

Laboratory	Civil-Aid Technoclinic Private Limited, No. 1030, 13th Cross, Attimabbe Road, Banashankari 2nd Stage, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	1 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. BUILDING MATERIALS				
1	Aggregate Coarse	Sieve Analysis	IS:2386-1963 Part 1 (Reaffirmed 2011)	4.75mm – 40mm
		Specific gravity	IS:2386-1963 Part 3 (Reaffirmed 2011)	2 – 4
		Bulk Density (Loose & Rodded)	IS:2386-1963 Part 3 (Reaffirmed 2011)	500 kg/m ³ - 3000 kg/m ³ .
		Flakiness Index	IS:2386-1963 Part 1 (Reaffirmed 2011) amendment 4	1% - 70%
		Elongation Index	IS:2386-1963 Part 1 (Reaffirmed 2011) amendment 4	1% - 70%
		Water Absorption	IS:2386-1963 Part 3 (Reaffirmed 2011)	0% - 5%
		Agg. Impact value	IS:2386-1963 Part 4 A-3 (RA 2011)	1% - 50%
		Abrasion Resistance (Los Angele's abrasion value)	IS:2386-1963 Part 4 (Reaffirmed 2011)	1% - 50%
		Agg. Crushing value	IS:2386-1963 Part 4 (Reaffirmed 2011)	1% - 50%
		Determination of 10% fines value	IS:2386-1963 Part 4 (Reaffirmed 2011)	50kN - 200kN

Laboratory	Civil-Aid Technoclinic Private Limited, No. 1030, 13th Cross, Attimabbe Road, Banashankari 2nd Stage, Bangalore, Karnataka		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	2 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2	Aggregate Fine	Sieve analysis	IS:2386-1963 Part 1 (Reaffirmed 2011) amendment 4	75 micron –10 mm
		Specific gravity	IS:2386-1963 Part 3 (Reaffirmed 2011)	2 - 4
		Bulk density (Loose & Rodded)	IS:2386-1963 Part 3 (Reaffirmed 2011)	500 kg/m ³ to3000 kg/m ³ .
		Bulking	IS:2386-1963 Part 3 (Reaffirmed 2011)	0% -50%
		Particle finer than 75 microns	IS:2386-1963 Part 2 A-1 (Reaffirmed 2011)	0% - 20%
3	Concrete Admixtures	Workability (slump)	IS:9103-1999 (RA 2008) A-2	0mm - 250mm
		Setting time	IS: 1199-1959 (RA 2008)	3 hr -20 hr
		Bleeding	IS :8142-1976 (RA-2011)	0% - 10%
		Water content		5% - 30%
		Compressive strength		15 N/mm ² - 60 N/mm ²
		Flexural strength		1 N/mm ² – 10 N/mm ²
		Length change		0% - 0.5%
Air content		0% - 10%		
4	Acid Resisting tiles	Water absorption	IS:4457-2007	0% – 20%
		Flexural Strength		1.0 N/mm ² - 70N/mm ²
		Resistance to wear		0.5 to 10mm
5	Building Bricks	Water absorption	IS:3495 -1992 (RA 2007)	1% - 20%
		Compressive strength		1 N/mm ² - 50 N/mm ²
		Efflorescence		Qualitative

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	3 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
6	Hydraulic cement grout (Non Shrink)	Compressive Strength Expansion Flow	ASTM C 1107-99 ASTM C 940-98 ASTM C 939-97	1 N/mm ² - 100 N/mm ² 0% - 10% 0% - 300%
7	Integral Cement water proofing compound	Permeability Test - Water percolation Setting time Compressive strength	IS:2645-2003 (Reaffirmed 2007)	0% - 100% 5 min. – 450 min. 1 N/mm ² - 100 N/mm ²
8	Concrete Cubes, Cores, Beams and Cylinders	Compressive strength Flexural strength Split tensile strength	IS:516-1959 (Reaffirmed 2008) A 2 IS 5816 – 99	5 N/mm ² -100 N/mm ² 1 N/mm ² –20 N/mm ² 0.5 N/mm ² –10 N/mm ²
9	Fusion Bonded Epoxy coated RI bars	Bond Test Coating thickness	IS 13620-1993 (Reaffirmed 2009) A1 Using Coating Thickness Gauge	25% -100% 0 – 100 microns
10	Bonding Epoxy	Pot life Open Time Thixotrophy Squeezability Curing rate by compressive strength Tensile Bending Heat Resistance Shrinkage Slant Shear Test	Federation Internationale de la percontrainte FIP/9/2/ - 1978	1 minutes - 100 minutes Qualitative 30 minutes – 90 minutes 0.1 mm – 50 mm 3000mm ² - 15000 mm ² 10 N/mm ² –100 N/mm ² Qualitative 2 N/mm ² - 25 N/mm ² 0.1% – 3% 2 N/mm ² – 25N/mm ²

