

DETAILS OF TEST FACILITIES AVAILABLE AT NTH(WR),MUMBAI

NAME OF LABORATORY	PRODUCT/MATERIAL OF TEST	TEST/CALIBRATION FACILITIES AVAILABLE	REMARKS
CHEMICAL	Paint,Enamel, Varnish, Distemper & related products	Consistency Closed Flash Point Mass in Kg/10 lits. Volatile matter Drying time Dry film thickness Finish Fineness of Grind Wet Opacity Colour Fastness of colour to light Gloss (45° and 60°) Hardness test Flexible & adhesion Scratch Hardness test Salt Spray Test Keeping properties Resistance to water Resistance to liquid Resistance to heat Resistance to bleeding of pigments Residue on Sieve Pigments and non-volatile matter Ash content Phthalic Anhydride Lead restriction test Volume solids Acid value Resin test Accelerated Weathering test Protection against corrosion PH value Accelerated storage stability Resistance to acid Resistance to alkali Compatibility test Fire resisting property	IS: 101 (Pt.1) IS: 101 (Pt.1) IS: 101 (Pt.1) IS: 101 (Pt.2) IS: 101 (Pt.3) IS: 101 (Pt.3) IS: 101 (Pt.3) IS: 101 (Pt.3) IS: 101 (Pt.4) IS: 101 (Pt.4) IS: 101 (Pt.4) IS: 101 (Pt.4) IS: 101 (Pt.4) IS: 101 (Pt.5) IS: 101 (Pt.5) IS: 101 (Pt.5) IS: 101 (Pt.6) IS: 101 (Pt.6) IS: 101 (Pt.7) IS: 101 (Pt.7) IS: 101 (Pt.7) IS: 101 (Pt.7) IS: 101 (Pt.8) IS: 101 (Pt.8) IS: 101 (Pt.8) IS: 101 (Pt.8) IS: 101 (Pt.8) IS: 101 (Pt.9) IS: 101 (Pt.9) IS: 101 (Pt.6) IS: 2074,123,102,168,8982 IS:13515 IS: 133,2074 IS: 2932 IS: 2932,2933 IS: 2074 IS: 162,163

Freedom from organic colouring matter IS: 133
 Freedom from yellowing IS: 133
 Leaching test IS: 1419

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Oil absorption IS : 9788
 Pot life of mixed paint IS : 5410, 13239,5411
 Reaction with white paint IS :341
 Recoating property IS :164
 Relative density IS :2074,123, 124
 Resistance to acids & acid fumes. IS :159
 Filler content IS :13465
 Resistance to chlorine IS :9862
 Resistance to bleeding IS :164
 Resistance to dry rubbing IS :5410
 Resistance to artificial sea water IS :2074,1404
 Resistance to kerosene IS :341
 Resistance to lubricating oil IS :8982,168
 Resistance to petrol/ Petroleum IS :8982,168
 Resistance to hydrocarbon solvent IS :168
 Resistance to strong solvent IS :101
 Resistance to transformer oil IS :101
 Resistance to wear IS :164
 Stripping test IS :9862,5667
 Suitability for thinning IS :2075
 Viscosity IS :1475,9912
 Leafing property test IS :13183
 Pigment analysis IS :33,54,61 to 64,6947
 Water repellancy test IS :8982,5410
 Resistance to temperature IS :13515

Acids	Total acidity	IS :263,264, & 265
	Residue on ignition	IS : 266
	Iron as Fe	IS :266
	Chloride as Cl.	IS :1109,799

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	Sulphate as SO ₄	IS :1109,799	
	Lead as Pb	IS :1676,799	
	Arsenic as As	IS :2088	
	Organic matter	IS :2088	
	Copper as Cu	IS :2088	
	Loss on drying	IS :2088	
	Solubility in water	IS :2088	
	Solubility in alcohol	IS :2088	
Inorganic chemicals	Insoluble matter percent by mass	IS :299,799 567,261 & 573	
	Soluble iron compound	IS :1109	
	Water soluble aluminium compound present by mass	IS :1109	
	pH value (aqueous solutions)	IS :3025,567	
	Carbonates	IS :3025,567	
	Phosphate	IS :3025,567	
	Calcium	IS :3025,567	
	Copper	IS :3025,567	
	Purity as hydrazine	IS :12086	
	Ammonia	IS :12086	
	Assay as Na ₂ HPO ₄	IS :567,573	
Compressed gas	Purity of O ₂ gas	IS :309,1747	
Dissolved acetylene gas	Total impurities	IS :308	
	Sulphur compound as H ₂ S	IS :308	
	Phosphorous compound as PH ₃	IS :308	
	Moisture content	IS :308	
Carbon dioxide gas	Carbon dioxide (CO ₂)	IS :307	
Cement & Lime	CaO	IS :269,455, 712	

