

Laboratory

Geo Media Engineering & Consultancy Services Pvt. Ltd., #23609-A,  
Mansa Road, Bathinda, Punjab

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number

TC-7483

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Validity

29.06.2018 to 28.06.2020

Last Amended on --

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.	WATER			
1.	Construction Water	pH	IS 3025 (Part 11): 1983 (RA 2012)	2.0 to 12.0
		Acidity	IS 3025 (Part 22): 1986 (RA 2014)	0.12 ml to 15 ml
		Alkalinity	IS 3025 (Part 23): 1986 (RA 2014)	0.10 ml to 100 ml
		Organic solids	IS 3025 (Part 18): 1984 (RA 2012)	10.0 mg/l to 1000 mg/l
		Inorganic solids	IS 3025 (Part 18): 1984 (RA 2012)	10.0 mg/l to 5000 mg/l
		Sulphate as SO <sub>3</sub>	IS 3025 (Part 24): 1986 (RA 2014)	12.0 mg/l to 200 mg/l
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2014)	1.0 mg/l to 500 mg/l
		Total Suspended matter	IS 3025 (Part 17): 1984 (RA 2012)	10.0 mg/l to 4000 mg/l
2.	Drinking Water	pH	IS 3025 (Part 11): 1983 (RA 2012)	2.0 to 12.0
		Total Dissolved Solids	IS 3025 (Part 18): 1984 (RA 1996)	10.0 mg/l to 1000 mg/l
		Sulphate as SO <sub>4</sub>	IS 3025 (Part 24): 1986 (RA 2014)	12.0 mg/l to 200 mg/l
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2014)	1.0 mg/l to 500 mg/l
		Total hardness (as CaCO <sub>3</sub> )	IS 3025 (Part 21): 1983 (RA 1996)	1.0 mg/l to 600 mg/l
		Total alkalinity	IS 3025 (Part 24): 1986 (RA 2014)	1.0 mg/l to 600 mg/l
		Iron (as Fe)	IS 3025 (Part 53): 2003	0.2 mg/l to 50 mg/l

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		Nitrate (as NO <sub>3</sub> )	IS 3025 (Part 34): 1988	0.5 mg/l to 45 mg/l
		Taste	IS 3025 (Part 7 & Part 8): 1984 (RA 1996)	Qualitative
		Turbidity	IS 3025 (Part 10): 1984 (RA 1996)	1 NTU to 2000 NTU
		Fluoride	IS 3025 (Part 60): 2008	1 mg/l to 10 mg/l
		Calcium	IS 3025 (Part 40): 1991 (RA 1998)	1 mg/l to 200 mg/l
		Magnesium	IS 3025 (Part 46): 1994 (RA 1999)	1 mg/l to 100 mg/l

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**MECHANICAL TESTING**

I.	BUILDING MATERIAL			
1.	<b>Cement</b>	Standard Consistency	IS 4031 (Part 4): 1988 (RA 2014)	10 % to 50 %
		Fineness	IS 4031 (Part 1): 1996 (RA 2016)	0 to 10 %
		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)	100 minutes to 600 minutes
		Soundness (Le-Chatelier)	IS 4031 (Part 3): 1988 (RA 2014)	0.2 mm to 5 mm
		Compressive Strength (72 hrs, 168 hrs, 672 hrs)	IS 4031 (Part 6): 1988 (RA 2014)	5 MPa to 60 MPa
2.	<b>Coarse Aggregates</b>	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2016)	0.05 % to 100 % (Sieve Size: 80 mm, 63 mm, 53 mm, 45 mm, 40 mm, 26.50 mm, 22.40 mm, 20 mm, 16 mm, 12.5 mm, 11.20 mm, 10 mm, 4.75 mm, 2.36 mm)
		Impact Value	IS 2386 (Part 4): 1963 (RA 2016)	5.0 % to 60 %
		Crushing Value	IS 2386 (Part 4): 1963 (RA 2016)	5.0 % to 60 %
		Abrasion Value	IS 2386 (Part 4): 1963 (RA 2016)	5.0 % to 60 %
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2016)	0.01 % to 20 %

