



# National Accreditation Board for Testing and Calibration Laboratories

(A Constituent Board of Quality Council of India)



## SCOPE OF ACCREDITATION

**Laboratory** Landmark Material Testing and Research Laboratory Pvt. Ltd., G-200, Mansarovar Industrial Area, Jaipur, Rajasthan

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

**Certificate Number** TC-8077 (in lieu of T-3215 & T-4327)

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**Validity** 26.11.2018 to 25.11.2020

Last Amended on 12.04.2019

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.	<b>BUILDING MATERIAL</b>			
1.	<b>Coarse Aggregate/ Ballast</b>	10% Fines Value	IS 2386 (Part IV):1963	5 Tonnes to 70 Tonnes
		Bulk Density	IS 2386 (Part III):1963	1 kg/l to 4 kg/l
		Clay Lumps	IS 2386 (Part II):1963	0.0% to 5.0%
		Crushing Value	IS 2386 (Part IV):1963	5% to 60%
		Elongation Index	IS 2386 (Part I):1963	5% to 70%
		Flakiness Index	IS 2386 (Part I):1963	5% to 70%
		Impact Value	IS 2386 (Part IV):1963	5% to 60%
		Los Angeles Abrasion Value	IS 2386 (Part IV):1963	5% to 70%
		Material Finer Than 75 Micron	IS 2386 (Part I):1963	0.1% to 10%
		Sieve Analysis (Gradation)	IS 2386 (Part I):1963	0.1% to 100%
		Soft Particles	IS 2386 (Part 2):1963	0.0% to 100%
		Soundness	IS 2386 (Part V):1963	0.1% to 25%
		Specific Gravity	IS 2386 (Part III):1963	2 to 4
		Stripping Value	IS 6241:1971	1% to 100%
		Water Absorption	IS 2386 (Part III):1963	0.2% to 20%
2.	<b>Fine Aggregate</b>	Bulk Density	IS 2386 (Part III):1963	1 kg/l to 4 kg/l
		Bulking	IS 2386 (Part III):1963	10% to 35%
		Clay Lumps	IS 2386 (Part II):1963	0.0% to 5.0%
		Clay, Fine Silt & Fine Dust (Sedimentation Method)	IS 2386 (Part II):1963	0.1% to 5%
		Material Finer Than 75 Micron	IS 2386 (Part I):1963	0.1% to 20%
		Sand Equivalent Value	IS 2720 (Part XXXVII): 1976	20% to 100%
		Sieve Analysis (Gradation)	IS 2386 (Part I):1963	0.1% to 100%

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		Soundness	IS 2386 (Part V):1963	0.1% to 25%
		Specific Gravity	IS 2386 (Part III):1963	2 to 4
		Water Absorption	IS 2386 (Part III):1963	0.2 to 20%
2.	Bitumen (Industrial/Paving/ Polymer Modified Bitumen)	Absolute Viscosity at 60 deg. C	ASTM D 4402:2013	100 poise to 8000 poise
		Ductility	IS 1208:1978	0.1 cm to 100 cm
		Elastic Recovery at 15 deg. C	IS 15462:2004	1% to 100%
		Elastic Recovery at 25 deg. C	IS 15462:2004	1% to 100%
		Flash Point	IS 1209:1978	150°C to 350°C
		Increase in Softening Point	IS 1205:1978	1°C to 20°C
		Kinematic Viscosity at 135 deg. C	ASTM D 4402:2013	100 cSt to 1000 cSt
		Loss in Mass	IS 9382:1979	0.01% to 20%
		Loss on Heating	IS 1212:1978	0.01% to 20%
		Penetration of Residue, Percent of Original	IS 1203:1978	5% to 90%
		Penetration Test	IS 1203:1978	1 mm to 100 mm
		Reduction in Penetration of Residue	IS 1203:1978	5% to 50%
		Softening Point	IS 1205:1978	25°C to 200°C
		Solubility in Trichloroethylene	IS 1216:1978	10% to 100%
		Specific Gravity	IS 1202:1978	0.9 to 1.1
		Viscosity Ratio at 60 deg. C	ASTM D 4402:2013	1 to 3
3.	Bitumen Emulsion	Coagulation of Emulsion	IS 8887 (Annexure C): 2018	Qualitative
		Coating Ability & Water Resistance	IS 8887 (Annexure F):2018	Qualitative
		Distillation	IS 1213:1978	10% to 90%
		Ductility on Residue	IS 1208:1978	5 cm to 100 cm
		Miscibility with Water	IS 8887 (Annexure H): 2018	Qualitative
		Particle Charge	IS 8887 (Annexure E):2018	Qualitative

