

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 1 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>CHEMICAL TESTING</u>				
I.	WATER			
1.	Drinking, Swimming Pool, Boiler Water, Packaged Drinking Water, Ground Water & Construction Water	pH @ 25°C	IS 3025 (Part-11):1983, RA 2017	2 to 12
		Total Dissolved Solid	IS 3025 (Part-16):1984, RA 2017	1.0 mg/l to 10000 mg/l
		Total Suspended Solid	IS 3025 (Part-17):1984, RA 2017	1 mg/l to 1000 mg/l
		Specific Conductivity	IS 3025 (Part-14):2013	1 µS/cm to 200mS/cm
		Turbidity	IS 3025 (Part-10):1984, RA 2017	1 NTU to 1000 NTU
		Acidity as CaCO ₃	IS 3025 (Part-22):1986, RA 2014	1 mg/l to 500 mg/l
		Alkalinity as CaCO ₃	IS 3025 (Part-23):1986, RA 2014	1 mg/l to 750 mg/l
		Total Hardness as CaCO ₃	IS 3025(Part 21):2009, RA 2014	1 mg/l to 1000 mg/l
		Calcium as Ca	IS 3025 (Part-40):1991, RA-2014	0.5 mg/l to 200 mg/l
		Magnesium as Mg	IS 3025 (Part-46):1994, RA 2014	1 mg/l to 100 mg/l
		Chloride Cl	IS 3025 (Part-32):1988, RA 2014	1.0 mg/l to 1000 mg/l
		Temperature	IS 3025 (Part-9):1984, RA 2017	25 °C to 60°C
		Sulphate as SO ₄	APHA 23 rd Edition, 2017- Turbidity Method	1 mg/l to 300 mg/l
		Residual Chlorine	IS 3025 (Part-26):1986, RA 2014	0.2 mg/l to 5.0 mg/l
	Phosphate as PO ₄	IS 3025 (Part-31):1988, RA 2014 (Stannous Chloride Method)	0.02 mg/l to 25 mg/l	

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 2 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Silica as SiO ₂	IS 3025 (Part-35):1988, RA 2014 (Molybdo silicate Method)	0.4 mg/l to 50 mg/l
		Iron as Fe	IS 3025 (Part-53) :2003, RA 2014 (Phenantroline Method)	0.05 mg/l to 10 mg/l
		Nitrogen Nitrate as NO ₃	IS 3025, (Part-34):1988, RA-2014 (Chromo tropic Acid Method)	1.0 mg/l to 75.0 mg/l
		Boron as B,	APHA 23 rd Edition, 2017/ 3500 B C (Carminie Method)	0.2 mg/l to 10 mg/l
		Fluoride as F	APHA 23 rd Edition, 2017/ 4500 F D	0.1 mg/l to 10 mg/l
		Dissolved Oxygen	IS 3025 (Part 38):1989, RA 2014	1.0 mg/l to 8.5 mg/l
		Sodium as Na	IS 3025 (Part 45):1993, RA 2014	1.0 mg/l to 500 mg/l
		Potassium as K	IS 3025 (Part 45):1993, RA 2014	1.0 mg/l to 200mg/l1
		BOD (3 days, 27°C)	IS 3025, (Part-44) :1993, reaffirmed-2014	2 mg/l to 2000 mg/l
		COD	IS 3025 (Part 58):2006, reaffirmed-2017 (Open Reflux Method)	10 mg/l to 10000 mg/l
		Volatile Residue	IS 3025, (Part-18) :1984, RA -2017	5 mg/l to 2000 mg/l
		Fixed Residue	IS 3025, (Part-18) :1984, RA -2017	5 mg/l to 5000 mg/l
		Volume of 0.02N NaOH required to neutralize 100 ml sample of water	IS 3025 (Part-22):1986, RA 2014	0.1 mg/l to 100 ml
		Volume Of 0.02N H ₂ SO ₄ Required To Neutralize 100 MI Sample Of Water	IS 3025 (Part-23):1986, RA 2017	0.1 mg/l to 100 ml