	MgO	IS :1344,1489, 1540
	SiO ₂	IS :3204,3812
	Al ₂ O ₃	-do-
	Fe ₂ O ₃	IS :8041,8042 8112
	SO ₃	IS :12269, 12330
	Sulphide Sulphur (as S)	IS :4032,26245
	Loss on ignition	-do-
	Insoluble residue	-do-
	Chloride	IS :4032,26245
Soaps &	Moisture & volatile matter	IS :285,4199

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Detergents

	Matter insoluble in alcohol	IS :2888
	Total fatty matter	IS :82
	Unsaponified fatty matter	-do-
	Free caustic alkali	-do-
	Glycerol content	IS :286
	Titra of total fatty acid	-do-
	Chloride	-do-
	Resin content	-do-
	Synthetic detergent	IS :4955,4199
Oil & Petroleum Products	Sp. Gravity	IS : 75,77,79 1448
	Saponification value	IS :6646,1460
	Iodine value	IS :75
	Acid value	IS :1676
	Flash Point	-do-
	Viscosity/K.E.V. at 30 Deg. To 100 Deg.C	IS :8654
	Distillation range	IS :5298
	Residue on evaporation	IS :1745
	Loss on evaporation	-do-
	Pour point	-do-
	Copper strip test upto 100 Deg. C for 3 hours.	IS :1448
Bitumen	Sp. Gravity	IS :1201 to

		1220,IS :73
	Water content	-do-
	Flash point	-do-
	Softening point	-do-
	Penetration at 25 Deg. C	-do-
	100 gms.5 Sec or 1/100 cm.	
	Ductility at 27 Deg. C	-do-
	Loss on heating	-do-
	Matter soluble in carbon tetrachloride	-do-
Cast Iron & Pig Iron	Carbon	IS :12308(Pt.4)
	Silicon	IS :12306(Pt.6)
	Nickel	IS :12308(Pt.7)
	Molybdenum	IS :228(Pt.X)
	Manganese	IS :12308(Pt.10)
	Phosphorous	IS :12308(Pt.5)
Low alloy plain carbon and stainless steel and	Carbon	IS :228(Pt.IV)

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Cast iron tool steel

	Manganese	IS :228(Pt.II)
	Silicon	IS :228(Pt.VIII)
	Phosphorous	IS :228(Pt.III)
	Nickel	IS :228(Pt.V)
	Chromium	IS :228(Pt.VI)
	Sulphur	IS :228(Pt.IX)
	Molybdenum	IS :228(Pt.X)
	Aluminium	Vogel quantitative chemical analysis
	Cobalt	
	Titanium	-do-
	Copper	IS :228(Pt.XV)
General copper based alloy,	Copper	IS :3685

Leaded Brass	Lead	IS :3685
leaded tin,		
Bronze and	Iron	IS :3685
Phosphor Bronze		
	Antimony	IS :4027-67
	Tin	IS :4027(Pt.5)
	Lead	IS :4027(Pt.1)
	Nickel	IS :4027((Pt.4)
	Zinc	IS :4027(Pt.6)
	Phosphorous	IS :4027(Pt.3)
	Manganese	IS :4027(Pt.2)
	Silicon	IS :4027-67
Aluminium alloy	Silicon	IS :504
	Copper	-do-
	Manganese	-do-
	Chromium	-do-
	Zinc	-do-
	lead	-do-
	Iron	-do-
	Nickel	-do-
	Titanium	-do-
Tin based alloy	Tin	IS :998(Pt.1)
	lead	IS :998(Pt.3)
	Zinc	IS :998(Pt.3)
	Copper	IS :998(Pt.2)
	Cadmium	IS :998(Pt.3)
	Antimony	IS :998(Pt.1)
Anodic coating on Aluminium	Thickness of Anodic coating by stripping method	IS :5523-83

