Laboratory	**National Test House (WR), Plot No. F-10, MIDC, Marol, Andheri (East), Mumbai, Maharashtra**		
Accreditation Standard	**ISO/IEC 17025: 2005**		
Certificate Number	**TC-7185**	**Page 1 of 49**	
Validity	**26.04.2018 to 25.04.2020**	**Last Amended on 06.06.2018**	

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.	**PAINTS &SURFACE COATING**			
1.	**Paints and Enamels**			
	Primer, Enamels, Varnishes, Epoxy paint, Distemper and allied products	Consistency	IS 101-(Part 1 / Sec 5)-1989(RA 2009) Amd. 2	15s to 250s
		Closed Flash Point	IS 101- (Part 1/ Sec. 6)-1987 (RA 2009)	5°C to 70°C
		Mass	IS 101 (Part 1 /Sec. 7)-1987(RA 2009)	5 kg/10l to 20 kg/10l.
		Water content	IS 101 (Part 2 /Sec.1)-1988 (RA 2009)	1.0 % to 100%
		Volatile Matter	IS 101 (Part 2/ Sec. 2)-1986(RA 2012) (Amd. 1)	0.1 % to 80%
		Drying Time	IS 101(Part 3/ Sec.1) -1986 (RA 2012)(Amd. 3)	5 min to 24 h
		Dry film Thickness	IS 101(Part 3 /Sec. 2)-1989 (RA 2009)	5 micron to 1000 micron
		Finish	IS 101(Part 3 /Sec. 4)-1987 (RA 2014) (Amd.3)	Qualitative
		Fineness of Grind	IS 101(Part 3/ Sec. 5)-1987(RA 2009)	1micron to 100 micron
		Wet opacity	IS 101(Part 4/ Sec. 1)-1988 (RA 2009) Clause. 2	50 m^2/10l to 400 m^2/10l.
		Colour	IS 101(Part 4/ Sec. 2)-1989(RA 2014)	Qualitative
		Light Fastness	IS 101(Part 4/ Sec. 3)-1988 (RA 2014)	Qualitative
		Gloss 45 ° Angle. 60 ° Angle.	IS 101(Part 4 /Sec. 4)-1988(Amd.1) (RA2012)	1to 55 (Reflectance) 1to 95 (Reflectance)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Pencil Hardness	IS 101(Part 5/ Sec. 1)-1988(RA 2004)	2 H to 6 H
		Flexibility & adhesion	IS 101(Part 5 /Sec. 2)-1988 (RA 2009) (Amd. 3)	Qualitative
		Scratch Hardness	IS 101(Part 5/ Sec. 2)-1988 (Amd. 3) (RA 2009)	1 kg to 3 kg
		Impact Resistance	IS 101(Part 5/ Sec. 3)-1999(RA 2009)	5 cm to 100 cm
		Resistance to Humidity under conditions of condensation	IS 101(Part 6/ Sec. 1-1988 (Amd. 2) (RA 2010)	Qualitative
		Resistance to salt spray	IS 101(Part 6/ Sec. 1)-1988 (Amd. 2) (RA 2010)	Qualitative
		Keeping properties	IS 101- (Part.6/ Sec.2)-1989 ,(RA 2009)	Qualitative
		Moisture Vapour Permeability	IS 101-(Part.6/ Sec.3)-1990 ,(RA 2010)	0.1 mg/cm^2 to 50 mg/cm^2
		Degradation of coatings (Durability test)	IS 101-(Part.6/ Sec.4)-1991 ,(RA 2012)	Qualitative
		Accelerated Weathering	IS 101 –(Part.6 /Sec.5)-1997 ,(RA 2012)	Qualitative
		Resistance to water	IS 101-(Part.7/ Sec.1)-1989(RA 2009)	Qualitative
		Resistance to liquid	IS 101-(Part.7 /Sec.2)-1990 (Amd. 1) (RA.2011)	Qualitative
		Resistance to heat	IS 101(Part 7/ Sec. 3)-1990 (RA 2011)	Qualitative