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 3 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
II.	POLLUTION & ENVIRONMENT			
1.	Waste Water (Effluent/ Sewage)	pH @ 25°C	IS 3025 (Part-11):1983, RA 2017	2 to 12
		Total Dissolved Solid	IS 3025 (Part-16):1984, RA 2017	5.0 mg/l to 50000 mg/l
		Total Suspended Solid	IS 3025 (Part-17):1984, RA 2017	1 to mg/l 20000 mg/l
		Specific Conductivity	IS 3025 (Part-14):2013	1µS/cm to 200 mS/cm
		Turbidity	IS 3025 (Part-10):1984, RA 2017	1 to 1000 NTU
		Chloride Cl	IS 3025 (Part-32):1988, RA 2014	1.0 mg/l to 2500 mg/l
		Temperature	IS 3025 (Part-9):1984, RA 2017	25 to 60°C
		Sulphate as SO ₄	APHA 23 rd Edition, 2017- Turbidity Method	1 mg/l to 500 mg/l
		Residual Chlorine	IS 3025 (Part-26):1986, RA 2014	0.2 mg/l to 10.0 mg/l
		Phosphate as PO ₄	IS 3025 (Part-31):1988, RA 2014 (Stannous Chloride Method)	0.2 mg/l to 100 mg/l
		Silica as SiO ₂	IS 3025 (Part-35):1988, RA 2014 (Molybdo silicate Method)	0.4 mg/l to 100 mg/l
		Iron as Fe	IS 3025 (Part-53) :2003, RA 2014 (Phenathroline Method)	0.2 mg/l to 50 mg/l
		Ammonical Nitrogen as NH ₃	IS 3025, (Part-34):1988, RA-2014 (Titrimetric Method)	1 mg/l to 200 mg/l
	Total Nitrogen as N	IS 3025, (Part-34):1988, RA -2014	1 mg/l to 200 mg/l	

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 4 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nitrogen Nitrate as NO ₃	IS 3025, (Part-34):1988, RA -2014 (Chromo tropic Acid Method)	1.0 mg/l to 50.0 mg/l
		Fluoride as F	APHA 23 rd Edition, 2017 4500 F D	0.10 mg/l to 10 mg/l
		Dissolved Oxygen	IS 3025 (Part 38):1989, RA 2014	1.0 mg/l to 8.5 mg/l
		Sodium as Na	IS 3025 (Part 45):1993, RA 2014	1.0 mg/l to 1000 mg/l
		Potassium as K	IS 3025 (Part 45):1993, RA 2014	1.0 mg/l to 200 mg/l
		BOD (3 days, 27°C)	IS 3025, (Part-44) :1993, reaffirmed-2014	2 mg/l to 50000 mg/l
		COD	IS 3025 (Part 58):2006, RA-2017 (Open Reflux Method)	10 mg/l to 100000 mg/l
		Oil & grease	IS 3025 (Part 39):1991, RA 2014	1.0 mg/l to 500 mg/l
2.	Soil	pH	IS 2720 (P-26), RA 2016 By pH Meter	1 to 14
		Conductivity	IS 14767-2000, RA 2016 By Conductivity Meter	0.001 mS/cm to 20 mS/cm
		Chloride	BS-1377 (Part 3) : 1990	0.005 % to 5 %
		Organic Matter	IS 2720 (Part -22),1972 RA 2015 Titrimetric Method,	0.05 % to 10 %
		Available Nitrogen	IS 14684-1999, RA 2014 Distillation Method	5 kg/hac to 1000 kg/hac
		Sulphate	IS 2720 (Part 27) 1977 RA 2015	1 mg/kg to 200 mg/kg
III.	ATMOSPHERIC POLLUTION			
1.	Ambient Air	PM _{2.5}	VEL/STP/01, STP-57 , Issue No.-01 & Issue Date- 15.05.2017	10 µg/m ³ to 150 µg/m ³