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	4 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Instantaneous modulus in compression		100 N/mm ² – 15000 N/mm ²
		Deferred modulus in compression		100 N/mm ² – 15000 N/mm ²
		Water absorption & solvability		0% – 1%
		Colour		Qualitative
11	Hydraulic Cement	Consistency	IS:4031Part 4 – 1988 (Reaffirmed 2009) A 1	20%-50%
		Initial setting time	IS:4031Part 5 1988 (Reaffirmed 2009) A1	5 minutes- 400 minutes
		Final setting time	IS:4031Part 5 1988 (Reaffirmed 2009) A1	35 minutes- 800 minutes
		Fineness (Blaine's method)	IS:4031Part 2 1999 (Reaffirmed 2008) A1	100 m ² /kg – 600 m ² /kg
		Compressive strength	IS:4031Part 6 1988 (Reaffirmed 2009) A3	1 N/mm ² -100 N/mm ²
		<u>Soundness</u>		
		a)Le-Chatelier's method	IS:4031 Part 3 1988 (Reaffirmed 2009) A1	0 mm – 50 mm
		b) Autoclave method	IS:4031Part 3 1988 (Reaffirmed 2009)	0% - 2%
		Fineness by dry sieving	IS:4031Part 1 1996 (Reaffirmed 2011)	0% - 100%
		Density	IS:4031Part 11 1988 (Reaffirmed RA 2009)	2.7 - 3.5
		Drying Shrinkage	IS:4031Part 10 1988 (Reaffirmed 2009)	0 to 0.15

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	5 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
12	Ceramic tiles (Physical)	Water absorption Crazing test Modulus of rupture Warpage Hardness by Moh's scale Breaking strength Bulk density	IS : 13630-2006 (Part 1-15)	0% – 20% Qualitative 1.0 N/mm ² - 70N/mm ² 0.1% - 5.0% 1 - 8 100 N – 2000N 1.5 g/cc – 2.5g/cc
13	Concrete Blocks Hollow/Solid	Water absorption Compressive Strength Block Density Drying shrinkage Moisture movement	IS:2185 (Part 1) -2005	1 – 10% 1-25 N/mm ² 1000 kg/m ³ -2200 kg/m ³ 0.001% - 0.05% 0.001% - 0.05%
14	Steel Tubes	Tensile Test Mass per meter run Flattening	IS:1608 – 2005 (Reaffirmed 2011) A1 IS:1161 – 1998 (Reaffirmed 2009)A3, IS:1239 (P1). IS : 2328 IS:1161 – 1998 (Reaffirmed 2009)A3, IS:1239(P1). IS : 2328	100 N/mm ² – 700 N/mm ² 0.1 kg - 15 kg Qualitative

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	6 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
15	Natural Building stones	Compressive strength	IS: 1121 (Part 1) – 1974	10 N/mm ² – 12 N/mm ²
		Moisture absorption	IS 1124 - 1974 (Reaffirmed 2008)	1% - 10%
		Hardness by moh`s scale	IS 13630 – 2006 Part 13	1-7
		True specific gravity	IS 1122 – 1974 (RA2008)	1 – 4
16	Curing compound	Curing efficiency	BS:7542 – 1992	0 % - 100%
17	Mass of Zinc coating on Iron & Steel articles	Coating mass	IS:6745-1972	10 – 2000 g/m ²
18	Door Shutter (Performance Test)	Length and Width	IS:4020 – 1998 Part 2 (Reaffirmed 2008) A1	100 mm – 2500mm
		Thickness	IS:4020 – 1998 Part 2 (Reaffirmed 2008) A1	5 mm - 50mm
		Defects of Square ness	IS:4020 – 1998 Part 2 (Reaffirmed 2008) A1	0 mm – 5mm
		Local plainness	IS:4020 – 1998 Part 4 (Reaffirmed 2008)	0.1 mm – 2mm
		Impact indentation	IS:4020 – 1998 Part 5 (Reaffirmed 2008)	0.1 mm – 2mm
		Edge loading	IS:4020 – 1998 Part 7 (Reaffirmed 2008)	0.5 mm – 30mm