		Resistance to bleeding of pigments.	IS 101(Part 7/ Sec. 4)-1990(Amd.1) (RA 2012)	Qualitative
		Residue on Sieve	IS 101-(Part.8/Sec. 1)-1989(RA 2014)	0.05% to10%
		Pigments and Non Volatile matter	IS 101(Part 8/ Sec. 2-1990 (Amd 3) RA 2012	0.1% to 50%
		Phthalic Anhydrides Content	IS 101- Part.8/ Sec. 4-1993RA 2014	1% to 45%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Lead Restriction Test.	IS 101(Part 8 /Sec. 5-1993(Amd. 1) RA 2009	0.01 % to 3%
		Volume Solids	IS 101(Part 8 /Sec. 6-1993RA 2009	1% to 95 %
		Acid Value	IS 101(Part 9 /Sec. 1-1993.RA 2014	0.1% to 10%
		Free Rosin test	IS 101(Part 9 /Sec. 2-1993.RA 2009	Qualitative
		pH value	IS13515-1992, RA 2007Clause. 4.2.2.1	1 to 14
		Accelerated storage Stability	IS 133-2004 RA 2009,Annex E	Qualitative
		Resistance to acid	IS 8662-2004, RA 2009 Clause. 6.3	Qualitative
		Resistance to Alkali.	IS 8662-2004, RA 2009, Clause. 6.4	Qualitative
		Compatibility test.	IS 2074-2015, Clause 5.4	Qualitative
		Freedom from yellowing	IS 133-2004. Clause5.7 RA 2009	Qualitative
		Oil absorption	IS 33-1992.RA 2009	1% to 80%
		Pot life of mixed paint	IS 5410/1992 , RA 2009	5 minutes to 48 h
		Weight per epoxy equivalent on non volatile content basis	IS 9162- 1979, RA 2016, Clause. 4.7	50 g/mole to 800 g/mole
		Resistance to wet Abrasion	IS15489-2013, Clause6.11	Qualitative
		Recoating property	IS164-1981, RA 2009, Clause. 5.3 Appendix C,	Qualitative
		Resistance to Chlorine	IS 9862-1981. RA 2009, Appendix D	Qualitative
		Resistance to bleeding	IS164-1981, RA 2011, Clause. 5.3 Appendix B	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Resistance to dry rubbing	IS 5410-1992., RA 2009 Annex G	Qualitative
		Resistance to artificial sea water	IS 2074-2015, Clause5.7	Qualitative
		Resistance to natural sea water	IS 2074-2015Clause 5.7	Qualitative
		Resistance to lubricating oil	IS 101- Part 7/ Sec.2 1990, RA 2011	Qualitative
		Resistance to petrol/petroleum	IS 101- Part 7 /Sec.2 1990, RA 2011	Qualitative
		Resistance to hydrocarbon solvent	IS 101- Part 7 /Sec.2 1990, RA 2011	Qualitative
		Resistance to strong Solvent	IS 101- Part 7 /Sec.2 1990, RA 2011	Qualitative
		Resistance to transformer oil	IS 101- Part 7 /Sec.2 -1990, RA 2011	Qualitative
		Resistance to wear.	IS 164-1981, RA 2015 Clause. 5.3 , Appendix D	Qualitative
		Stripping test	IS 101(Part 5 Sec. 2-1988, RA 2009	Qualitative
		Leafing Property test	IS 2339-2013 -Clause5.1.1	10 % to 80%
		Pigment analysis Chromic anhydride Zinc Oxide Iron Content (Fe_2O_3)	IS2074-2015, Clause 5.1.1 Annexure B IS6947 part II-1975,RA 2009	0.05% to 90%
		Water Repellency test	IS5410-2013, RA 2007 Clause 4.5& 7.1	0.01 g/m^2 to 300 g/m^2.