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CIVIL	Cement	Setting time	IS :4031(Pt.V)
		Fineness by specific surface	IS :4031(Pt.II)
		Soundness by Le-chatellier's expansion	IS :4031(Pt.III)
		Soundness autoclave expansion	IS :4031(Pt.III)
		Compressive strength	IS :4031(Pt.VI)
		Specific gravity	IS :4031(Pt.XI)
	Pozzolana	Fineness by specific surface	IS :1727

Materials	Lime reactivity	-do-	
	Compressive strength	-do-	
Fly ash	Fineness by specific surface	-do-	
	Lime reactivity	-do-	
	Compressive strength	-do-	
	Soundness by autoclave expansion	-do-	
Water proofing Compound	Setting time	IS : 4031(Pt.V)	
	Compressive strength	IS :4031(Pt.VI)	
	Permeability to water	IS :2645	
Common Burnt clay bricks	Dimension	IS :1077	
	Water absorption	IS :3495(Pt.II)	
	Efflorescence	IS :3495(Pt.III)	
	Compressive strength	IS :3495(Pt.I)	
Cement concrete	Compressive strength	IS :456	
Concrete flooring tiles	Dimension	IS :1237	
	Water absorption	-do-	
	Wet transverse strength	IS :1237	
	Resistance to wear	IS :1237	
Acid resistance bricks and tiles	Dimension	IS :4860 & 4457	
	Water absorption	-do-	
	Flexureal strength	-do-	
	Resistance to wear	IS :1237	
	Compressive strength	IS :4860,4457	
Building lime	Workability test	IS :6932 (Pt.VIII)	
	Fineness	IS :6932 (Pt.IV)	
	Compressive strength	IS :6932 (Pt.VIII)	
Coarse Aggregate	Impact test	IS :2386 (Pt.IV)	

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MECHANICAL		Crushing strength	IS :2386 (Pt.IV)
		Aggregate abrasion value	IS :2386 (Pt.IV)
	Ferrous and non-ferrous, Drawn	Tensile	IS : 1608
	Rolled, Extruded, Welded, cast and forged products like Pipes Tubes, Bars, Rods, Wires, flat plates, sheets, strips, Angles, Beams, Channels, section, etc.	Bend	IS :1599
		Reverse bend	IS :1716
		Drift Expanding	IS:2335
		Flattening	IS :2328
		Shear	IS :5242,2982
		Cupping	IS :10175((I)
		Torsion	IS :1717
		Wrapping	IS
	:1775,10810		(I)
		Winding	IS :10810(39)
		Compression	IS :1879
		Deflection	IS :4223
		Transverse	IS :210
		Dump	IS :1148
		Double over	IS :407
		Ductility	IS :1785(II)
		Annealing	IS :8130
		Hydrostatic	IS :1239(I)
		Pneumatic	IS :2347
		Dimensions	IS :778
	Mass	IS :780	
Gun Metal valves	Dimensions	IS :778	
	Hydraulic	IS :778	
Sluice Valve	Dimensions	IS :780	
	Hydraulic	IS :780	
	Mass	IS :780	
Bip tap and stop tap	Dimensions	IS :781	
	Hydraulic	IS :781	

	Ball valves	Mass	IS :781
		Dimensions	IS :1703
		Hydraulic	IS :1703
		Mass	IS :1703
		Mechanical strength of lever	IS :1703
		Shutting off test	IS :1703

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	landing valves	Dimensions	IS :5290
		Hydraulic	IS :5290
	Stainless steel safety Razor blades	Dimensions	IS :7371
		Performance	IS :7371
	Carbon steel safety razor blades	Dimensions	IS :10198
		Performance	IS :10198
	Twin blade cartridges	Dimensions	IS :13031
		Performance	IS :13031
	Flow cup	Dimensions	IS :3944
	Sewing Machine	Dimensions	IS :2181
	Test Sieves	Aperture size	IS :460(Pt.I,II and III)
	Steel Butt Hinges	Dimensions	IS :1341
	Domestic Pressure cooker	Air Pressure	IS :2347
		Proof Pressure	IS :2347
		Operating test for pressure regulating device	IS :2347
		Test for safety pressure relief device	IS :2347
		Bursting pressure test	IS :2347
	Oil Pressure Stove	Dimensions	IS :1342,8808