Laboratory Civil-Aid Technoclinic Private Limited, No. 1030, 13th Cross,
Attimabbe Road, Banashankari 2nd Stage, Bangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Discipline Mechanical Testing **Issue Date** 30.01.2014

Certificate Number T-0309 **Valid Until** 29.01.2016

Last Amended on 31.01.2014 **Page** 7 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Shock resistance	IS:4020 – 1998 Part 8 (Reaffirmed 2008)	Qualitative
		Buckling	IS:4020 - 1998Part 9 (Reaffirmed 2008)	1 mm – 100mm
		Misuse test	IS:4020 – 1998 Part 11 (Reaffirmed 2008)	Qualitative
		Glue Adhesion	IS:4020 – 1998 Part 15 (Reaffirmed 2008)	Qualitative
		Knife test	IS:4020 – 1998 Part 14 (Reaffirmed 2008)	Qualitative
		End Immersion	IS:4020 – 1998 Part 13 (Reaffirmed 2008)	Qualitative
		Slamming	IS:4020 – 1998 Part 10 (Reaffirmed 2008)	Qualitative
19	Flyash	Fineness	IS: 1727-1967 (Reaffirmed 2008) A 1	100 Sq.m/kg- 800 Sq.m/kg
		Comparative compressive strength		5 N/mm ² - 80 N/mm ²
		Soundness (by autoclave)		0% - 2%
		Specific gravity		1-3
		Residue on 45 micron sieve		0% to 100%

Laboratory Civil-Aid Technoclinic Private Limited, No. 1030, 13th Cross,
Attimabbe Road, Banashankari 2nd Stage, Bangalore, Karnataka

Accreditation Standard ISO/IEC 17025: 2005

Discipline Mechanical Testing **Issue Date** 30.01.2014

Certificate Number T-0309 **Valid Until** 29.01.2016

Last Amended on 31.01.2014 **Page** 8 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
20	Cement concrete flooring tiles (Mosaic Tiles)	Flatness	IS: 1237-1980 (Reaffirmed - 2006) A3	0.1 mm - 5mm
		Perpendicularity		0.2 % - 4%
		Straightness		0.2% - 4%
		Water Absorption		1% - 20%
		Wet transverse Strength		1 N/mm ² - 20 N/mm ²
		Resistance to Wear (Abrasion)		0.1mm - 6mm
21	Particle Board	Water Absorption	IS 2380- (Part 1-21) 1981(Reaffirmed 2008) A 4	1% - 50 %
		Swelling due to thickness		0.1% - 10%
		Density		100 kg/cu.m -1000 kg/cu.m
		Moisture Content		0.1% - 20%
22	Pavers Block	Water Absorption	IS : 15658 - 2006	1 % - 10%
		Split tensile Strength		0.1 N/mm ² -10 N/mm ²
		Compressive Strength		15 N/mm ² -100 N/mm ²
		Flexural strength		0.1N/mm ² - 15N/mm ²

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	9 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
23	Uncoated stress relieved low relaxation seven-ply strand for prestressed concrete	Unit weight	IS: 14268-1995 (Reaffirmed 2008) A1	0.4kg to 2.0 kg
		Load @ 1% extension		50 kN - 450 kN
		Breaking strength		50 kN - 600 kN
		Elongation		1% -15%
		Modulus of Elasticity		100 – 215 kN/mm ²
		Lay length		150 – 260 mm
24	Plywood	Nominal area		90 – 160 mm ²
		Moisture Content	IS 1734- 1983 Part 1 (Reaffirmed 2008)	0.1% - 20%
		Glue Shear Strength in dry state	IS 1734- 1983 Part 4 A3 (Reaffirmed 2008)	200N - 2000N
		Adhesion of plies	IS 1734- 1983 Part 5 (Reaffirmed 2008)	Qualitative
25	Pozzolanic materials (Silica fume)	Water resistance	IS: 1734(P5) – 83	Qualitative
		Specific Gravity	IS: 1727-1967 (Reaffirmed 2008) A 1	1.9 to 2.8
		Compressive strength at 7 days as percent of control sample		80% to 120%
		Oversize percent retained on 45 micron IS Sieve		0% to 100%

