

<b>Laboratory</b>	<b>Spectro Testing &amp; Research Center (P) Ltd., H-1143, Sitapura Industrial Area, Phase- III, Tonk Road, Jaipur, Rajasthan</b>		
<b>Accreditation Standard</b>	<b>ISO/IEC 17025: 2005</b>		
<b>Discipline</b>	<b>Mechanical Testing</b>	<b>Issue Date</b>	<b>04.07.2014</b>
<b>Certificate Number</b>	<b>T-3033</b>	<b>Valid Until</b>	<b>03.07.2016</b>
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<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
<b>I.</b>	<b>BUILDING MATERIALS</b>			
<b>1.</b>	<b>Cement</b>	Consistency	IS: 4031 (Part-4) 1988 (RA 2009)	10 % to 40%
		Setting Time	IS: 4031 (Part-5) 1988 (RA 2009)	
		Initial		(30 to 200) Minutes
		Final		(100 to 600) Minutes
		Compressive Strength	IS: 4031 (Part-6) 1988 (RA 2009)	10 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Fineness Blaine	IS: 4031 (Part-2) 1999 (RA 2008)	150 m <sup>2</sup> /kg to 600 m <sup>2</sup> /kg
		Soundness (Le-chatelier)	IS: 4031 (Part-3) 1988 (RA 2009)	0.01 mm to 10 mm
		Soundness (Autoclave)	IS: 4031 (Part-3) 1988 (RA 2009)	0.01% to 2%
		Density	IS: 4031 (Part-11) 1988 (RA 2009)	(1.5 to 3.5) g/cc
		Fineness by dry sieving	IS: 4031 (Part-1) 1996 (RA 2005)	0.05% to 20%
<b>2.</b>	<b>Coarse &amp; Fine Aggregates</b>	Particle size	IS: 2386 (Part-1) 1963 (RA 2007)	0.075 mm to 125 mm
		Crushing Value	IS: 2386 (Part-4) 1963 (RA 2007)	10% to 50%
		Impact Value	IS: 2386 (Part-4) 1963 (RA 2007)	10% to 50%
		Flakiness Index	IS: 2386 (Part-1) 1963 (RA 2007)	1% to 50%

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<b>S.No.</b>	<b>Product / Material of Test</b>	<b>Specific Test Performed</b>	<b>Test Method Specification against which tests are performed</b>	<b>Range of Testing / Limits of Detection</b>
	<b>Coarse &amp; Fine Aggregates</b>	Elongation Index	IS: 2386 (Part-1) 1963 (RA 2007)	1% to 50%
		10% Fine Value	IS: 2386 (Part-4) 1963 (RA 2007)	1 Ton to 50 Ton
		Water Absorption	IS: 2386 (Part-3) 1963 (RA 2007)	0.1% to 10%
		Specific Gravity	IS: 2386 (Part-3) 1963 (RA 2007)	1.5 to 3.5
		Bulk Density	IS: 2386 (Part-3) 1963 (RA 2007)	1 kg/l to 2 kg/l
		Material Passing 75 Micron	IS: 2386 (Part-2) 1963 (RA 2007)	0.1% to 10%
		Abrasion Value (Los Angeles)	IS: 2386 (Part-4) 1963 (RA 2007)	0.1% to 50%
<b>3.</b>	<b>Concrete</b>	Compressive Strength	IS: 516-1959 (RA 1999)	10 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
<b>4.</b>	<b>Building Bricks</b>	Compressive Strength	IS: 3495 (Part-1) 1992 (RA 2007)	1 Mpa to 20 Mpa
		Water Absorption	IS: 3495 (Part-2) 1992 (RA 2007)	5% to 30%
		Dimension	IS: 1077-1992	L- (120 to 5000) mm W- (100 to 3000) mm H- (10 to 2000) mm
<b>II.</b>	<b>SOIL &amp; ROCK</b>			
<b>1.</b>	<b>Soil</b>	Light Compaction	IS: 2720 (Part-7) 1980 (RA 2007)	MDD: 1 g/cc to 4 g/cc OMC: 0.1% to 20%
		Heavy Compaction	IS: 2720 (Part-8) 1980 (RA 2007)	MDD: 1 g/cc to 4 g/cc OMC: 0.1% to 20%

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Soil	Liquid Limit	IS: 2720 (Part-5) 1985 (RA 2010)	1% to 50%
		Plastic Limit	IS: 2720 (Part-5) 1985 (RA 2010)	1% to 50%
		CBR Test	IS: 2720 (Part-16) 1987 (RA 2007)	0.05% to 60%
		Grain Size Analysis-Wet Seiving	IS:2 720 (Part-4 ) 1985 (RA 2010)	75 micron to 4.75 mm
		Free Swelling Index	IS: 2720 (Part-40) 2002	5% to 50%
<b>III. MECHANICAL PROPERTIES OF MATERIALS</b>				
1.	<b>Metals (Ferrous &amp; Non Ferrous)</b>	Tensile Test	IS: 1608-2005 (RA 2012) ASME Section IX-2013	1 Mpa to 3500 Mpa
		Tensile strength		
		Yield stress/0.2% proof stress	IS: 1608-2005 (RA 2012) ASME Section IX-2013	1 Mpa to 3500 Mpa
		Elongation	IS: 1608-2005 (RA 2012)	0.2% to 200%
		Rockwell Hardness (B Scale)	IS: 1586 (Part-1) 2012	30 HRB to 99 HRB
2.	<b>Metals (Ferrous)</b>	Bend test	IS: 1599- 2012 ASME Section IX-2013	Qualitative (Mandrel Size - 12, 20, 24, 30, 36, 50, 70, 80, 90, 100 mm)
		Rockwell Hardness (C Scale)	IS: 1586 (Part-1) 2012	20 HRC to 65 HRC

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3.	Metals (Ferrous & Reinforcement Steel bars)	Rebend test	IS: 1786-2008	Qualitative (Mandrel Size- 12, 20, 24, 30, 36, 50, 70, 80, 90, 100 mm)
		Mass per Meter	IS: 1786-2008	1 kg/m to 4 kg/m

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