Non-Pressure Stove	Pressure test	IS :1342,8808
	Bursting Pressure	IS :1342,8808
	Thermal Efficiency	IS :1342,8808
	Thermal efficiency	IS :2980
	Flame stability	IS :2980
	Surface temperature	IS :2980
	Fuel temperature	IS :2980
	Flame flash back	IS :2980
	Stability	IS :2980
	Ability to withstand heavy load	IS :2980
Wire cloth for general purpose	Fuel creep	IS :2980
	Aparture width	IS :1568
Ferrule's for water purpose	Wire diameter	IS :1568
	Dimension	IS :2692

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Galvanised steel Chain link fence, fabric	Hydraulic Dimension	IS :2692 IS :2721
	Tensile Wrapping	IS :2721 IS :2721
Barbed wire	Dimensions	IS :278
	Tensile	IS :278
	Ductility	IS :278
Fire extinguisher Portable chemical foam	Hydraulic	IS :933
	ultimate failure Performance	
Fire extinguisher Portable water type	Hydraulic	IS :934
	Ultimate failure Performance	
Water type gas cartridge	Hydraulic	IS :940
	Ultimate failure	

Portable Dry Powder cartridge type	Performance Hydraulic	IS :2171
Portable and trolley mounted CO type	Ultimate failure Performance Hydraulic	IS :2878
Chemical fire engine foam type	Ultimate failure Performance Hydraulic	IS :5507
Portable water type stored pressure	Ultimate failure Performance Hydraulic	IS :6234
Higher capacity dry powder trolley mounted	Ultimate failure Performance Hydraulic	IS :10658

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Portable dry power stored pressure	Hydraulic	IS :138-19
Portable mechanical foam	Ultimate failure Performance Hydraulic	IS :10204
Cylinder for LPG	Ultimate failure Performance Hydraulic	IS :3196(I)
Cylinders for other than LPG	Burst Capacity Hydraulic	IS :3196(II)
Seamless steel	Burst Capacity Hydraulic	IS :7285

Cylinder for permanent and high pressure liquifiable gas	Burst	
Welded and seamless steel dissolved acetylene gas cylinder	Capacity Hydraulic	IS :7312
Welded and low carbon steel gas cylinder for Ammonia	Burst	
Steel wire for cold formed spring	Capacity Tensile Elongation Bend Rebend	IS :4456(Pt.I to IV)
M.S. Rod for general engg. purpose	Tensile Proof Elongnation Bend Rebend	IS :7887
Plan hard drawn steel for pre-stressed Concrete	Tensile Proof Elongation	IS :1785 (Pt.I&II)

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Indented wire for Pre-stressed concrete	Tensile Proof Elongation	IS :6003	
Uncoated stress relieved strand for pre-stressed concrete	Tensile Proof Elongation	IS :6006	
Stress relieved seven ply strand for pre-stressed concrete.	Breaking strength Proof	IS :14268	
M.S.Wire for general engineering purpose	Tensile Bend Wrapping	IS :280	
M.S.Formed wire/tapes for armouring cables	Tensile Torsion Wrapping	IS :3975	
Leaded tin bronze ingots and castings	Tensile Proof Elongation Hydraulic	IS :318	
Free cutting brass bars, rods & sections	Tensile Elongation	IS :319	
S.S.Wire	Tensile Yield strength Elongation Bend Rebend Torsion Wrapping	IS :6528	
High tensile Brass Ingots and	Tensile	IS :304	

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Castings	Proof Elongation Hydraulic		
Brass tubes for general engineering purpose	Tensile Flattening	IS :407	
Cold rolled low carbon sheets & strips	Drief expanding test Hydraulic Pneumatic Tensile	IS :513	
High tensile Brass rods	Yield stress Elongation Bend Cupping Tensile	IS :320	
Phosphor bronze wire for general engineering Purpose	Proof Elongation Tensile	IS :7608	
Grey Iron casting	Elongation Wrapping Tensile	IS :210	
Cold rolled Brass sheets/strips	Hydrostatic Tensile	IS :410	
Brass sheets and strips for utensils	Elongation Bend Bend	IS :422	