		Resistance to temperature	IS 13515-1992,RA 2007 Clause 4.2.5 IS 158-2015, RA 2015 Clause.3.4 &6.1,Annexure-A	Qualitative
		Durability test (outdoor)	IS 5410-2013 Clause 4.4	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	**Resin Coating**			
	Thermoplastic Paint and glass beads	Glass beads	BS-3262(Part-I) 1989 ASTM-D 36–95.	1% to 60 %
		Binder content	BS-3262(Part-I)-1989 ASTM-D 36–95.	1% to 50%
		Titanium Dioxide(TiO_2)	BS-3262(Part-I)-1989 ASTM-D 36–95.	1% to 25%
		Calcium Carbonate & Inert filler	BS-3262(Part-I)-1989 ASTM-D 36–95.	1% to 60%
		Softening point	ASTM D36-1995	50°C to 150 °C
		Flow Resistance	BS-3262(Part-I)-1989	0.5% to 100%
		Cracking resistance at low temperature	BS-3262(Part-I)-1989 ASTM-D 36–1995.	Qualitative
		Free flowing properties	MORT&H 803.4.3.3 (D) - 2002	Qualitative
		Glass beads, gradation 1.18 mm sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 5.0%
		Glass beads, gradation 850 microns Sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 25.0%
		Glass beads, gradation 600 microns sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 35.0%
		Glass beads, gradation 425 microns sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 100%
		Glass beads, gradation 300 microns sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 90%
		Glass beads, gradation 180 microns sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 40%
		Glass beads, gradation Below 180 microns sieve	BS 6088-1981 and BS 3262 (Part I)-1989	0 to 30.0%
II.	**INDUSTRIAL & FINE CHEMICALS**			
1.	**Sulphuric Acid**	Total acidity	IS 266-1993, (RA 2010)	25 % to 99.8%
		Residue on ignition	IS 266-1993, (RA 2010)	0.001% to 0.1%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Iron (as Fe) content	IS 266-1993, (RA 2010)	0.00001% to 0.001%
		Chloride (as Cl)	IS 266-1993, (RA 2010)	Qualitative
		Lead (as Pb)	IS 266-1993, (RA 2010)	0.0001 to 0.5
		Arsenic (as As)	IS 2088-1983, RA 2010	0.000002% to 0.001%
		Oxidising impurities as (SO_2)	IS 266-1993, RA 2010	0.0001% to 0.05%
		Organic matter	IS 266-1993, RA 2010	Qualitative
		Nitrate as NO_3	IS 266-1993, RA 2010	Qualitative
		Ammonia as NH_3	IS 266-1993, RA 2010	Qualitative
		Selenium as Se	IS 266-1993, RA 2010	Qualitative
		Manganese as Mn	IS 266-1993, RA 2010	Qualitative
		Zinc as Zn	IS 266-1993, RA 2010	Qualitative
		Copper as Cu	IS 266-1993, RA 2010	Qualitative
2.	**Hydrochloric Acid**	Total acidity as HCl	IS 265-1993 ,RA 2015	25% to 99.8 %
		Residue on ignition	IS265-1993 ,RA2015	0.0001% to 0.5%
		Iron (as Fe)	IS265-1993, Method B, RA 2015	Qualitative
		Sulphate (as H_2SO4)	IS265-1993, RA 2015	0.0001% to 0.005%
		Heavy metals (as Pb)	IS265-1993, RA 2015	Qualitative
		Arsenic (as As)	IS2088-1983,RA 2010	Qualitative
3.	**Boric acid**	Iron (as Fe)	IS263-1990, RA 2011	Qualitative
		Heavy metals (as Pb)	IS263-1990, RA 2011	Qualitative
		Arsenic (as As)	IS2088-1983, RA .2010	Qualitative
