

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 1 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
-----	----------------------------	-------------------------	---	--

CHEMICAL TESTING

I. BUILDING MATERIAL				
1.	Cement (OPC, PPC)	Silica (SiO ₂)	IS 4032: Cl. 4.3	15.0 % to 50 %
		Alumina (Al ₂ O ₃)	IS 4032: Cl. 4.6.2 (EDTA)	1.0 % to 20 %
		Iron oxide (Fe ₂ O ₃)	IS 4032: Cl. 4.5.2 (EDTA)	1.0 % to 10 %
		Loss on ignition (LOI)	IS 4032: Cl. 4.2 and 7.1	0.5 % to 10 %
		Magnesia (MgO)	IS 4032: Cl. 4.8.2 (EDTA)	1.0 % to 10 %
		Calcium Oxide (CaO)	IS: 4032 Cl. 4.7.2 (EDTA)	40 % to 70 %
		Sulphuric anhydride (SO ₃)	IS 4032: Cl. 4.9 & 7.3	1.0 % to 10 %
		Insoluble residue	IS 4032: Cl. 4.10 & 7.4	0.5 % to 50 %
		Chloride	IS 4032	0.005 % to 0.2 %
2.	Construction Chemical (Admixture)	pH	IS 9103	4 to 10
		Dry Material Content	IS 9103	25 % to 50 %
		Ash Content	IS 9103	5 % to 25 %
		Relative Density	IS 9103	1.0 % to 1.5 %
		Chloride	IS 6925:	0.001 % to 0.25 %
II. METAL AND ALLOYS				
1.	Carbon Steel	Carbon	IS 228 (Part 1)	0.02 % to 2.5 %
		Sulphur	IS 228 (Part 9)	0.01 % to 0.3 %
		Silicon	IS 228 (Part 8)	0.5 % to 5.0 %
		Manganese	IS 228 (Part 2)	0.1 % to 5.0 %
		Phosphorus	IS 228 (Part 3)	0.01 % to 1.01 %
III. METALLIC COATING & TREATMENT SOLUTION				
1.	Aluminium Section	Anodic Coating	IS 6012: (Using DFT)	10 micron to 650 micron

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 2 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	GI Sheet	Mass of Zinc Coating	IS 6745 (using stripping method)	10 g/m ² to 1000 g/m ²
IV.	WATER			
1.	Water (for construction purpose)	Oranic Solid	IS 3025 (Part 18)	5 mg/l to 500 mg/l
		Inorganic Solid	IS 3025 (Part 18)	10 mg/l to 8000 mg/l
		Suspended matter	IS 3025 (Part 17)	10 mg/l to 3000 mg/l
		pH value	IS 3025 (Part 11)	4 to 10
		Chloride	IS 3025 (Part 32)	10 mg/l to 5000 mg/l
		Sulphate (as SO ₃)	IS 3025 (Part 24)	10 mg/l to 2000 mg/l
		Volume of 100 ml sample used to neutralize 0.02 N NaOH, using phenolphthalein Indicator	IS 3025 (Part 22)	0.1 ml to 35 ml
		Volume of 100 ml sample used to neutralize 0.02 N H ₂ SO ₄ , using mixed indicator (alkalinity)	IS 3025 (Part 23)	0.1 ml to 15 ml
2.	Water (for drinking purpose)	pH	IS 3025 (Part 11) Cl. 2	4.0 to 10.0
		Total Dissolved Solids	IS 3025 (Part 16)	20 mg/l to 5000 mg/l
		Chloride	IS 3025 (Part 32) Cl. 2.0 (argentometric method)	10 mg/l to 5000 mg/l
		Total Hardness (as CaCO ₃)	IS 3025 (Part 21)	50 mg/l to 3000 mg/l
		Sulphate (as SO ₄)	IS 3025 (Part 24)	10 mg/l to 400 mg/l
		Calcium	IS 3025 (Part 40) Cl. 6.6 (EDTA)	10 mg/l to 500 mg/l
		Magnesium	IS 3025 (Part 46) Cl. 6 (EDTA)	2.0 mg/l to 100 mg/l

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 3 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