Laboratory **Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan**

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

Certificate Number **TC-6652**

Page 5 of 12

Validity **18.12.2017 to 17.12.2019**

Last Amended on **27.01.2019**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Particulate Matter (Particle Size less than 10 µm) or PM ₁₀	IS 5182 (Part-23):2006, RA 2017	5 µg/m ³ to 1000 µg/m ³
		Sulphur Dioxide	IS 5182, (Part-2):2001, RA 2017	5 µg/m ³ to 150 µg/m ³ .
		Nitrogen Dioxide	IS 5182 (Part-6):2006, RA 2017	5 µg/m ³ to 150 µg/m ³ .
		Ammonia	VEL/STP/01, STP-60 , Issue No.-01 & Issue Date- 15.05.2017	5 µg/m ³ to 500 µg/m ³ .
		Ozone	IS 5182 (Part-9):1974, RA 2014	5 µg/m ³ to 300 µg/m ³
2.	Stack Emission	Particulate matter	IS 11255 (Part – 1) :1985, RA 2014	5 mg/Nm ³ to 2000 mg/Nm ³
		Sulphur Dioxide	IS 11255 (Part – 2):1985, RA 2014	5 mg/Nm ³ to 1000 mg/Nm ³
		Nitrogen Dioxide	IS 11255 (Part-7):2005, RA 2017	5 mg/Nm ³ to 1000 mg/Nm ³
		Fluoride	IS 11255 (Part-5):1990, RA 2014	1.0 mg/Nm ³ to 100.0 mg/Nm ³
IV.	BUILDING MATERIALS			
1.	Cement (OPC, PPC, PSC, White Cement)	Loss on ignition	IS 4032: 1985, RA 2014	0.5% to 10%
		Silica (SiO ₂)	IS 4032: 1985, RA 2014	10% to 40%
		Alumina (Al ₂ O ₃)	IS 4032: 1985, RA 2014	2.0% to 20%
		Ferric Oxide (Fe ₂ O ₃)	IS 4032: 1985, RA 2014	0.5% to 10%
		Calcium Oxide (CaO)	IS 4032: 1985, RA 2014	35 % to 70%
		Magnesia (MgO)	IS 4032: 1985, RA 2014	0.1% to 10%
		Sulphuric Anhydride(SO ₃)	IS 4032: 1985, RA 2014	0.5% to 7%
		Insoluble Residue	IS 4032: 1985, RA 2014	0.1% to 35%
		Sodium Oxide (Na ₂ O)	IS 4032: 1985, RA 2014	0.0% to 2%
		Potassium Oxide (K ₂ O)	IS 4032: 1985, RA 2014	0.05% to 2%
		Chloride (Cl)	IS 4032: 1985, RA 2014	0.005% to 2%

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 6 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	Admixture	Dry material content	IS 9103 : 1999, RA 2013	5 %to 50%
		Ash content	IS 9103 : 1999, RA 2013	2% to 35%
		Relative density	IS 9103 : 1999, RA 2013	0.5 to 1.5
		Chloride content	IS 6925-1973, RA 2013 Clause-5	0.001% to 1%
		pH	IS 9103:1999, RA 2013	5 to 9
3.	Aggregate (Coarse & Fine)	Sulphate (SO ₃)	IS 4032: 1985, RA 2013	0.005% to 3%
		Alkali Aggregate Reactivity (potential reactivity of aggregates)	IS 2386 (Part-7): 1963, RA: 2016 Clause 3	1 millimoles/l to 500millimoles/l 1 millimoles/l to 500millimoles/l
		i) Reduction in alkalinity		
		ii) Silica Dissolved		
		Organic Impurities	IS 2386 (Part II): 1963, RA.: 2016	Qualitative
		Chloride	IS 14959 (Part-2), 2001, RA 2016	0.02 % to 3 %
		pH	IS 2720 (Part 26): 1987, RA 2011	2 to 12
V.	METALS & ALLOYS			
1.	Steel (Mild Steel, Structural Steel, High Strength)	Carbon (C)	IS 228 (Part 1): 1987, RA 2018	0.05 % to 2.5 %
		Sulphur (S)	IS 228 (Part 9): 1989, RA 2014 (Evolution Method)	0.01 % to 0.25 %
		Phosphorus (P)	IS 228 (Part 3): 1987, RA 2018	0.01 % to 0.25 %
		Silicon (Si)	IS 228 (Part 8): 1989, RA 2014	0.05 % to 5 %

***NOTE:** The Laboratory has demonstrated competence for the stated scope for **WATER**. This however **does not fully cover** the specification requirements of **BIS for the Packaged Drinking Water as per IS:14543 and the Packaged Natural Mineral Water IS:13428**.

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 7 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>MECHANICAL TESTING</u>				
I. BUILDING MATERIALS				
1.	Cement	Fineness by-Dry sieving method (% of Residue)	IS 4031(Part 1): 1996 (RA. 2016)	0.1 % to 10 %
		Fineness by-Blain's air Method	IS 4031 (Part 2):1999 (RA.2013)	100 m ² /kg to 500 m ² /kg
		Soundness by-Le-chatelier method	IS 4031 (Part 3):1988 (RA.2014)	0.5 mm to 10 mm
		Standard Consistency	IS 4031 (Part 4):1988 (RA. 2014)	20 % to 40 %
		Setting Time (Initial)	IS 4031 (Part 5):1988 (RA. 2014)	10 min to 200 min.
		Setting Time (Final)	IS 4031 (Part 5):1988 (RA. 2014)	60 min. to 800 min.
		Compressive Strength	IS 4031 (Part 6):1988 (RA. 2014)	10 N/mm ² to 80 N/mm ²
		Density	IS 4031 (Part 11):1988 (RA. 2014)	1.5 g/ cm ³ to 4 g/ cm ³
2.	Bricks	Compressive Strength	IS 3495 (Part 1):1992 (RA. 2016)	2 N/mm ² to 39 N/mm ²
		Water absorption	IS 3495 (Part 2):1992 (RA. 2016)	0.5 % to 30 %
		Efflorescence	IS 3495 (Part 3):1992 (RA. 2016)	Qualitative
		Dimension (Ordinary building bricks) Length Width Height	IS 1077 :1992 (RA. 2016) IS 12894 :2002 (RA. 2007)	3000 mm to 5000 mm 1000 mm to 3000 mm 1000 mm to 3000 mm
		Dimensions (Heavy duty bricks)	IS 2180 :1988 (RA. 2016)	