		Loss on drying	IS 263-1990 RA2011	0.1% to 1.0%
		Solubility in water	IS 263-1990, RA 2011	Qualitative
		Solubility in alcohol	IS 263-1990, RA2011	Qualitative
4.	**Hydrazine Hydrate**	Purity as hydrazine Hydrate	IS 12086-1987, RA 2013	60% to 90%
		Ammonia as NH3	5of IS 2488, part 4, 1974	0.01% to 5%
		pH value (1% solution at 20 deg. C)	IS3025 -Part 11, 1983 RA 2017	9 to 14

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
5.	**Borax**	pH value	IS 1109-1980 RA 2010	7 to 14
		Calcium	IS 1109-1980 RA 2010	Qualitative
		Matter Insoluble in water	IS 1109-1980 RA 2010	0.001% to 0.5%
		Phosphate as PO_4	IS 1109-1980 RA 2010	Qualitative
		Soluble iron compound	IS 1109-1980, RA 2010	Qualitative
6.	**Alumino Ferric**	Insoluble matter	IS 299-2012, RA 2017	0.01 % to 1%
		Soluble iron compound as Fe.	IS299-2012, RA 2017	0.01 % to 1%
		Water Soluble, Aluminium compounds (Al2 O3)	IS299-2012, RA 2017	5 %% to 20%
		pH value (5% aqueous solution)	IS299-2012, RA 2017	2 to 7
7.	**Ammonia**	Phosphate as PO_4	IS 799-1985, RA 2010	0.00001% to 0.005%
		Copper as Cu	IS 799-1985, RA 2010	Qualitative
		Ammonia	IS 799-1985, RA 2010,	10% to 50%
III.	**BUILDING MATERIALS**			
1.	**Cement**			
	OPC and PPC	Calcium Oxide	IS 4032-1985, RA 2009, Clause 4.7.2	25% to 70%
		Magnesia	IS 4032-1985, RA 2009, Clause 4.8.2	0.5% to 10.0%
		Silica	IS 4032-1985, RA 2009, Clause 4.3	5% to 30%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Alumina	IS 4032-1985, RA 2009, Clause4.6.2	0.5% to 10 %
		Iron Oxide	IS 4032-1985, RA 2009, Clause4.5.2	0.5 % to 10%
		Sulphuric Anhydride	IS 4032-1985, RA 2009, Clause4.9	0.5% to 10%
		Loss on ignition	IS 4032-1985, RA 2009, Clause4.2	0.5 % to 10%
		Insoluble residue	IS 4032-1985, RA 2009, Clause4.10	0.5 % to 50%
		Total Chloride	IS 4032-1985, RA 2009, Clause4.13	0.01% to 0.5%
2.	**High Alumina Cement**	Alumina	IS 4032-1985, RA 2009, Clause4.6.2	25 % to 50 %
3.	**White Portland Cement**	Calcium Oxide	IS 4032-1985, RA 2009, Clause4.7.2	25 % to 70%
		Magnesia	IS 4032-1985, RA 2009, Clause4.8.2	0.5% to 10.0%
		Silica	IS 4032-1985, RA 2009, Clause4.3	5% to 30%
		Alumina	IS 4032-1985, RA 2009, Clause4.6.2	0.5 % to 5%
		Iron Oxide.	IS 4032-1985, RA 2009, Clause4.5.2	0.01 % to 1.0%
		Sulphuric Anhydride	IS 4032-1985, RA 2009, Clause4.9	0.5 % to 6%
		Insoluble residue	IS 4032-1985, RA 2009, Clause4.2	0.1% to 2.5%
4.	**Sulphate Resisting Portland Cement**	Calcium Oxide	IS 4032-1985, RA 2009, Clause4.7.2	25 % to 70%
		Magnesia	IS 4032-1985, RA 2009, Clause4.8.2	0.5% to 10.0%
		Silica	IS 4032-1985, RA 2009 Clause4.3	5% to 30%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Alumina.	IS 4032-1985, RA 2009, Clause4.6.2	0.5% to 10 %
		Iron Oxide	IS 4032-1985, RA 2009, Clause. 4.5.2	0.5 % to 10%
		Sulphuric Anhydride	IS 4032-1985, RA 2009,Clause4.9	0.5% to 10%
		Loss on ignition	IS 4032-1985, RA 2009, Clause4.2	1% to 10%
		Insoluble residue	IS 4032-1985, RA 2009, Clause4.10	0.5% to 30%