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	10 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
26	High strength deformed Steel bars and Wires for concrete reinforcement	Weight / meter	IS: 1786-2008	0.1 kg - 15 kg
		Rebend Test	IS: 1786-2008	Qualitative
		Deformation geometry	IS: 1786-2008	0.3 mm/mm –16.0 mm/mm
27	Mechanical testing of metals - Tensile Testing	0.2 % Proof Stress	IS.1608-2005 (2011) A1	100 N/mm ² -700 N/mm ²
		Ultimate Stress	IS.1608-2005 (Reaffirmed 2011) A1	100 N/mm ² -900 N/mm ²
		Elongation	IS.1608-2005 (Reaffirmed 2011)	1% - 60%
28	Metallic Materials - Bend Test	Bend	IS:1599-1985 (Reaffirmed 2006)	Qualitative
29	Burnt Clay flat terracing tiles (Roofing tiles)	Flexural Strength	IS 2690 (Part 2)-1992 (Reaffirmed 2007)	4 N/mm ² - 10 N/mm ²
		Water absorption		1% - 20%
		Warpage Test		0 – 2%
30	Tar & Bituminous materials	Flash & Fire Point	IS 1209-1978 (Reaffirmed 2009) A1	100°C - 300°C
		Softening Point	IS 1205-1978 (Reaffirmed 2009) A1	25 °C - 100 °C
		Penetration	IS 1203-1978 (Reaffirmed 2008) A 3	10 divisions-350 divisions
		Penetration of the residue	1204-1978 (Reaffirmed 2009) A1	10 divisions - 350 divisions

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	11 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Ductility/Elastic recovery	IS 1208-1978 (Reaffirmed 2009) A2	10 cm - 100cm 1 cm - 10cm
		Industrial Viscosity	IS 1206-1978 Part 1 (Reaffirmed 2009) A2	5 Second 100 Second
		Water content	IS 1211-1978 (Reaffirmed 2009)	0% - 2 %
		Viscosity by brookfield viscometer	ASTM D 4402	150 cp – 1 lakh cp
		Stripping value	IS 6241-1971 (Reaffirmed 2008)	Qualitative Visual Observation
31	Glazed Stoneware pipes	Water Absorption	IS 651-2007 A1	0.1% - 20%
		Crushing Strength		1kN/m -50 kN/m
32	Hot rolled medium & High Tensile Structural Steel / Hollow steel sections	Weight/meter	IS:808-1989 (Reaffirmed 2009) A1, IS:1730, IS:1732, IS:4923	0.3kg - 100 kg
		Tensile Test	IS 1608-2005 (Reaffirmed 2011) A1	50 N/mm ² - 600 N/mm ²
		Bend Test	IS:1599-1985 (Reaffirmed 2010)	Qualitative Visual Observation

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	12 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
33	Bitumen felts/ Water proofing membranes	Water Absorption	IS 13826-1993 Part 6 (Reaffirmed 2008)	0% - 5%
		Pliability	IS 13826-1993 Part 2 (Reaffirmed 2008) A1	Qualitative Visual Observation
		Breaking Strength	IS 13826-1993 Part 1 (RA 2008) A1	25 N – 1500 N
		Heat Resistance	IS 13826-1994 Part 5 (Reaffirmed 2008)	Qualitative Visual Observation
		Pressure head test	IS 13826-1993 Part 4 (Reaffirmed 2008) A1	Qualitative Visual Observation
		Weight	IS 1322-1993 A1	1 kg – 10 kg
34	Wood	Moisture Content	IS 11215-1991 (Reaffirmed 2010)	1% - 50%
35	Bitumen Emulsion	Residue on 600 μ	IS 8887- 2004 (Reaffirmed 2009)	0% - 0.1 %
		Viscosity		10 Second to 500 Second
		Coagulation of emulsion at low temperature		Qualitative
		Storage stability		0 % - 2 %
		Stability to mixing with cement		1 - 3 %
		Miscibility with water		Qualitative