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.	Coarse Aggregate	Sieve Analysis	IS 2386 (Part 1)	Up to 100% (4.75 mm to 63 mm)
		Specific Gravity	IS 2386 (Part 3)	2.0 to 3.00
		Water Absorption	IS 2386 (Part 3)	0.1 % to 30 %
		Aggregate Impact Value	IS 2386 (Part 4)	5 % to 80 %
		Flakiness Index	IS 2386 (Part 1)	5 % to 60 %
		Elongation Index	IS 2386 (Part 1)	5 % to 60 %
		Crushing Value	IS 2386 (Part 4)	5% to 60%
		75 Micron finer materials	IS 2386 (Part -1)	Upto 10%
		Coal & lignite	IS 2386 (Part -2)	Upto 10%
		Clay lumps	IS 2386 (Part -2)	Upto 10%
		10% fine value	IS 2386 (Part - 4)	5 Ton to 50 Ton
		Bulk Density	IS 2386 (Part -3)	1 kg/L to 2 kg/L
		Soundness by MgSO ₄	IS 2386 (Part -5)	2 % to 20 %
		Soundness by Na ₂ SO ₄	IS 2386 (Part -5)	2 % to 20 %
2.	Fine Aggregate	Sieve Analysis	IS 2386 Part-1	Upto 100% (0.15 mm to 4.75 mm)
		75 Micron finer materials	IS 2386 (Part-1)	01% to 20%
		Coal & lignite	IS 2386 (Part -2)	01% to 20%
		Clay lumps	IS 2386 (Part -2)	01% to 20%
		Bulk Density	IS 2386 (Part-3)	1 kg/L to 2 kg/L
		Water Absorption	IS 2386 (Part 3)	0.1 to 30 %
		Specific Gravity	IS 2386 (Part 3)	2 to 3
		Soundness by MgSO ₄	IS 2386 (Part -5)	upto 30 %
Soundness by Na ₂ SO ₄	IS 2386 (Part -5)	upto 30 %		

Laboratory

Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O.
B.V. College, P.S. Patna Airport, Dist. Patna, Bihar

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-5102

Page 4 of 8

Validity 19.12.2018 to 18.12.2020

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	Cement (OPC/ PPC)	Standard Consistency	IS 4031 (Part -4)	10 % to 45%
		Compressive Strength	IS 4031 (Part -6)	10 N/mm ² to 70 N/mm ²
		Soundness by Le-Chatelier	IS 4031 (Part 3)	0.5 mm to 10 mm
		Fineness by Blaine Method	IS 4031 (Part -2)	150 m ² /kg to 600 m ² /kg
		Setting Time		
		Initial	IS 4031 Part 5)	5 min to 600 min.
Final	IS 4031 (Part -5)	100 min to 600 min.		
4.	Bricks (Burnt Clay Pulverised Fuel Fly Ash)	Water Absorption	IS 3495 (Part -2)	1 % to 30%
		Compressive Strength	IS 3495 1992(Part -1)	2 N/mm ² to 40 N/mm ²
		Efflorescence	IS 3495 1992(Part -3)	Qualitative
		Dimension to Burnt Clay Bricks	IS 1077	L:4520 mm to 5000 mm B:2160 mm to 3000 mm H:1360 mm to1440 mm
		Dimension to Fly Ash Bricks	IS :12894	L:4520 mm to 5000 mm B:2160 mm to 3000 mm H:1360 mm to1440 mm
5.	Concrete	Compressive Strength Cube	IS 516	5 N/mm ² to 80 N/mm ²
		Flexural strength	IS 516	1.0 N/mm ² to 10 N/mm ²
6.	Precast Concrete Paving Block	Compressive Strength	IS 15658 Annex D	5 N/mm ² to 75 N/mm ²
		Water Absorption	IS 15658 Annex C	1% to 20 %
7.	Paving Bitumen	Specific Gravity	IS 1202	0.5 to1.5
		Softening Point	IS 1205	15°C to 80°C
		Penetration at 25°C	IS 1203	30 div to 225 div
		Flash point	IS 1209	15 °C to 275°C
		Fire Point	IS 1209	15°C to 275°C
		Absolute Viscosity at 60° C	IS:1206 (Pt-2)	360 to 24000 Poise
Kinematic Viscosity135° C	IS:1206 (Part 3)	30 cSt to 500 cSt		

Nitan Garg
Convenor

N. Venkateswaran
Program Manager

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 5 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Solubility in Trichloroethylene	IS 1216	90% to 100 %
		Ductility at 25 ^o C	IS:1208	upto 100 cm
8.	Bituminous Mix	Binder Content	IRC SP 11 Appendix 5 Clause C	0.5 % to 20 %
		Stripping Value	IS 6241	Qualitative (Up to 100%)
		Marshal stability	ASTM D 6927	1 kN to 50 kN
9.	Bitumen Mastic	Hardness Number	IS 1195	1 to 200
10.	Bitumen emulsion	Residue on 600 micron IS sieve , Percentage by mass,Max	IS 8887 Annexure B	0.01 to 1.0
		Miscibility with water	IS 8887 Annex H	Qualitative
		Viscosity by Saybolt furol viscometer At 25 °C	IS 3117	10s to 400s
		Viscosity by Saybolt furol viscometer At 50 °C	IS 3117	10s to 400s
		Tests on Residue		
		Residue by evaporation	IS 8887 Annex J	10 % to 100 %
		Penetration	IS 1203	50 div to 400 div
		Ductility	IS 1208	10 cm to 100 cm
		Solubility in trichloroethylene	IS 1216	80 % to 100 %
11.	Ceramic Tiles	Dimension	IS 13630 (part1)	L:150 mm to 900 mm B: 150 mm to 900 mm T: 5 mm to 50 mm
		Water absorption	IS 13630 (part 2)	0.01 % to 25 %
		Modulus of rupture	IS 13630 (part 6)	10 N/mm ² to 100 N/mm ²
		Breaking strength	IS 13630 (part 6)	100 N to 20000 N