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		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	1.5 to 3.0
		Elongation Index	IS 2386 (Part 1): 1963 (RA 2016)	Upto 70 %
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2016)	Upto 70 %
3.	<b>Fine Aggregates</b>	Sieve Analysis	IS 2386 (Part 1): 1963 (RA 2016)	0.05 % to 100 % (Sieve Size: 10 mm, 4.75 mm, 2.36 mm, 1.18 mm, 600 µm, 300 µm, 150 µm)
		Water Absorption	IS 2386 (Part 3): 1963 (RA 2016)	0.01 % to 20 %
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	1.5 to 3.0
4.	<b>Bitumen</b>	Bitumen Extraction	ASTM D 2172-17	Upto 10 %
		Penetration	IS 1203:1978 (RA 2013)	(1 to 40) 1/10 <sup>th</sup> mm
5.	<b>Concrete Cube</b>	Compressive Strength	IS 516:1959 RA 2013	5 MPa to 60 MPa
6.	<b>Bricks</b>	Dimensions	IS 1077:1992 (RA 2016)	
		Length		50mm to 5000mm
		Width		50mm to 3000mm
		Height		10mm to 2000mm
		Water Absorption	IS 3495 (Part 2): 1992 (RA 2016)	2.5 % to 35 %
		Compressive Strength	IS 3495 (Part 1): 1992 (RA 2016)	30 kg/cm <sup>2</sup> to 250 kg/cm <sup>2</sup>
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2016)	Qualitative
6.	<b>Paver Blocks</b>	Water Absorption	IS 15658:2006 (RA 2017)	1 % to 7%
		Compressive Strength	IS 15658:2006 (RA 2017)	5 MPa to 60 MPa
		Abrasion Resistance	IS 15658:2006 (RA 2017)	(1000 mm <sup>3</sup> to 15000 mm <sup>3</sup> )/ 5000 mm <sup>2</sup>
		Length & Width	IS 15658:2006 (RA 2017)	150 mm to 300 mm
		Thickness	IS 15658:2006 (RA 2017)	50 mm to 120 mm

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		Plan Area and Wearing Surface Area	IS 15658:2006 (RA 2017)	20000 mm <sup>2</sup> to 30000 mm <sup>2</sup>
		Deviation from Squareness	IS 15658:2006 (RA 2017)	0.03 mm to 0.9 mm
<b>II.</b>	<b>SOIL &amp; ROCK</b>			
<b>1.</b>	<b>Soil</b>	Sieve Analysis	IS 2720 (Part 4): 1985 (RA 2015)	0.1 % to 100 % (Sieve Size: 75 mm, 53 mm, 26.5 mm, 9.5 mm, 4.75 mm, 2.36 mm, 2 mm, 1 mm, 850 µm, 600 µm, 425 µm, 300 µm, 212 µm, 150 µm, 75 µm)
		Bulk Density	IS 2720 (Part 8): 1983 (RA 2015)	1.0 g/cm <sup>3</sup> to 5.0 g/cm <sup>3</sup>
		Water Content	IS 2720 (Part 2): 1973 (RA 2015)	Upto 40 %
		Light Compaction Test	IS 2720 (Part 7): 1980 (RA 2016)	1.25 g/cm <sup>3</sup> to 2.3 g/cm <sup>3</sup>
		Maximum Dry Density		
		Optimum Moisture Content		10 % to 20 %
		Heavy Compaction Test	IS 2720 (Part 8): 1983 (RA 2015)	1.25 g/cm <sup>3</sup> to 2.3 g/cm <sup>3</sup>
		Maximum Dry Density		
		Optimum Moisture Content		10 % to 20 %
		California Bearing Ratio (CBR)	IS 2720 (Part 16): 1987 (RA 2016)	2 % to 50 %
		Liquid Limit (Casagrande's method)	IS 2720 (Part 5): 1985 (RA 2015)	15 % to 60 %
		Plastic Limit	IS 2720 (Part 5): 1985 (RA 2015)	8 % to 25 %

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		Direct Shear Test Undrained	IS 2720 (Part 13): 1986 (RA 2016)	
		Cohesion		Upto 1.0 kg/cm <sup>2</sup>
		Angle of Friction		22° to 35°
		Permeability - Constant Head Method	IS 2720 (Part 17): 1986 (RA 2016)	10 <sup>-3</sup> cm/sec to 10 <sup>-1</sup> cm/sec
		Unconfined compressive strength	IS 2720 (Part 10): 1986 (RA 2015)	Upto 5.0 kg/cm <sup>2</sup>
		Free swell Index	IS 2720 (Part 40): 1977 (RA 2016)	Upto 50 %
		Shrinkage Limit	IS 2720 (Part 6): 1972 (RA 2016)	15 % to 30 %
		Liquid Limit (Cone Penetrometer)	IS 2720 (Part 5): 1985 (RA 2015)	15 % to 60 %
2.	Soil (Field Testing)	Standard Penetration Test	IS 2131:1981 (RA 2016)	1 blows to 50 blows
		Plate Load Test	IS 1888:1982 (RA 2016)	1 mm to 25 mm
		Modulus of Subgrade Reaction (K-value)	IS 9214:1979 (RA 2016)	Upto 20 kg/cm <sup>2</sup> /cm
3.	Pile Test (Field Testing)	Vertical Load Test (Compression)	IS 2911 (Part 4): 2013	1 kN to 500 kN
		Lateral Load Test	IS 2911 (Part 4): 2013	1 kN to 300 kN
		Pull Out Test	IS 2911 (Part 4): 2013	1 kN to 500 kN
III.	<b>MECHANICAL PROPERTIES OF METALS</b>			
1.	Ferrous Material	Yield Strength	IS 1608:2005 (RA 2017)	5 kN to 550 kN
		Tensile Strength	IS 1608:2005 (RA 2017)	5 kN to 550 kN
		Elongation	IS 1608:2005 (RA 2017)	3 % to 30 %