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	13 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Particle charge		Qualitative
		Test on Residue		
		(i) Residue by evaporation		50% - 100 %
		(ii) Penetration		10 division -350 division
		(iii) Ductility		5 cm - 100 cm
		(iv) Solubility in Trichloroethylene		90% - 100 %
		Water content		0% - 25 %
		Distillation		0% to 100%
36	Soil	Liquid Limit	IS :2720 (Part -5)-1985 (Reaffirmed 2010)	20% - 600%
		Plastic Limit	IS :2720 (Part -5)-1985 (Reaffirmed 2010)	10% - 60%
		Shrinkage limit	IS :2720 (Part -6)-1972 (Reaffirmed 2007) A-1	5% - 30%
		Determination of water content	IS:2720 (Part -2)-1973 (Reaffirmed 2010) A-1	1% - 100%
		Grain size analysis	IS :2720 (Part -4)1985 (Reaffirmed 2010)	0.075mm - 4.75mm
		Particle Size Analysis by Hydrometer method	IS :2720 (Part -4)1985 (Reaffirmed 2010)	0.002mm - 0.075mm
		Determination of specific gravity of soil	IS:2720 (Part3/Sec1) -1980 (Reaffirmed 2007)	2.0 - 2.8

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Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	30.01.2014
Certificate Number	T-0309	Valid Until	29.01.2016
Last Amended on	31.01.2014	Page	14 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Determination of Standard compaction	IS:2720 (Part -7)-1980 (Reaffirmed 2007) A-2	Optimum moisture content = 6% - 40% Maximum dry density = 1.2g/cc - 2.3g/cc
		Determination of Modified compaction test	IS:2720 (Part -8)-1983 (Reaffirmed 2010)	Optimum moisture content = 6% -40% Maximum dry density = 1.2g/cc - 2.3g/cc
		Determination of direct shear test	IS :2720 (Part -13)-1986 (Reaffirmed 2007) A-1	Cohesion = 0kg/cm ² - 1.0kg/cm ² Angle of internal friction = 0 ⁰ -45 ⁰
		Determination of triaxial shear with pore pressure	IS :2720 (Part -12)-1981 (Reaffirmed 2007)	Angle of internal friction = 0 ⁰ - 10 ⁰ Cohesion = 0.35 kg/cm ² - 1.0kg/cm ²
		Determination of triaxial shear without pore pressure	IS-2720 (Part -11)-1993 (Reaffirmed 2007)	Angle of internal friction = 0 ⁰ - 35 ⁰ Cohesion =0kg/cm ² - 1.0kg/cm ²
		Determination of consolidation properties	IS :2720 (Part -15)-1965 (Reaffirmed 2007)	Cc = 0.05 - 0.4

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Accreditation Standard ISO/IEC 17025: 2005

Discipline Mechanical Testing **Issue Date** 30.01.2014

Certificate Number T-0309 **Valid Until** 29.01.2016

Last Amended on 31.01.2014 **Page** 15 of 15

S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Determination of CBR test	IS :2720 (Part -16)-1987 (Reaffirmed 2007)	1% - 100%
		Determination of Differential free swell index	IS:2720 (Part -40)-1977 (Reaffirmed 2007)	0 - 600
		Unconfined Compressive Strength	IS :2720 (Part -10)-1991 (Reaffirmed 2010)	Cohesion = 0kg/cm ² - 3.0kg/cm ²
		Determination of density index of cohesionless soils	IS :2720 (Part -14)-1983 (Reaffirmed 2010)	1.3 g/cc – 2.4 g/cc
		Field density by core cutter method	IS :2720 (Part -29)-1975 (Reaffirmed 2010)	1.3 g/cc – 2.4 g/cc
		Field density by sand replacement method	IS :2720 (Part -28)-1974 (Reaffirmed 2010)	1.3 g/cc – 2.4 g/cc
		Sand Equivalent Value	IS :2720 (Part -37)-1976	1 % to 100%

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