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 6 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
12.	Chequered Cement concrete Tiles	Dimension	IS 13801 Clause 7	L:150 mm to 900 mm B: 150 mm to 900 mm T: 5 mm to 50 mm
		Water absorption	IS 13801 Annex E	0.01% to 25 %
		Wet transverse strength	IS 13801 Annex F	0.5 N/mm ² to 10 N/mm ²
		Thickness to wearing Layer	IS 13801 Clause 8.3	0.1 mm to 15 mm
13.	Cement Concrete Flooring Tiles	Dimension	IS 1237 Clause 7	L:5 mm to 500 mm B: 150 mm to 500 mm T: 5 mm to 50 mm
		Thickness of Wearing Layer	IS 1237: Clause 8.3	0.1 mm to 15 mm
		Water Absorption	IS 1237 Annex E	0.01% to 25%
		Wet Transverse Strength	IS 1237 Annex F	0.5 N/mm to 10 N/mm ²
II.	WOOD & WOOD PRODUCTS			
1.	Timber and Timber Products	Moisture Content	IS 11215 Clause 4, (Oven dry method)	2% to 35 %
2.	Wood particle board & boards from other lignocellulosic material	Density	IS 2380 (Part 3)	200 kg/m ³ to 1500 kg/m ³
		Moisture	IS 2380 (part 8)	1 % to 20 %
3.	Door Shutters	Knife test	IS 4020 (Part 14)	Qualitative
4.	Ply Wood	Moisture content	IS 1734 (Part 1)	2 % to 50 %

Nitan Garg
Convenor

N. Venkateswaran
Program Manager

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 7 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III.	SOIL & ROCKS			
1.	Soil	Liquid Limit	IS 2720 (Part 5)	10% to 600 %
		Plastic Limit	IS 2720 (Part 5)	5 % to 300 %
		Water Content	IS 2720 (Part 2)	0.1% to 30%
		Moisture content	IS 2720 (Part 2)	0.1% to 30%
		Grain size Analysis (Wet & Dry)	IS 2720 (Part 4)	Upto 100 % (0.075 mm to 19mm)
		California Bearing Ratio (C.B.R.)	IS 2720 (Part 16)	3% to 60%
		Specific Gravity	IS 2720 (Part 3) (Sec-I)	2.0 to 3.0
		Direct Shear Test	IS 2720 (Part 13)	$\phi = 5$ to 50° . C= 1 to 10 kg / cm ²
		Light Compaction	IS 2720 (Part 7)	MDD: 1.40 to 1.95 g/cc OMC: 10 % to 30 %
		Heavy Compaction	IS 2720 Part 8	MDD: 1.50 to 2.20 g/cc OMC : 5% to 25%,
	Triaxial Compression Test (UU)	IS - 2720 (Part 11)	C : 0.0 to 2.0 kg/cm ² ϕ : 05° to 40°	
2.	Marble	Dimension	IS 1130 Clause 5	L: 150 mm to 500 mm B: 150 mm to 500 mm T: 5 mm to 50 mm
		Moisture absorption	IS 1124	0.01% to 20 %
		True specific gravity	IS 1122	2 to 3.5
IV.	MECHANICAL PROPERTIES OF MATERIALS			
1.	HSD Bar/ TMT Bar & Structure steel material	Tensile Strength	IS 1608	48 N/mm ² to 750 N/mm ²
		Elongation	IS 1608	0.5% to 60 %
		Yield Stress	IS 1608	48 N/mm ² to 650 N/mm ²
		Bend Test	IS 1599 &	Qualitative (Mandrel dia :to 15, 25,30,50,60,63,75,90, 100,110,120,130 and 140 mm)
		Rebend test	IS 1786	

Laboratory **Global Testing & Research Laboratory, Murlichak, Jagdeopath, P.O. B.V. College, P.S. Patna Airport, Dist. Patna, Bihar**

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

Certificate Number **TC-5102**

Page 8 of 8

Validity **19.12.2018 to 18.12.2020**

Last Amended on --

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	7 Ply strand for Pre-stressed concrete	Mass per meter	IS 1786	0.1 kg/m to 20 kg/m
		Breaking Load	IS 1608 (Part 1)	10 kN to 400 kN
		Elongation	IS 14268	0.5% to 10 %
		Percentage difference between center wire and surrounding wire	IS 14268	0.5% to 10 %
		Length of Lay	IS 14268	upto 300 mm
3.	Weld in metal	Normal Dimension	IS 14268	Diameter 0.5 mm to 20 mm
		Tensile Strength	ASME Standard Section IX 2017-QW 150	48 N/mm ² to 750 N/mm ²
		Guide bend test	ASME Standard Section IX 2017-QW 160,161,162	Qualitative, Mandrel Diameter:15, 25,30,50,60,63, 75, 90, 100, 110, 120, 130 and 140 mm