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		Penetration on Residue	IS 1203:1978	40 mm to 250 mm
		Residue by Evaporation	IS 8887 (Annexure J):2018	40% to 70%
		Residue on 600 micron IS Sieve	IS 8887 (Annexure B):2018	0.01% to 10%
		Solubility in Trichloroethylene on Residue	IS 1216:1978	90% to 100%
		Stability with Mixing of Cement	IS 8887 (Annexure G): 2018	0.01% to 5%
		Storage Stability	IS 8887 (Annexure D): 2018	0.1% to 5.0%
		Viscosity by Saybolt Furol Viscometer at 25 deg. C	IS 3117:2004	10 Second to 250 Second
		Viscosity by Saybolt Furol Viscometer at 50 deg. C	IS 3117:2004	10 Second to 400 Second
		Water Content	IS 1211:1978	5% to 30%
4.	Bitumen Mastic Asphalt	Hardness Number	IS 1195 (Annexure E):2002	5 to 80
5.	Bituminous Mix/Core	Bitumen Content	IRC SP 112:2017	1% to 7%
		Density	ASTM D 2726:2000	2.00 g/cc to 2.70 g/cc
		Marshall Stability	ASTM D 6927:2015	40 kg to 3000 kg
		Maximum Theoretical Specific Gravity ( $G_{mm}$ )	ASTM D 2041:2000	2.00 to 2.90
		Tensile Strength Ratio	IRC SP 79 (Annexure E): 2008	50% to 98%
6.	GI Pipe	Nominal Mass	IS 1239 (Part 1):2004	0.35 kg/m to 10.0 kg/m
		Outside Diameter	IS 1239 (Part 1):2004	9.5 mm to 167 mm
		Thickness	IS 1239 (Part 1):2004	2.0 mm to 5.0 mm
7.	Thermoplastics Pipes & Fittings (PVC/UPVC Pipes)	Density	IS 12235 (part 14):2004	1.35 g/cc to 1.50 g/cc
		Mean Outside Diameter	IS 12235 (part 1):2004	40 mm to 316 mm
		Outside Diameter at Any Point	IS 12235 (part 1):2004	39 mm to 320 mm
		Resistance to Internal Hydrostatic Pressure	IS 12235 (part 8):2004	Qualitative
		Wall Thickness	IS 12235 (part 1):2004	1.5 mm to 9.0 mm

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8.	<b>Autoclaved Cellular (Aerated) Concrete Products</b>	Bulk Density	IS 6441 (Part I):1972	0.45 g/cm <sup>3</sup> to 1 gm/cm <sup>3</sup>
		Compressive Strength	IS 6441 (Part V):1972	1 N/mm <sup>2</sup> to 10 N/mm <sup>2</sup>
		Dimensions	IS 6441 (Part III):1972	100 mm to 610 mm
		Moisture Content	IS 6441 (Part I):1972	0.1% to 15%
9.	<b>Bricks/Heavy Duty Burnt Clay Building Bricks/ Pulverized Fuel Ash-Lime Bricks</b>	Bulk Density (Heavy Duty)	IS 2180:1988	0.1 g/cm <sup>3</sup> to 5 gm/cm <sup>3</sup>
		Compressive Strength	IS 3495 (Part I):1992	2 N/mm <sup>2</sup> to 25 N/mm <sup>2</sup>
		Dimensions (Common Burnt Clay Building Bricks)	IS 1077:1992	20 mm to 5000 mm
		Dimensions (Heavy Duty)	IS 2180:1988	30 mm to 310 mm
		Dimensions (Pulverized Fuel Ash-Lime Bricks)	IS 12894:2002	20 mm to 5000 mm
		Efflorescence	IS 3495 (Part III):1992	Qualitative
		Water Absorption	IS 3495 (Part II):1992	0.1% to 30%
10.	<b>Hollow &amp; Solid Concrete Block</b>	Block Density	IS 2185 (Part I) Annexure C:2005	1000 kg/m <sup>3</sup> to 3000 kg/m <sup>3</sup>
		Compressive Strength	IS 2185 (Part I) Annexure D:2005	2 N/mm <sup>2</sup> to 50 N/mm <sup>2</sup>
		Dimensions	IS 2185 (Part I) Annexure E:2005	50 mm to 600 mm
		Water Absorption	IS 2185 (Part I) Annexure E:2005	0.1% to 20%
11.	<b>Paver Block</b>	Abrasion Resistance	IS 15658 (Annexure E): 2006	0.2 mm to 8 mm
		Compressive Strength	IS 15658 (Annexure D): 2006	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Deviation from Squareness	IS 15658 (Annexure B): 2006	0.05mm to 3 mm
		Dimensions	IS 15658 (Annexure B): 2006	50 mm to 300 mm
		Thickness of Wearing Layer	IS 15658 : 2006	0.0 mm to 10 mm
		Visual Inspection	IS 15658 : 2006	Qualitative
		Water Absorption	IS 15658 (Annexure C): 2006	1% to 15%

