

Laboratory Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7513

Page 1 of 9

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
-----	----------------------------	-------------------------	---	--

**CHEMICAL TESTING**

<b>I. BUILDING MATERIAL</b>				
1.	<b>Cement (OPC, PPC)</b>	Silica (SiO <sub>2</sub> )	IS 4032-1985:(RA 2014)	10% to 40%
		Loss on Ignition	IS 4032-1985:(RA 2014)	0.1% to 10%
		Insoluble residue	IS 4032-1985:(RA 2014)	0.1% to 50%
		Total Sulphur (as SO <sub>3</sub> )	IS 4032-1985:(RA 2014)	0.1% to 5%
		Calcium Oxide (as CaO)	IS 4032-1985:(RA 2014)	8.0% to 70%
		Magnesia (as MgO)	IS 4032-1985:(RA 2014)	0.5% to 10%
		Alumina (as Al <sub>2</sub> O <sub>3</sub> )	IS 4032-1985:(RA 2014)	1.0% to 15%
		Iron Oxide (as Fe <sub>2</sub> O <sub>3</sub> )	IS 4032-1985:(RA 2014)	1% to 15%
		Chloride (as Cl)	IS 4032-1985:(RA 2014)	0.005% to 1%
2.	<b>Fly Ash</b>	Silica (as SiO <sub>2</sub> )	IS 1727-1967:(RA 2013)	25% to 70%
		(Alumina + Iron oxide)	IS 1727-1967:(RA 2013)	5% to 45%
		Magnesia (as MgO)	IS 1727-1967:(RA 2013)	0.1% to 10%
		Total Sulphur (as SO <sub>3</sub> )	IS 1727-1967:(RA 2013)	0.1% to 1%
		Loss on Ignition	IS 1727-1967:(RA 2013)	0.1% to 15%
3.	<b>Water Proofing Compound</b>	Chloride (as Cl)	IS 6925-1973:(RA 2016)	0.005% to 1%
		Chloride Content (as Cl)	IS 6925-1973:(RA 2016)	0.01% to 5.0%
4.	<b>Admixture</b>	Dry Material Content	IS 9103-1999:(RA 2013)	10% to 70%
		Ash Content	IS 9103-1999:(RA 2013)	1.0% to 20%
		Relative Density	IS 9103-1999:(RA 2013)	1.00% to 1.500
		Chloride Content (as Cl)	IS 6925-1973:(RA 2013)	0.001% to 1%
		P <sup>H</sup> Value	IS 9103-1999:(RA 2013)	4 to 12
5.	<b>Aggregate</b>	1) Alkali Reactivity	IS 2386 (Part 7)-1963:	
		a) Reduction in alkalinity	(RA 2016)	5 to 500 (millimoles/l)
		b) Dissolved silica		
		2) Water Soluble Chloride (as Cl)		5 to 500 (millimoles/l)
		3) Sulphate (as SO <sub>3</sub> )	IS 14959 (Part 2)-2001:	0.005% to 1.0%

Laboratory

Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7513

Page 2 of 9

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
6.	Concrete & Cement Mortar	Water Soluble Chloride (as Cl)	(RA 2007) IS 4032-1985:(RA 2014) IS 14959 (Part 2)-2001: (RA 2007)	0.1% to 5.0% 0.005% to 1.0%
7.	Ceramic Tiles	Sulphate (as SO <sub>3</sub> ) a) Resistance to staining of glazed Tiles b) Resistance to household chemicals and swimming Pool water cleaners c) Resistance to acids and alkalis	IS 4032-1985:(RA 2014) IS 13630 (Part 8)-2006: (RA 2012) IS 13630 (Part 8)-2006: (RA 2012) IS 13630 (Part 8)-2006: (RA 2012)	0.05% to 2.0% Qualitative Qualitative Qualitative
II.	<b>METALS &amp; ALLOYS</b>			
1.	Structural & Reinforcement Steel	Carbon (as C) Sulphur (as S) Phosphorous (as P) Manganese (as Mn) Silicon (as Si) Nickel (as Ni) Chromium (as Cr)	IS 228 (Part 1)1987: (RA 2008) IS 228 (Part 9)1987: (RA 2014) IS 228 (Part 3)1987: (RA 2012) IS 228 (Part 2)1987: (RA 2012) IS 228 (Part 8)1987: (RA 2014) IS 228 (Part 5)1987: (RA 2014) IS 228 (Part 6)1987: (RA 2014)	0.02% to 1.5% 0.005% to 0.5% 0.005% to 0.5% 0.05% to 2% 1.1 % to 5.0% 1.1 % to 3% 0.05% to 2%
2.	Metallic Coating & Treatment	Mass of Zinc Coating	IS 6745-1972:(RA 2016)	5 g/m <sup>2</sup> to 1000g/m <sup>2</sup>