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Wrought aluminium and sheets	Tensile Proof Elongation Bend	IS :737	
S.S.Wire,Rod	Tensile Proof Elongation	IS :6527	
Copper cold rolled strip and foil for gaskets	Tensile	IS :3487	
Steel tubes	Elongation Tensile Yield stress Elongation Bend Flattening Drift expanding	IS :3601	
Steel plates for pressure vessel used at moderate & low temperature	Tensile Proof Elongation Bend Rebend	IS :2041	
Solid Drawn Copper alloy tubes for condensers and heat exchanger	Tensile	IS :1545	
Hydrostatic	Drift expanding	Elongation Flattening	

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S.S.bars and Plates	Tensile	IS :6603	
	Proof Elongation		
Cold rolled strip for spring	Tensile	IS :2507	
	Proof Dimension Elongation		
Steel for general engineering purpose	Tensile	IS :2062	
	Yeild strength Elongation Bend		
Naval Brass rods and sections for machining purposes	Tensile	IS :291	
	Elongation		
Aluminium Alloy tubes for irrigation purpose	Bend Tensile	IS :7092(II)	
	Proof		
	Elongation Flattening Hydrostatic		
Corrosion resistant high alloy steel and Nickle base casting for general applications	Tensile	IS :3444	
	Yield stress		
	Elongation		
Wrought Aluminium and aluminium alloys for manufacture of utensils	Reduction of area Tensile	IS :21	
	Elongation		
Aluminium and Aluminium alloy	Bend Tensile	IS :617	

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Ingots and castings	Hydraulic		
Carbon steel Billets,Blooms, slabs and bars for forging	Tensile Yield strength Elongation Bend	IS :1875	
Stain steel plate, sheet & strip	Tensile Proof Elongation Bend Cupping	IS :6911	
Hot rolled carbon steel strip for cold rolling purpose	Tensile Yield strength Elongation Bend	IS :11513	
Hot rolled steel strip for welded tubes and pipes	Tensile Proof Elongation Bend	IS :10748	
Steel tubes for structural purposes	Tensile Yield strength Elongation Flattening	IS :1161	
Mild steel tubes tubular & other wrought steel fillings	Tensile Elongation Dimension Flattening,Hydraulic	IS :1239(I)	

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ELECTRICAL	High strength deformed steel bars and wires for concrete reinforcement	Tensile Proof Elongation Bend Rebend	IS :1786
	Mild steel and medium tensile steel bars and hard drawn steel	Tensile Yield stress Elongation	IS :432(I)
	Electrical cables for power frequency		IS :10810
		Resistance	Part 5
		High Voltage test AC/DC	Part 45
		High Voltage at room temperature	Part 45
		Insulation resistance test	Part 43
		Tensile strength & elongation at break	
		Shrinkage test	Part 12
		Hot deformation test	Part 15
	Heat shock test	Part 14	
	Test for overall dimension and thickness of insulation and sheath	Part 6	
	Resistance test on armour wire	Part 42	
	Uniformity of Zinc coating	part 40	
	Mass of zinc coating	Part 41	

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Elictrical Switches, Plugs socket outlets, ceiling rose & starter and lamp holder	Protection against electric Shock Terminals and screws/Test for Screws and Connections/Test for Screw terminals Insulation resistance and high voltage test Temperature rise test Mechanical strength Resistance to heat Resistance to rusting Water absorption test Dimensions Endurance (Temperature rise test) Resistance to ageing and moisture (High) voltage and insulation resistance test Effectiveness of contacts Breaking capacity (Followed by millivolt drop measurement) Withdrawal Pull Resistance to humidity Making and breaking capacity Creepage distance and clearances	IS :3854-1988 IS :1293-1988 IS :371-1979 IS :3323-1980 IS :3324-1982	
Capacitors	Capacitance	IS :1569-1976	
	Tan	IS :1709-1984	
Conductor/Insulator	IS :8130-1984 resistance	Resistance and insulation IS : 5431-1984	