Laboratory **Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan**

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

Certificate Number **TC-6652**

Page 8 of 12

Validity **18.12.2017 to 17.12.2019**

Last Amended on **27.01.2019**

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Length Width Height		170 mm to 210 mm 70 mm to 110 mm 30 mm to 110 mm
3.	Concrete	Workability by Slump Test (fresh Concrete)	IS 1199 :1959 (RA. 2013)	Upto 250 mm
		Workability by Compaction Factor	IS 1199 :1959 (RA. 2013)	0.7 to 1
		Accelerated Curing of Concrete for compressive strength	IS 9013: 1978 (RA. 2013)	10 N/mm ² to 80 N/mm ²
		Flexural Strength	IS 516: 1959 (RA. 2013)	3 N/mm ² to 10 N/mm ²
		Compressive Strength of Cubes	IS 516: 1959 (RA. 2013)	5 N/mm ² to 80 N/mm ²
4.	Paver Block	Dimensions Length Width Height	IS 15658-2006 (RA. 2017) Annex-B	50 mm to 400 mm 50 mm to 400 mm 40 mm to 130 mm
		Area	IS 15658-2006 (RA. 2017) Annex-B	25000 mm ² to 160000 mm ²
		Water Absorption	IS 15658: 2006 (RA. 2017) Annex-C	1 % to 20 %
		Compressive Strength	IS 15658: 2006 (RA .2017) Annex-D	5 N/mm ² to 80 N/mm ²
5.	Hollow & Solid Concrete Block	Block Density	IS 2185 (Part I): 2005 (RA. 2015)	1000 kg/m ³ to 3000 kg/m ³
		Compressive Strength	IS 2185 (Part I): 2005 (RA. 2015)	2 N/mm ² to 70 N/mm ²
		Water Absorption	IS 2185 (Part I): 2005 (RA. 2015)	1 % to 20 %
		Dimension Length width Height	IS 2185 (Part I): 2005 (RA. 2015)	200 mm to 600 mm 50 mm to 300 mm 100 mm to 250 mm
6.	Aggregates (Coarse)	Sieve Analysis (Gradation)	IS 2386 (Part-1) 1963 (RA. 2016)	80 mm to 4.75 mm (0 to 100%)

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 9 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Water absorption	IS 2386 (Part-3) 1963 (RA. 2016)	0.1 % to 10 %
		Impact value	IS 2386 (Part-4) 1963 (RA. 2016)	10 % to 50 %
		Los Angles Abrasion value	IS 2386 (Part-4) 1963 RA. 2016	10 % to 60 %
		Crushing value	IS 2386 (Part-4) 1963 (RA. 2016)	10 % to 60 %
		Bulk density	IS 2386 (Part-3) 1963 (RA. 2016)	1 kg/l to 3 kg/l
		Specific gravity	IS 2386 (Part-3) 1963 (RA. 2016)	2.0 to 4.0
		Combined Elongation & Flakiness index	IS 2386 (Part-1) 1963 (RA. 2016)	5 % to 50 %
		10% Fines Value	IS 2386 (Part-4) 1963 (RA. 2016)	0.5 ton to 30 ton
		Stripping Value	IS 6241: 1971 (RA. 2017)	Qualitative
		Materials finer than 75 µm	IS 2386 (Part-1) 1963 (RA. 2016)	0.1% to 5 %
		Clay Lumps	IS 2386 (Part-2) 1963 (RA. 2016)	0.05% to 5 %
		Clay, Fine Silt & Fine Dust (Sedimentation Method)	IS 2386 (Part-2) 1963 (RA. 2016)	0.01 % to 5 %
7.	Aggregates (Fine)	Sieve analysis (Gradation)	IS 2386 (Part-1) 1963 (RA. 2016)	4.75 mm to 75 micron (0 to 100 %)
		Water absorption	IS 2386 (Part-3) 1963 (RA. 2016)	0.1 % to 10 %
		Bulk density	IS 2386 (Part -3) 1963 (RA. 2016)	1 kg/l to 3 kg/l
		Specific gravity	IS 2386 (Part-3) 1963 (RA. 2016)	2.0 to 4.0
8.	Aggregates (Coarse/Fine)	Materials finer than 75 µm	IS 2386 (Part-1) 1963 (RA. 2016)	0.1% to 20 %