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12.	Cement	Compressive Strength	IS 4031 (Part 6):1988	10 N/mm <sup>2</sup> to 70 N/mm <sup>2</sup>
		Consistency	IS 4031 (Part 4):1988	10% to 35%
		Density	IS 4031 (Part 11):1988	2 g/cc to 4 g/cc
		Fineness Test (Dry)	IS 4031 (Part 1):1996	1% to 30%
		Fineness Test by Blaine Air Permeability Method	IS 4031 (Part 2):1999	100m <sup>2</sup> /kg to 500m <sup>2</sup> /kg
		Initial Setting Time/Final Setting Time	IS 4031 (Part 5):1988	10 Mintue to 800 Minute
		Soundness by Autoclave	IS 4031 (Part 3):1988	0.01% to 2%
		Soundness by Le-Chatelier Method	IS 4031 (Part 3):1988	0.1 mm to 10 mm
13.	Concrete	Compressive Strength (Core)	IS 516:1959	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Compressive Strength (Cube)	IS 516:1959	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Compressive Strength of Accelerated-Cured Concrete	IS 9103:1978	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup>
		Flexural Strength	IS 516:1959	1 N/mm <sup>2</sup> to 10 N/mm <sup>2</sup>
		Workability by Compacting Factor	IS 1199:1959	0.75 to 1
		Workability by Slump Test	IS 1199:1959	0.0 mm to 250 mm
14.	Flyash	Fineness Test by Blaine Air Permeability Method	IS 1727:1967	100 m <sup>2</sup> /kg to 800m <sup>2</sup> /kg
		Residue on 45 Micron	IS 1727:1967	5% to 50%
		Soundness by Autoclave	IS 1727:1967	0.01% to 2%
		Soundness by Le-Chatelier Method	IS 4031(Part 3):1988	0.1 mm to 10 mm
15.	Cement Concrete Flooring Tile	Flatness	IS 1237:2012	0.01 mm to 10 mm
		Perpendicularity	IS 1237:2012	0.01% to 5%
		Resistance to Wear	IS 1237:2012	0.1 mm to 10 mm
		Straightness	IS 1237:2012	0.0% to 5%
		Water Absorption	IS 1237:2012	0.1% to 20%
		Wet Transverse Strength	IS 1237:2012	1 N/mm <sup>2</sup> to 10 N/mm <sup>2</sup>