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NON-DESTRUCTIVE TESTING	Weldments, casting, forging, worked products, Iron, copper, aluminium and its alloys	Radiographic testing by X-ray Radiographic test by gamma ray	IS :2595 IS :1182 IS :4853 IS :8780 ASTM E-94
	Weldments, casting, forging, worked products, Iron, copper, aluminium and its alloys	Detection of internal flaws by ultrasonic testing	IS :3664,8780 IS :4225-4260 IS :6394,7666 IS :8791,11626
	Liquid penetrant (Visible dye), developer and cleaner	Performance evaluation of liquid penetrants and detection of surface flaws of material	IS :12889 IS :3658 IS :8780
	Welding electrodes	All weld Tensile test	IS :1608
		Charpy Impact test	IS :1757
		Bend test	IS :1598
		Dimension (Dia.)	IS :814
		Length and bare length	IS :814
		Arc striking end length	IS :814
	Weldment, casting, forging and wrought ferrous and non-ferrous materials	Determination of micro structure	IS :11959
	Aluminium & steel products	Estimation of grain size.	IS :4748
		Thickness of Anodic and electroplated coating (Microsection method)	IS :5523 IS :3203
	Welder quantification	Case depth (by microscopic method)	IS :6416 & 4432
	Performance test	IS :817 As per IBR Chapter XIII	
	Radiography test X-rays, Gamma Rays	IS :2595 IS :1182	
	Bend test	IS :1599	

	Wrought steel Products	Macroscopic examination. IS :7739 (Pt.V) Grain Flow IS :11371
	Failure analysis of component and structures	Relevant physical mechanical, chemical, electrical and metallographic requirements As per the specific requirements

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RUBBER PLASTICS & TEXTILES	Paper	Properties of failure	
		Folding Endurance (Ddouble fold)	IS :1060(Pt.I) IS :8431 IS :1775 IS :1848 Tappi-4230M
		Transparency /opacity optical density	IS :1060(Pt.I) IS :12766 IS :8431 IS :1848
		Cobb test for water penetration	IS :1060(Pt.I) IS :1848 IS :1775 IS :12766
		Fibre composition qualitative	IS :1060(Pt.I) IS :5285
	Plastics	Melt-flow index of thermo plastics	IS :2530 ASTMD-1238
		Flexing properties of plastics & coated films	IS :70161 (Pt.IV) IS :13217
	Rubber & Rubber products	Hardness	IS :3400(Pt.II) IS :12200 IS :5382 IS :7456 ASTMD-1415
			Hydrostatic Burst pressure
		Mass/metre of Hose	IS :636

	Coil Diam- IS :636
	Hydrostatic proof pressure IS :636
	test of hose IS :443
	IS :446
	Kink test of Hose IS :636
	Change in length of hose IS :636
	Change in diametre of hose IS :636
	Adhesion of Rubber lining of hose IS :636
	Abrasion resistance of hose IS :636
	Heat resistance IS :636
	Resistance to flex cracking IS :3400
	(Pt.VII)
	ASTMD-430
Textile	Weight per square metre IS :1964

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IS :1422
IS :1424
IS :3770
IS :11814
IS :11815
IS :1246
IS :1144
IS :1143
IS :1102
IS :860
IS :859
IS :854
IS :180
IS :177
Colour fastness to artificial light IS :2454
IS :177
IS :180
IS :858
IS :859
IS :860
IS :1144

	IS :1246
	IS :1422
	IS :1424
	IS :3770
	IS :11814
	IS :11815
Length and width of the fabric	IS :1945
	IS :177
	IS :180
	IS :854
	IS :858
	IS :859
	IS :860
	IS :1102
	IS :1144
	IS :1246
	IS :1422
	IS :1424
	IS :3770
	IS :11814
	IS :11815
Threads per unit length in woven fabric (End Picks)	IS :1963
	IS :177
	IS :188
	IS :854

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IS :858

IS :859

IS :860

IS :1102

IS :1143

IS :1144

IS :1246

IS :1422

IS :1424

IS :3770

IS :11814

IS :11815

Transparency/Optical density IS :2037

Dimensional changes of IS :2977

fabric on soaking in water IS :177

IS :180

IS :1102

IS :1144