5.	**Portland slag Cement**	Calcium Oxide	IS 4032-1985, RA 2009, Clause6.7.2	25% to 70%
		Magnesia	IS 4032-1985, RA 2009Clause 6.10	0.1% to 10%
		Silica	IS 4032-1985, RA 2009 Clause6.3 & 4.8	5%% to 30%
		Alumina	IS 4032-1985, RA 2009, Clause4.6.2& 6.6	0.5 % to 10 %
		Iron Oxide	IS 4032-1985, RA 2009 Clause4.5.2 & 6.5	0.5% to 10%
		Sulphur Trioxide	IS 4032-1985, RA 2009, Clause6.12	0.5 % to 5%
		Sulphide Sulphur	IS 4032-1985, RA 2009, Clause6.11	0.1% to 2%
		Loss on ignition	IS 4032-1985, RA 2009, Clause6.2 & 4.2	1% to 10%
		Insoluble residue	IS 4032-1985, RA 2009, Clause. 6.9 & 4.10	0.5% to 5%
		Total Chloride	IS 4032-1985, RA 2009. Clause. 4.13	0.001% to 0.5%
6.	**Bitumen and Asphalt**			
	Paving Bitumen	Flash point (COC)	IS 1448, Part 69-2013	180°C to 300°C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Softening point (Ring & Ball)	IS 1205-1978	80°C to 150°C
		Penetration	IS 1203-1978 (at 25 ° C, 100 g, 5 s, 0.1 mm)	1 to 60
		Test on residue from thin film oven test Ductility at 25° C	IS 1208-1978	15 cm to 100 cm
		Solubility in Trichloroethylene	IS 1216-1978	95% to 100%
	Sealing Compound	Water content	IS1211 -1978	0.05 % to 5%
		Flash point (PMCC)	IS 1209-1978	25°C to 80°C
	Industrial Bitumen	Sp. Gravity at 27 °.	IS 1202-1978	0.5 to 2.0
		Flash point (COC)	IS 1448, Part 69- 2013	180°C to 300°C
		Softening point (Ring & ball)	IS 1205-1978	60°C to 180°C
		Penetration	IS 1203-1978 (at 25° C 100 gm, 5 sec. 0.1 mm)	1 to 60
		Ductility (at 27°C)	IS 1208-1978	0 to 100 cm
		Loss on heating (at 163 ° C)	IS 1212-1978	0.1% to 5%
		Matter soluble in Trichloroethylene	IS 1216-1978	95% to 100%
	Cutback Bitumen	Water content	IS1211 -1978	0.05 % to 5%
		Flash point, (PMCC)	IS 1209-1978	10°C to 150°C
		Test on residue from distillation (upto 360 °C) Ductility at 27°C	IS 1208-1978	0 to 100 cm
		Solubility in Trichloroethylene	IS 1216-1978	95% to 100%
	Bitumen Emulsion	Coagulation of emulsion at low temperature	IS 8887-2004 RA 2009	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Storage stability after 24 h.	IS 8887-2004, RA 2009	0.05% to 5 %
		Miscibility with water	IS 8887-2004, RA 2009	Qualitative
		Test on residue Ductility at 27°C	IS 1208-1978	40 cm to 100 cm
		Residue by evaporation	IS 8887-2004, Annexure J	50 % to 80%
		Penetration	IS 1203-1978 (at 25°C, 100 g, 5s.)	40 to 400
		Solubility in Trichloroethylene	IS 1216-1978	95% to 100%
	Polymer and Rubber modified Bitumen (PMB, NRMB & CRMB)	Flash point (COC)	IS 1209-1978 RA 2009	180°C to 300°C
		Softening point (Ring & Ball)	IS 1205-1978, RA 2009	25°C to 150°C
		Penetration	IS 1203-1978 RA 2009 (at25 ° C 0.1mm, 100 g, 5s.)	25 to 250
		Elastic Recovery of Half thread Ductilometer	IS15462-2004, RA 2009	20 % to 80%
		Separation, difference in softening point (Ring & ball)	IS15462-2004, RA 2009	1°C to 6ºC
IV.	**WATER**			
1.	**Construction Water**	Organic content	IS 3025(Part 18)-1984, RA 2012	10 mg/l to 500 mg/l.