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 10 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Clay Lumps	IS 2386 (Part-2) 1963 (RA. 2016)	0.05 % to 5 %
		Clay, Fine Silt & Fine Dust (Sedimentation Method)	IS 2386 (Part-2) 1963 (RA. 2016)	0.01 % to 5 %
II. MECHANICAL PROPERTIES OF METALS				
1.	Reinforcement Steel Bars & Steel Wires	Nominal Mass/Unit length	IS 1608-2005 (Part -1) (RA. 2018) / IS 1786-2008 (RA. 2013)	0.1 kg/m to 10 kg/m
		Cross sectional area	IS 1608-2005 (Part -1) (RA. 2018) / IS 1786-2008 (RA. 2013)	1 mm ² to 1000 mm ²
		Yield Stress	IS 1608-2005 (Part -1) (RA. 2018) / IS 1786-2008 (RA. 2013)	10 kN to 950 kN
		Tensile Strength	IS 1608-2005 (Part -1) (RA. 2018) / IS 1786-2008 (RA. 2013)	10 kN to 950 kN
		% Elongation	IS 1608-2005 (Part -1) (RA. 2018) / IS 1786-2008 (RA. 2013)	1 % to 40 %
		TS/YS Ratio	IS 1608-2005 (Part -1) (RA. 2018) / IS 1786-2008 (RA. 2013)	0.5 to 2.5
		Bend Test	IS 1599-2012 (RA. 2017) / IS 1786-2008 (RA. 2013)	Qualitative (Mandrel Diameters 6,8, 10, 12, 16, 20, 25,28, 32, 36, 40) mm
		Re-bend	IS 1786: 2008 (RA. 2013)	
2.	Reinforcement Couplers for Mechanical Splices of Bars in Concrete	Static Tensile Test (Tensile strength)	IS 16172-2014 (Cl. 9.2.1)	20 kN to 950 kN (Observation of Fracture/ Failure)

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652

Page 11 of 12

Validity 18.12.2017 to 17.12.2019

Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III.	SOIL AND ROCK			
1.	Soil	Specific Gravity Grain Size Analysis	IS 2720 (Part-3) Sec.1:1980 (RA.2016)	1.5 to 3.5
		Dry Sieve Analysis	IS 2720 (Part-4) (Clause 3.0) 1985 (RA.2015) CL. 3	75 μ to 75 mm 0.1% to 100 %
		Wet Sieve Analysis	IS 2720 (Part-4) (Clause 4.3) 1985 (RA.2015) Cl. 4	(75 μ to 10 mm) 0.1 % to 100 %
		Compaction Test (Proctor compaction)		
		1. Light compaction Moisture Content Density	IS 2720 (Part-7) 1980 (RA. 2016)	4 % to 35 % 1.2 g/cm ³ to 2.5 g/cm ³
		2. Heavy compaction Moisture Content density	IS 2720 (Part-8) 1983 (RA.2015)	4 % to 30 % 1.2 gm/cm ³ to 3 gm/cm ³
		California Bearing Ratio (CBR)	IS 2720 (part-16) 1987 (RA. 2016)	1% to 100%
		Free Swell Index	IS 2720 (part-40) 1977 (RA 2011)	1% Max to 400 % Max
		Permeability	IS 2720 (Part 17): 1986 (RA 2011)	1 \times 10 ⁻³ cm/s to 10 ⁻⁷ cm/sec
		Swelling Pressure	IS 2720 (Part-41) 1997 (RA.2016)	Upto 2 kg/cm ²
		Water Content	IS 2720 (Part-2) 1973 (RA.2015)	0.1% to 40%
		Atterberg's Limit		
		Liquid Limit	IS 2720 (Part-5) 1985 (RA. 2015)	20% to 100%
		Shrinkage Limit	IS: 2720 (part-6) 1972 (RA 2016)	5% to 30%

Laboratory Vardan Envirolab, Plot No. 24 & 25, Narayan Vihar, Block-B, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-6652 Page 12 of 12

Validity 18.12.2017 to 17.12.2019 Last Amended on 27.01.2019

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
<u>NON DESTRUCTIVE TESTING</u>				
I.	BUILDING MATERIALS-REINFORCED CONCRETE STRUCTURES			
1.	Reinforced Concrete Structures	Rebound Hammer Test	IS 13311 (Part-2):1992 (RA 2013)	20 RN. to 80 RN
		Carbonation Test	BS:1881 (Part 201)-1986	Upto 75 mm