Venugopal C  
Convenor

N. Venkateswaran  
Program Manager

Laboratory **Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi**

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

Certificate Number **TC-7513**

Page 3 of 9

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
	<b>Solution (Metallic coating)</b>			
<b>III.</b>	<b>WATER</b>			
<b>1.</b>	<b>Drinking Water</b>	Total Acidity (as CaCO <sub>3</sub> ) Total Alkalinity (as CaCO <sub>3</sub> ) Total Hardness (as CaCO <sub>3</sub> ) Total Dissolved Solids Total Suspended Solids Chloride (as Cl) pH Sulphate (as SO <sub>4</sub> )	IS 3025 (Part 22)-1986: (RA 2014) IS 3025 (Part 23)-1986: (RA 2014) IS 3025 (Part 21)-2009; (RA 2014) IS 3025 (Part 16)-1984: (RA 2012) IS 3025 (Part 17)-1984: (RA 2012) IS 3025 (Part 32)-1988: (RA 2014) IS 3025 (Part 11)-1983: (RA 2012) IS 3025 (Part 24)-1986: (RA 2014)	1 mg/l to 200 mg/l 2 mg/l to 500 mg/l 2 mg/l to 5000 mg/l 12 mg/l to 6000 mg/l 10 mg/l to 1000 mg/l 2 mg/l to 5000 mg/l 2 to 12 0.1 mg/l to 1000 mg/l
<b>2.</b>	<b>Construction Water</b>	Total Acidity (CaCO <sub>3</sub> ) Total Alkalinity (CaCO <sub>3</sub> ) Total Suspended Solids Organic Solids Inorganic Solids Chloride (as Cl)	IS 3025 (Part 22)-1986: (RA 2014) IS 3025 (Part 23)-1986: (RA 2014) IS 3025 (Part 17)-1984: (RA 2012) IS 3025 (Part 18)-1984: (RA 2012) IS 3025 (Part 18)-1984: (RA 2012) IS 3025 (Part 32)-1988: (RA 2014) IS 3025 (Part 24)-1986: (RA 2014)	0.1 ml to 100ml 0.1 ml to 200ml 10 mg/l to 10000 mg/l 10 mg/l to 500 mg/l 10 mg/l to 4000 mg/l 2.0 mg/l to 2000 mg/l 4.0 mg/l to 1000 mg/l

Laboratory Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7513

Page 4 of 9

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
		Sulphate (as SO <sub>3</sub> ) pH	(RA 2014) IS 3025 (Part 11)-1983: (RA 2012)	2 to 12
3.	Waste Water (Effluent)	Total Dissolved Solids Total Suspended Solids Dissolved Oxygen BOD (3 days 27°C) COD pH	IS 3025 (Part 16)-1984, (RA 2012) IS 3025 (Part 17)-1984, (RA 2012) IS 3025 (Part 38)-1989, (RA 2014) IS 3025 (Part 44)-1993, (RA 2014) IS 3025 (Part 58)-2006, (RA 2012) IS 3025 (Part 11)-1983, (RA 2012)	12 mg/l to 6000 mg/l 12 mg/l to 1000 mg/l 1.1 mg/l to 10 mg/l 5 mg/l to 8000 mg/l 5 mg/l to 15000 mg/l 2 to 12

**Laboratory** Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

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

**Certificate Number** TC-7513

**Page 5 of 9**

**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
-----	----------------------------	-------------------------	---	--