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Inorganic content	IS:3025(Part 18)-1984, RA 2012	50 mg/l to 4000 mg/l
		Sulphates (as SO_3 content	IS 3025(Part 24)-1986, RA.2009	10 mg/l to 500 mg/l.
		Chlorides (as Cl)	IS 3025(Part 32)- 1988, RA.2009	20 mg/l to 3000 mg/l.
		Suspended matter	IS 3025(Part 17)-1984, RA.2012	10 mg/l to 100 mg/l.
		Acidity	IS 3025(Part 22)-1986, RA.2009	0.1ml to 25 ml
		Alkalinity	IS 3025(Part 22)-1986, RA.2009	0.1ml to 10 ml
		pH	IS 3025(Part 22)-1986, RA.2009	1 to 14
V.	**METALS AND ALLOYS**			
1.	**Cast Iron & Pig Iron**	Carbon	IS 12308 , Part.11-1991, RA 2007	1.50 % to 4.5%
		Silicon	IS 12308 ,Part.6-1991, RA 2012	0.1% to 6 %
		Nickel	IS 12308,Part.7-1991, RA 2012	0.5 % to 36%
		Molybdenum	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 3.5%
		Manganese	IS 12308, Part.3-1987,RA2007 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.1 % to 2.5% 0.05 % to 5%
		Phosphorus	IS 12308,Part.5-1991, RA 2012	0.01 % to 0.5%
2.	**Alloy Steel**			
	Low alloy plain carbon steel	Carbon	IS 228, Part 1- 1987, RA 2012	0.05 % to 2.5%
		Silicon	IS 228, Part 8,-1989, RA 2014	0.01% to 5%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Nickel	IS 228, Part 5- 1987, RA 2014 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.1% to 5% 0.01 to 1.0
		Molybdenum	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05 % to 3.5%
		Manganese	IS 228, Part 12- 2001, RA 2009 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.1 % to 5.0% 0.05% to 5 %
		Phosphorus	IS 228, Part 3,-1987, RA 2012	0.02% to 0.25%
		Chromium	IS 228, Part 6-1987,RA 2014 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 35% 0.05% to 2%
		Sulphur	IS 228, Part 9-1989, RA 2014	0.01% to 0.25%
		Copper	IS 228, Part 15-1992,RA 2014 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 5.0% 0.001% to 5%
		Carbon	IS 8811-1998 RA.2012 (OES)	0.01 % to 1.5%
		Silicon	IS 8811-1998 RA 2012 (OES)	0.05% to 2%
		Nickel	IS 8811-1998 RA.2012 (OES)	0.05% to 5%
		Molybdenum	IS 8811-1998 RA2012 (OES)	0.01 % to 1.5%
		Manganese	IS 8811-1998 RA2012 (OES)	0.01% to 2%
		Phosphorus	IS 8811-1998 RA 2012 (OES)	0.005% to 0.1%
		Chromium	IS 8811-1998 RA2012 (OES)	0.05% to 5.0%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sulphur	IS 8811-1998 RA2012 (OES)	0.005% to 0.1%
		Aluminium	IS 8811-1998 RA2012 (OES)	0.005 % to 0.15%
		Cobalt	IS 8811-1998 RA 2012 (OES)	0.01 % to 0.2%
		Titanium	IS 8811-1998 RA 2012 (OES)	0.01 % to 0.25
		Copper	IS 8811-1998 RA2012 (OES)	0.01% to 0.5%
3.	**Stainless steel**	Carbon	IS 228 Part 1-1987, RA 2012	0.05% to 2.5%
		Silicon	IS 228 Part 8-1989, RA 2014	0.05% to 5%
		Nickel	IS 228 Part 5-1987, RA 2014 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.01 % to 36% 0.01% to 36%
