017	L 100 mm to 600 mm W 100 mm to 600 mm T 10 mm to 50 mm
		Flatness	IS 1237 - 2012 RA 2017, Annex B	0.01 mm to 10mm
		Perpendicularity	IS 1237 - 2012 RA 2017, Annex C	0.01 mm to 5mm

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		Straightness	IS 1237 - 2012 RA 2017, Annex D	0.01% to 5%
		Water Absorption	IS 1237 - 2012 RA 2017, Annex E	0.01% to 20%
		Wet Transverse Strength	IS 1237 - 2012 RA 2017, Annex F	0.5 N/mm ² to 15 N/mm ²
5.	Ceramic Tiles	Resistance to House hold Chemicals	IS 13630 (Part 7) : 2006 RA 2017	Qualitative
		Resistance to Pool Salts	IS 13630 (Part 7) : 2006 RA 2017	Qualitative
		Resistance to Acid	IS 13630 (Part 7) : 2006 RA 2017	Qualitative
		Resistance to Alkalis	IS 13630 (Part 7) : 2006 RA 2017	Qualitative
6.	Chequered / Terrazzo Cement Concrete Tiles	Dimensions	IS 13801: 2013	L 100 mm to 600 mm W 100 mm to 600 mm T 10 mm to 50 mm
		Flatness	IS 13801: 2013 Annex B	0.01 mm to 10mm
		Perpendicularity	IS 13801: 2013 Annex C	0.01 mm to 5mm
		Straightness	IS 13801: 2013 Annex D	0.01% to 5%
		Water Absorption	IS 13801: 2013 Annex E	0.01 %to 20%
		Wet Transverse Strength	IS 13801: 2013 Annex F	0.5 N/mm ² to 15 N/mm ²
7.	Precast Concrete Paving Block	Dimensions	IS 15658: 2006 RA 2017, Annex B	L 100 mm to 400 mm W 100 mm to 400 mm T 40 mm to 150 mm
		Water Absorption	IS 15658: 2006 RA 2017, Annex C	0.01% to 10%
		Compressive Strength	IS 15658: 2006 RA 2017, Annex D	10 N/mm ² to 150 N/mm ²

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8.	Cement (OPC / PPC/ PSC)	Fineness by Dry Sieving	IS 4031 (Part 2):1999 RA 2016	0.05 % to 10 %
		Fineness by Blaine's Air Permeability	IS 4031 (Part 2): 1999 RA 2014	100 m ² /kg to 600 m ² /kg
		Soundness by Le-Chatelier Method	IS 4031 (Part 3):1988 RA 2014	0.5 mm to 5 mm
		Soundness by Autoclave Method	IS 4031 (Part 3):1988 RA 2014	0.01% to 2.0 %
		Standard Consistency	IS 4031 (Part 4):1988 RA 2014	10% to 50 %
		Initial Setting Time	IS 4031 (Part 5):1988 RA 2014	30 Minutes to 300 Minutes
		Final Setting Time	IS 4031 (Part 5):1988 RA 2014	60 Minutes to 600 minutes
		Compressive Strength	IS 4031 (Part 6):1988 RA 2014	10 N/mm ² to 80 N/mm ²
	Density	IS 4031 (Part 11):1988 RA 2014	1.5 g/cc to 3.5 g/cc	
9.	Concrete	Compressive Strength - Cube	IS 516:1959 RA 2013	10 N/mm ² to 80 N/mm ²
10.	Admixture	Water content	IS 9103 : 1999 RA 2004, Cl. 7.2.5	50 % to 90 %
		Slump (Fresh Concrete)	IS 1199:1959 RA 2013	10 mm to 200 mm
		Initial Setting time	IS 8142 : 1976 RA 2016	2 h to 10 h
		Final Setting time	IS 8142 : 1976 RA 2016	4 h to 20 h
		Compressive Strength	IS 516:1959 RA 2013	5 N/mm ² to 50 N/mm ²
		Flexural Strength	IS 516:1959 RA 2013	1 N/mm ² to 20 N/mm ²
		Bleeding Test	IS 9103 : 1999 RA 2004, Annex D	0.1 % to 10 %

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		Length Change	IS 1199:1959 RA 2013	0.001 %to 1 %
II.	SOIL & ROCK			
1.	Soil	Grain Size Analysis by Dry Sieving	IS 2720 (Part-4):1985 RA 2015	0.1% to 100 %
		Liquid Limit	IS 2720 (Part-5):1985 RA 2015	10 %to 80%
		Plastic Limit	IS 2720 (Part-5):1985 RA 2015	5% to 30%
		Light Compaction	IS 2720 (Part-7): 1980 RA 2016	1 g/cc to 4 g/cc, 0.1 % to 20%
		Heavy Compaction	IS 2720 (Part-8):1983 RA 2015	1 g/cc to 4 g/cc, 0.1% to 20%
		Triaxial Compression	IS 2720 (Part-11): 1993 RA 2016	C: 0.1 kg/cm ² to 3.0 kg/cm ² Φ: 5° to 30°
		Direct Shear (undrained)	IS 2720 (Part-13): 1986 RA 2016	C: 0 to 2.0 kg/cm ² Φ: 5° to 50°
		California Bearing Ratio	IS 2720 (Part-16):1987 RA 2016	up to 100 %
III.	MECHANICAL PROPERTIES OF METALS			
1.	Metals (Ferrous & Non-Ferrous)	Tensile Test (At Room Temperature)		
		Ultimate Tensile Strength Yield Stress Elongation after Fracture	IS 1608 (Part 1): 2018	100 N/mm ² to 700 N/mm ² 100 N/mm ² to 700 N/mm ² 10%-60%
		Bend Test	IS 1786: 2008 (RA 2013) & IS 1599: 2012	Qualitative Mandrel Size- 10, 12, 14, 16, 18, 20, 24, 25, 30, 32, 36, 40, 48, 50,

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				55, 60, 64, 70, 75, 80, 100, 110, 125, 130, 140, 150 mm
		Vickers Hardness Number (HV 5)	IS 1501 (Part 1): 2013	80 to 900
		Vickers Hardness Number (HV 10)	IS 1501 (Part 1): 2013	80 to 900
		Vickers Hardness Number (HV 30)	IS 1501 (Part 1): 2013	80 to 900
2.	Metals (Ferrous & Reinforcement Steel bars)	Rebend Test	IS 1786: 2008 (RA 2013)	Qualitative Mandrel Size- 10, 12, 14, 16, 18, 20, 24, 25, 30, 32, 36, 40, 48, 50, 55, 60, 64, 70, 75, 80, 100, 110, 125, 130, 140, 150 mm
		Mass per meter	IS 1786: 2008 (RA 2013)	0.1 kg/m to 15 kg/m