**MECHANICAL TESTING**

<b>I.</b>	<b>MECHANICAL PROPERTIES OF MATERIALS</b>			
<b>1.</b>	<b>Metals &amp; Alloys</b>	Tensile strength % Elongation Yield stress Bend Test Rebend Test Mass/meter	IS 1608:2005; (RA 2010) IS 1608:2005; (RA 2010) IS 1608:2005; (RA 2010) IS 1599:2012 IS 1786:2008; (RA 2013) IS 1786:2008; (RA 2013)	250 N/mm <sup>2</sup> to 800 N/mm <sup>2</sup> 10% to 40% 250 N/mm <sup>2</sup> to 600 N/mm <sup>2</sup> Qualitative Qualitative 0.098 kg to 15 kg
<b>II.</b>	<b>BUILDING MATERIALS</b>			
<b>1.</b>	<b>Water Proofing Compound</b>	Initial Setting Time Final Setting Time Compressive Strength	IS 4031 (Part 5):1988; (RA 2014) IS 4031 (Part 5):1988; (RA 2014) IS 4031 (Part -6):1988; (RA 2014)	10 min to 250 min. 30min to 700 min. 10 MPa to 70 MPa
<b>2.</b>	<b>Stones</b>	Compressive Strength Specific Gravity Water Absorption	IS 1121 (Part 1);2013 IS 1122-1974; (RA 2013) IS 1124-1974; (RA 2013)	10 MPa to 1000 MPa 1.0 to 3 0.1% to 10%
<b>3.</b>	<b>Bricks</b>	Compressive Strength Water absorption Efflorescence Dimension	IS 3495 (Part 1):1992; (RA 2016) IS 3495 (Part 2):1992; (RA 2016) IS 3995 (Part 3):1992; (RA 2016) IS 1077:1992; (RA 2011)	3 MPa to 60 MPa 5% to 40% Visual Length 4000mm to 5000mm Width 2100mm to 2400mm Height 1300mm to 1600mm

**Laboratory** Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

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

**Certificate Number** TC-7513

**Page 6 of 9**

**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
4.	Fine Aggregate	Sieve Analysis	IS 2386 (Part 1):1963; (RA 2016)	0.15 mm to 10 mm
		Fineness Modulus	IS 2386 (Part 1):1963; (RA 2016)	1 to 4
		Total Deleterious Material	IS 2386 (Part 1&2):1963; (RA 2016)	2% to 80%
		Specific Gravity	IS 2386 (Part 3):1963; (RA 2016)	1%.5 to 3.0
		Water Absorption	IS 2386 (Part 3)-1963; (RA 2016)	2% to 5%
		Moisture Content	IS 2386 (Part 3):1963; (RA 2016)	1% to 10%
		Soundness	IS 2386 (Part 5):1963; (RA 2016)	1.0% to 20%
		Bulk Density	IS 2386 (Part 3):1963; (RA 2016)	1 kg/l to 3 kg/l
		Silt Content	As per CPWD Specification	0 to 30%
		Bulking of Sand	IS 2386 (Part 3):1963; (RA 2016)	0 to 50%
	Organic Impurities	IS 2386 (Part 2):1963; (RA 2016)	Visual	
5.	Cement	Fineness by Air Permeability	IS 4031 (Part 2)1999; (RA 2013)	200 m <sup>2</sup> /kg to 500 m <sup>2</sup> /kg
		Consistency	IS 4031 (Part 4)1988; (RA 2014)	20% to 40%
		Setting Time Initial	IS 4031 (Part 5)1988; (RA 2014)	30 min to 300 min.
		Setting Time Final	IS 4031 (Part 5) 1988; (RA 2014)	50 min to 600 min.
		Soundness by Le-Chatelier	IS 4031 (Part 3) 1988; (RA 2014)	0.5 min to 10mm