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16.	Ceramic Tile/ Vitrified Tiles	Breaking Strength	IS 13630 (Part 6):2006	50 N to 2000 N
		Modulus of Rupture	IS 13630 (Part 6):2006	5 N/mm <sup>2</sup> to 50 N/mm <sup>2</sup>
		Rectangularity	IS 13630 (Part 1):2006	0.01% to 5%
		Scratch Hardness of Surface (Mohs' Scale)	IS 13630 (Part 13):2006	1 to 9
		Straightness	IS 13630 (Part 1):2006	0.0% to 5%
		Water Absorption	IS 13630 (Part 2):2006	0.1% to 20%
27.	Chequered Cement Concrete Tile	Flatness	IS 13801:2013	0.01 mm to 10 mm
		Perpendicularity	IS 13801:2013	0.01% to 5%
		Resistance to Wear	IS 13801:2013	0.1 mm to 10 mm
		Straightness	IS 13801:2013	0.0% to 5%
		Water Absorption	IS 13801:2013	0.1% to 20%
28.	Steel Bars, High Strength Deformed Steel Bars & Reinforcement Coupler)	Tensile Strength	IS 1608 (Part 1): 2018 IS 16172:2014	200 N/mm <sup>2</sup> to 750 N/mm <sup>2</sup>
		Yield Stress/0.2% Proof Stress	IS 1608 (Part 1): 2018 IS 16172:2014	200 N/mm <sup>2</sup> to 700 N/mm <sup>2</sup>
		% Elongation	IS 1608 (Part 1): 2018 IS 16172:2014	Upto 40 %
		Bend Test	IS 1599:2012 (RA 2017)	Qualitative (Diameter of Mandrel in mm=20, 32, 40, 50, 64, 75, 84, 100, 112, 120, 128, 144, 150, 160, 180, 200, 224, 240)
		Re-bend Test	IS 1786:2008 (RA 2013)	Qualitative (Diameter of Mandrel in mm=32, 40, 50, 60, 75, 84, 100, 112, 120, 128, 144, 150, 160, 180, 200, 216, 224, 240, 256, 288, 320)
		Nominal Mass (Weight per meter)	IS 1786:2008 (RA 2013)	0.090 kg/m to 10 kg/m

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		Total Elongation at maximum force	IS 1608 (Part 1): 2018 IS 16172:2014	3 % to 15 %
		Location of Failure	IS 16172:2014	Qualitative
29.	Structural steel (Sheets, Strips, Flats, Sections & Bars)	Tensile Strength	IS 1608 (Part 1): 2018	10 N/mm <sup>2</sup> to 750 N/mm <sup>2</sup>
		Yield Stress	IS 1608 (Part 1): 2018	10 N/mm <sup>2</sup> to 700 N/mm <sup>2</sup>
		% Elongation	IS 1608 (Part 1): 2018	Upto 80 %
		Bend Test	IS 1599: 2012 (RA 2017)	Qualitative (Diameter of Mandrel in mm=10, 20, 32, 40, 50, 60, 75, 84, 100, 112, 120, 125, 224)
II.	WOOD AND WOOD PRODUCTS			
1.	Plywood/ Shuttering Plywood	Density	IS 1734 (Part I):1983	0.1 g/cc to 2.0 g/cc
		Moisture Content	IS 1734 (Part I):1983	0.1% to 30%
		Resistance to Dry Heat	IS 1734 (Part 2):1993	Qualitative
2.	Wood/Timber	Moisture Content	IS 1708 (Part I):1986	1% to 30%
		Specific Gravity	IS 1708 (Part 2):1986	0.1 to 3
3.	Door Shutter	Dimension & Squareness	IS 4020 (Part II):1998	10 mm to 3000 mm
		End Immersion Test	IS 4020 (Part XIII):1998	Qualitative
		Measurement of General Flatness (Cupping)	IS 4020 (Part III):1998	0.1 mm to 10 mm
		Measurement of General Flatness (Twist)	IS 4020 (Part III):1998	0.1 mm to 10 mm
		Measurement of General Flatness (Warping)	IS 4020 (Part III):1998	0.1 mm to 10 mm
II.	SOIL & ROCK			
1.	Bentonite	Fineness(Dry)	IS 6186:1986	80% to 100%
		Marsh Cone Viscosity	TP/1.13/Issue No. 01/ Issued Date 01.10.2018 (Laboratory Developed Method)	30 Second to 100 Second

