

Laboratory C. E. Testing Company Pvt. Ltd., Sardarpara, Brahmapur, Kolkata, West Bengal

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6840 (in lieu of T-2704)

Page 1 of 2

Validity 24.11.2017 to 23.11.2019

Last Amended on 30.01.2018

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.	SOIL AND ROCK			
1.	Soil	Natural Moisture Content	IS 2720 Part 2-1973, RA 2015	1% to 180%
		Specific Gravity	IS 2720 Part 3-1980, RA 2016	2 to 4
		Liquid Limit	IS 2720 Part 5-1985, RA 2015	20% to 150%
		Plastic Limit	IS 2720 Part 5-1985, RA 2015	10% to 50%
		Particle Size Analysis (Sieve Analysis)	IS 2720 Part 4-1985, RA 2015	19 mm to 0.075 mm
		Particle Size Analysis (Hydrometer)	IS 2720 Part 4-1985, RA 2015	0.075 mm to 0.001 mm
		Direct Shear Test	IS 2720 Part 13-1986, RA 2016	C = 0 to 100 kPa $\Phi = 0^\circ$ to $50^\circ$
		Unconfined Compressive Strength	IS 2720 Part 10-1991, RA 2015	10 to 400 kPa
		Standard Proctor Compaction Test	IS 2720 Part 7-1980, RA 2016	OMC = 6% to 42% MDD = 1010 kg/m <sup>3</sup> to 2500 kg/m <sup>3</sup>
		Modified Proctor Compaction Test	IS 2720 Part 8-1983, RA 2015	OMC = 6% to 42% MDD = 1050 kg/m <sup>3</sup> to 2800 kg/m <sup>3</sup>
		Consolidation	IS 2720 Part 15-1986, RA 2016	Cc = 10 kPa to 400 kPa e = 0.2 to 8.00
		Free Swell Index	IS 2720 Part 40-1977, RA 2016	0.1% to 200%
		California Bearing Ratio (Lab CBR)	IS 2720 Part 16-1987, RA 2016	0.1% to 90%
		Swelling Pressure	IS 2720 Part 41-1977, RA 2016	1 kPa to 400 kPa

Bhumi Rajyaguru  
Convenor

Alok Jain  
Program Director

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		Shrinkage Limit	IS 2720 Part 6-1972, RA 2016	1% to 20%
		Permeability	IS 2720 Part 17-1986, RA 2016	$10^{-3}$ to $10^{-10}$ m/sec
		Triaxial Unconsolidated & Un-drained Test	IS 2720 Part 11-1993, 2016	$\Phi = 0^\circ$ to $20^\circ$ $C = 5$ kPa to 400 kPa
		Consolidated Undrained Tri-axial Compression Test With measurement pore water pressure	IS 2720 Part 12-1981, RA 2016	$C = 0$ kPa to 30 kPa $\Phi = 20^\circ$ to $45^\circ$
		Consolidated Drained Tri-axial Compression Test	IS 2720 Part 12-1981, RA 2016	$C = 0$ kPa $\Phi = 20^\circ$ to $45^\circ$
2.	Rock	Unconfined Compressive Test	IS 9143-1979, RA 2016	1500 kPa to 150000 kPa
		Dry Density	IS 13030-1991, RA 2016	1700 m <sup>3</sup> /cc to 2800 m <sup>3</sup> /cc
		Porosity	IS 13030-1991, RA 2016	0.05% to 20%
		Water Content	IS 13030-1991, RA 2016	0.1% to 18%
		Specific Gravity	IS 1122-1974, RA 2013	2.0 to 3.5
		Point Load Index	IS 8764 -1998 RA 2014	25 kPa to 20000 kPa
		Slake Durability Index	IS 10050-1981 RA 2016	0.1% to 99%
		Bulk Density	IS 13030-1991, RA 2016	1900 kg/m <sup>3</sup> to 3200 kg/m <sup>3</sup>