**Laboratory** Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

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

**Certificate Number** TC-7513

**Page 7 of 9**

**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
		Soundness by Autoclave Compressive Strength	IS 4031 (Part 3):1988; (RA 2014) IS 4031 (Part 6) 1988; (RA 2014)	0.01% to 5.0% 10 MPa to 70 MPa
		Density	IS 4031 (Part 11):1988; (RA 2014)	1 g/cc to 3.5 g/cc
6.	Coarse Aggregate	Sieve Analysis	IS 2386 (Part 1):1963; (RA 2016)	0 to 100%
		Crushing Value	IS 2386 (Part 4):1963; (RA 2016)	10% to 50%
		Impact Value	IS 2386 (Part 4):1963; (RA 2016)	10% to 50%
		Abrasion Value	IS 2386 (Part 4):1963; (RA 2016)	10% to 50%
		10% fines value	IS 2386 (Part 4):1963; (RA 2016)	5 T to 70 T
		Bulk Density	IS 2386 (Part 3):1963; (RA 2016)	1.0 kg/l to 3.0 kg/l
		Water Absorption	IS 2386 (Part 3):1963; (RA 2016)	0.1% to 5%
		Elongation Index	IS 2386 (Part 1):1963; (RA 2016)	5% to 50%
		Flakiness Index	IS 2386 (Part 1):1963; (RA 2016)	5% to 50%
		Total Deleterious Materials	IS 2386 (Part 1&2):1963; (RA 2016)	0.2% to 8.0%
		Specific Gravity	IS 2386 (Part 3):1963; (RA 2016)	1 to 3
		Moisture Content	IS 2386 (Part 3):1963; (RA 2016)	0.1% to 10%
		Soundness	IS 2386 (Part 5):1963; (RA 2016)	0.1% to 20%

**Laboratory** Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

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

**Certificate Number** TC-7513

**Page 8 of 9**

**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
7.	Concrete	Compressive Strength Slump	IS 516-1959; (RA 2013) IS 1199-1959; (RA 2013)	5 N/mm <sup>2</sup> to 80 N/mm <sup>2</sup> 25 mm to 300 mm
8.	Fly Ash	Density Fineness by air Permeability app. Compressive strength	IS 1727:1967; (RA 2013) IS 1727:1967; (RA 2013) IS 1727:1967; (RA 2013)	1.5 g/cc to 3.0g/cc 200 m <sup>2</sup> /kg to 700 m <sup>2</sup> /kg 10 MPa to 35 MPa
9.	Concrete Tiles	Wet Transverse Strength Resistance to wear Water Absorption	IS 1237-2012 IS 1237-2012 IS 1237-2012	1 MPa to 10 MPa 0.2 mm to 10 mm 0.1% to 20%
10.	Ceramic Tiles	Dimension Water Absorption Modulus of rupture Breaking Strength	IS 13630 (Part 1)-2006; (RA 2011) IS 13630 (Part 2)-2006; (RA 2011) IS 13630 (Part 6)-2006; (RA 2011) IS 13630 (Part 6)-2006; (RA 2011)	100 mm to 650mm 0.1% to 20% 10 MPa to 50 MPa 1 N to 5000 N
11.	Interlocking Paver Block	Compressive Strength Water Absorption	IS 15658:2006; RA 2017 IS 15658:2006; RA 2017	10 N/mm <sup>2</sup> to 60N/mm <sup>2</sup> 1% to 12%
III.	<b>GRANULAR MATERIALS</b>			
1.	Soil	Max. Dry Density Optimum Moisture content Grain Size Analysis Plastic limit Liquid limit	IS 2720 (Part 7&8)-1980; (RA 2011 & 2015) IS 2720 (Part 7&8)-1980; (RA 2011 & 2015) IS 2720 (Part 4)-1985; (RA 2015) IS 2720 (Part 5)-1985; (RA 2015) IS 2720 (Part 5)-1985; (RA 2015)	1.5 g/cc to 2.5 g/cc 5% to 30% 0 to 100 mm 10% to 40% 10% to 50%



Laboratory Perfect Testing Laboratory, Plot No-2898, J-Block, DSIIDC, Narela, Delhi

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number TC-7513

Page 9 of 9

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
		Plasticity Index	IS 2720 (Part 5)-1985; (RA 2015)	0.1% to 40%
		CBR	IS 2720 (Part 16)-1987; (RA 2011)	1% to 50%
2.	Bentonite	Moisture Sand Content	IS 6186-1986; (RA 2010) IS 6186-1986; (RA 2010)	0.1% to 20% 0.1% to 10%
IV.	WOOD AND WOOD PRODUCTS			
1.	Timber	Density	IS 1734 (Part 1) 1983; (RA 2013)	400 kg/m <sup>3</sup> to 1000 kg/m <sup>3</sup>
		Moisture Content	IS 1734 (Part 1) 1983; (RA 2013)	0.1% to 20.0%