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		Moisture Content	IS 6186:1986	0.50% to 30%
		Sand Content	IS 6186:1986	0.05% to 3.0%
		Swelling Power	IS 6186:1986	10ml to 100ml
2.	Soil	California Bearing Ratio (CBR)	IS 2720 (Part 16):1987	1% to 100%
		Consolidation Test (Coefficient of Consolidation $c_v$ )	IS 2720 (Part 15):1986	0.1mm <sup>2</sup> /min to 50 mm <sup>2</sup> /min
		Consolidation Test (Coefficient of Compressibility $a_v$ )	IS 2720 (Part 15):1986	0.01cm <sup>2</sup> /kg to 5 cm <sup>2</sup> /kg
		Direct Shear Test (Angle of Shearing Resistance 'Phi')	IS 2720 (Part 13):1986	15° to 40°
		Direct Shear Test (Cohesion Intercept 'C')	IS 2720 (Part 13):1986	0 kg/cm <sup>2</sup> to 0.2kg/cm <sup>2</sup>
		Free Swell Index (FSI)	IS 2720 (Part XL):1977	1% to 200%
		Grain Size Analysis (Dry Sieve Analysis)	IS 2720 (Part IV):1985	0.1% to 100%
		Grain Size Analysis (Hydrometer Method)	IS 2720 (Part IV):1985	0.1% to 90%
		Grain Size Analysis (Wet Sieve Analysis)	IS 2720 (Part IV):1985	0.1% to 100%
		Heavy Compaction Test (Dry Density)	IS 2720 (Part VIII):1983	1 g/cc to 3g/cc
		Heavy Compaction Test (Moisture Content)	IS 2720 (Part VIII):1983	5% to 30%
		Light Compaction Test (Dry Density)	IS 2720 (Part VII):1980	1 g/cc to 3g/cc
		Light Compaction Test (Moisture Content)	IS 2720 (Part VII):1980	5% to 30%
		Shrinkage Limit	IS 2720 (Part VI):1972	10% to 50%
		Triaxial Compression Test Without the Measurement of Pore Water Pressure (Angle of Shear Plane)	IS 2720 (Part 11):1993	0° to 20°

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		'Phi')		
		Triaxial Compression Test Without the Measurement of Pore Water Pressure (Cohesion 'C')	IS 2720 (Part 11):1993	0.05 kg/cm <sup>2</sup> to 3 kg/cm <sup>2</sup>
		Unconfined Compressive Strength	IS 2720 (Part 10):1991	0.1 kg/cm <sup>2</sup> to 15 kg/cm <sup>2</sup>
		Water Content	IS 2720 (Part II):1973	0.50% to 30%
		Sand Equivalent Value	IS 2720 (Part XXXVII): 1976	20% to 100%
3.	Soil Testing (Field)	Dry Density of Soils In-Place, by Core Cutter Method	IS 2720 (Part XXIX):1975	1.0 g/cm <sup>3</sup> to 2.0 g/cm <sup>3</sup>
		Dry Density of Soils In-Place, by Sand Replacement Method	IS 2720 (Part XXVIII):1974	1.0 g/cm <sup>3</sup> to 2.5 g/cm <sup>3</sup>
		Rapid Determination of Water Content from the Gas Pressure Using Calcium Carbide	IS 2720 (Part II) Section 5:1973	1% to 30%
		Standard Penetration Test	IS 2131:1981	1N-Value to 100 N-Value
4.	Soil/Bentonite	Liquid Limit	IS 2720 (Part 5):1985	10% to 600%
		Plastic Limit	IS 2720 (Part 5):1985	10% to 150%
		Specific Gravity	IS 2720 (Part III) Sec 1/2:1980	1 to 3
5.	Field Testing	Deflection Measurement of Pavement using Benkelman Beam Deflection Test	IRC 81:1997	0 mm to 10 mm
		Measurement of Surface Roughness by Fifth Wheel Bump Integrator	IRC SP 16 (Clause 3.2): 2004	500mm/km to 5000mm/km
6.	Natural Building Stone (Marble/ Granite/Slate/ Quartz)	Apparent Porosity	IS 1124:1974	0.1% to 5%
		Apparent Specific Gravity	IS 1124:1974	2 to 4
		Compressive Strength	IS 1121 (Part 1):2013	5 N/mm <sup>2</sup> to 200 N/mm <sup>2</sup>
		Scratch Hardness of	IS 13630 (Part 13):2006	1 to 9

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		Surface (Mohs' Scale)		
		True Specific Gravity	IS 1122:1974	2 to 4
		Ultrasonic Pulse Velocity	IS 13311 (Part 1):1992	1km/sec to 1500km/sec
		Water Absorption	IS 1124:1974	0.1% to 10%
7.	Rock	Point Load Strength Index	IS 8764:1998	0 MN/mm <sup>2</sup> to 20 MN/mm <sup>2</sup>
		Relative Density	IS 13030:1991	2 to 4
		Unconfined Compressive Strength	IS 9143:1979	20 N/mm <sup>2</sup> to 500 N/mm <sup>2</sup>
		Water Content	IS 13030:1991	0.1% to 25%
III.	TEXTILE MATERIALS			
1.	Fabrics	Breaking Strength	IS 7016 (Part 2):1981	40 N to 10000 N
		Elongation at Break	IS 7016 (Part 2):1981	1% to 350%
		Mass per Unit Area	IS 7016 (Part 1):1982	50 g/m <sup>2</sup> to 8000 g/m <sup>2</sup>
		Tear Strength	IS 7016 (Part 3):1981	50 N to 5000 N
		Breaking Force by Grab Method	ASTM D 5034:2017	50 N to 10000 N
		Breaking Force by Strip Method	ASTM D 5035:2015	50 N to 20000 N
		Breaking Force by Strip Method	IS 1969 (Part 1):2009	50 N to 20000 N
		Bursting Strength by Ball Burst	ASTM D 3787:2016	10 N to 2000 N
		Bursting Strength by Diaphragm Bursting Tester Method	IS 1966(Part 1):2009	1 kg/cm <sup>2</sup> to 25 kg/cm <sup>2</sup>
		Ease of Ignition of Vertically Oriented Specimen	IS 15589:2005	1 Second to 3600 Second
		Ease of Ignition of Vertically Oriented Specimen	ISO 6940:2004	1 Second to 3600 Second

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Convenor

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Program Manager





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**Laboratory** Landmark Material Testing and Research Laboratory Pvt. Ltd., G-200, Mansarovar Industrial Area, Jaipur, Rajasthan

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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
		Elongation By Grab Method	ASTM D 5034:2017	1% to 350%
		Elongation by Strip Method	ASTM D 5035:2015	1% to 350%
		Elongation by Strip Method	IS 1969(Part 1):2009	1% to 350%
		Flammability and Flame Resistance	IS 11871:1986	1 s to 3600 s
		Horizontal Flammability	IS 15061 :2002	1 s to 3600 s
		Length and Width	IS 1954:1990	10 mm to 5000 mm
		Length and Width	ASTM D 3773:1990	10 mm to 5000 mm
		Length and Width	ASTM D 3774:2018	10 mm to 5000 mm
		Maximum Force to Seam Rupture using Grab Method	ASTM D 1683:2007	10 N to 5000 N
		Oil Repellency	ISO 14419:2004	Qualitative
		Thickness	ASTM D 1777:2015	0.05 mm to 10 mm
		Threads per unit Length	IS 1963:1981	2.54 /cm to 1016 / cm
		Water Repellency by Spray Test	IS 390:1975	Qualitative
		Water Repellency by Cone Test	IS 7941:1976	0.1 ml to 400 ml
		Weight per Square Meter and Linear Meter	ASTM D 3776:2017	25 g/m <sup>2</sup> to 1000 g/m <sup>2</sup>
		Weight per Square Meter and Linear Meter	IS 1964:2001	25 g/m <sup>2</sup> to 1000 g/m <sup>2</sup>
2.	<b>Paving Fabrics</b>	Asphalt Retention of Paving Fabric	ASTM D 6140:2014	10 g/m <sup>2</sup> to 10000 g/m <sup>2</sup>
3.	<b>Woven Apparel Fabrics</b>	Swen Seam Strength	ASTM D 1683:2018	10 N to 7000 N
4.	<b>Woven Fabrics</b>	Thread Per Unit Length	ASTM D 3775:2017	2.54 / cm to 1016 / cm
5.	<b>Geo Textile</b>	Wide Width Elongation	IS 13162 (Part 5):1992	1% to 350%
		Apparent Opening Size	ASTM D 4751:2016	0.075 mm to 1.7 mm
		Apparent Opening Size	IS 14294:1995	0.075 mm to 1.7 mm

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		Dynamic Perforated Test (Cone Drop Test)	IS 13162 (Part 4):1992	5 mm to 50 mm
		Dynamic Perforation Test (Cone Drop Test)	ISO 13433:2006	5 mm to 50 mm
		Grab Breaking Elongation	ASTM D 4632:2008	1% to 350%
		Grab Breaking Load	ASTM D 4632:2008	50 N to 10000 N
		Mass per Unit Area	IS 14716:1999	20 g/m <sup>2</sup> to 10000 g/m <sup>2</sup>
		Mass per Unit Area	ASTM D 5261:2018	20 g/m <sup>2</sup> to 10000 g/m <sup>2</sup>
		Static Puncture Strength (CBR Push Through)	ASTM D 6241:2015	50 N to 5000 N
		Static Puncture Strength (CBR Push Through)	ISO 12236:2006	50 N to 5000 N
		Tensile Test for Joints/Seam for wide-width strip method	ISO 10321:2008	1kN/m to 225kN/m
		Trapezoid Tearing Strength	ASTM D 4533:2011	50 N to 10000 N
		Trapezoid Tearing Strength	IS 14293:1995	50 N to 10000 N
		Water Permeability by Permittivity	IS 14324:1995	0.01 second <sup>-1</sup> to 60 second <sup>-1</sup>
		Water Permeability by Permittivity	ASTM D 4491M:2017	0.01 second <sup>-1</sup> to 60 second <sup>-1</sup>
		Water Permeability by Permittivity	ISO 11058:2010	0.01 second <sup>-1</sup> to 60 second <sup>-1</sup>
		Wide Width Elongation	ASTM D 4595:1986	1% to 350%
		Wide Width Tensile Strength	IS 13162 (Part 5):1992	1kN/m to 225kN/m
		Wide Width Tensile Strength	ASTM D 4595:1986	1000 N/m to 225000 N/m
6.	Geo Textile/ Geomembranes	Index Puncture Resistance	ASTM D4833:2013	20 N to 5000 N
		Nominal Thickness	IS 13162 (Part 3):1992	0.05 mm to 10 mm
		Nominal Thickness	ASTM D 5199:2012	0.01 mm to 10 mm

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7.	Geogrid	Seam Efficiency	ISO 10321:2008	1% to 100%
		Elongation	ASTM D 6637:2001	1% to 350%
		Mass per Unit Area	ASTM D 5267:2010	100 g/m <sup>2</sup> to 20000 g/m <sup>2</sup>
		Tensile Strength	ISO 10319:2015	2 kN/m to 225 kN/m
		Tensile Strength	ASTM D 6637:2015	2000 N/m to 225000 N/m
8.	Geomembranes	Thickness (Rib & Junction)	ASTM D 5199:2012	0.5 mm to 10 mm
		2% Secant Modulus	ASTM D 5323:2018	10 MPa to 5000 MPa
		Density & Specific Gravity (Relative Density) of Plastic and Related Products	ASTM D 792:2013	0.9 g/cc to 8 g/cc
		Elongation	ASTM D 638:2014	1% to 1000%
		Elongation of Non Reinforced Polyethylene and Non Reinforced Flexible Polypropylene Geomembrane	ASTM D 6693:2015	1% to 1000%
		Melt Flow Rates Of Thermo Plastic by Extrusion Plastometer (Melt Flow Index)	ASTM D 1238:2014	0.15 g/10 min to 30 g/10 min
		Tensile Properties	ASTM D 638:2014	1 N/mm to 100 N/mm
		Tensile Strength of Non Reinforced Polyethylene and Non Reinforced Flexible Polypropylene Geomembrane	ASTM D 6693:2015	1 N/mm to 100 N/mm
		Tensile Strength of Wool Felt	IS 1719:2000	50 N to 2000 N
		Twist	ISO 17202:2002	40 TPM to 2400 TPM
10.	Yarns	Twist	IS 832 (Part 1 & 2):2011	40 TPM to 2400 TPM
		Linear Density of Spun Yarn	IS 1315:1977	1 <sup>st</sup> Ne to 200 <sup>st</sup> Ne

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		Linear Strength	IS 1671:2004	1 kg to 200 kg
		Single Thread Elongation at Break	IS 1670:1991	1% to 400%
		Single Thread Strength	IS 1670:1991	10 N to 2000 N

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### NON-DESTRUCTIVE TESTING

I.	BUILDING MATERIALS-REINFORCED CONCRETE STRUCTURE			
1.	Reinforced Concrete Structure	Half Cell Potential Difference Test	ASTM C 876:1991	0.1 V to 1 V
		Rebound Hammer Test	IS 13311 (Part 2): 1992	10 MPa to 70 MPa
		Ultrasonic Pulse Velocity Test	IS 13311 (Part 1): 1992	1 km/s to 6 km/s
		Carbonation Test	BS 1881 (Part 201): 1986	Qualitative

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