		Molybdenum	IS 228 Part 10- 1989, RA 2009 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.01 % to 1.5% 0.05 to 3.5
		Manganese	IS 228 Part 2- 1987 RA 2009 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.1% to 1.5% 0.05% to 5 %
		Phosphorus	IS 228 Part 3- 1987, RA 2012	0.1% to1%
		Chromium	IS 228 Part 6- 1987, RA 2014 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 25% 0.05% to 20%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sulphur	IS 228 Part 9- 1989, RA 2014	0.01% to 0.25%
		Copper	IS 228 Part15- 1992, RA 2014 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 5.0% 0.001% to 5.0%
		Carbon	IS 9879-1998, RA 2015 (OES)	0.005% to 0.3%
		Silicon	IS 9879-1998 RA 2015 (OES)	0.1% to 2.0%
		Nickel	IS 9879-1998 RA 2015 (OES)	2.0% to 15%
		Molybdenum	IS 9879-1998 RA 2015 (OES)	0.01% to 3%
		Manganese	IS 9879-1998 RA 2015 (OES)	0.1% to 5%
		Phosphorus	IS 9879-1998 RA 2015 (OES)	0.002% to 0.1%
		Chromium	IS 9879-1998 RA 2015 (OES)	5.0% to 20%
		Sulphur	IS 9879-1998 RA 2015 (OES)	0.002% to 0.1%
		Copper	IS 9879-1998 RA 2015 (OES)	0.05% to 0.5%
4.	**Copper Base Alloys**	Cu	IS 3685,-1996,RA 2006 , IS 4027, Part 1- 1987, RA 2012	10% to 99%
		Pb	IS4027 Part 1- 1987, RA 2012 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.1% to 30% 0.001% to 5%
		Fe	IS4027 Part 8- 1991, RA 2012 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 6% 0.001% to 2%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sb	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.001% to 2%
		Sn	IS :4027 Part 5- 1987, RA 2012SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.02% to 20% 0.005% to 10%
		Ni	IS 4027 Part 4 1987, RA 2012 IS: 3685- 1966, RA 2012 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.5% to 10% 0.002% to 10%
		Mn	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 5%
		Si	IS 4027 Part 10-2000, RA 2006	0.1 % to 1%
		Zn	ISI 4027 Part 4 1987, RA2012 IS:3685- 1966, RA 2012 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	1.0% to 50% 0.001% to 5%
5.	**Aluminium Alloys**	Si	IS :504 Part 1-2002, RA. 2012	0.1% to 15%
		Cu	SOP/NTH/AAS/01, Issue No. 02,date 15-03-2013	0.001% to 5%
		Mn	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.01% to 5%
		Cr	IS504 Part8-2002, RA 2012 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.01 % to 5% 0.05% to 2%
		Zn	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.001% to 5%
		Pb	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.001% to 5%
		Fe	IS 504 part 2-2002, RA 2012SOP/NTH/AAS/01,	0.1% to 5% 0.001% to 5%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
			Issue No. 02,date. 15-03-2013	
		Ni	IS 504 Part 7-2002, RA 2012SOP/NTH/AAS/01, Issue No. 02,dt. 15-03-2013	0.1 % to 4% 0.01 % to 2%
		Ti	IS 504 Part 11-2002, RA2012	0.001% to 1%
		Si	IS 11035-1984 RA 2010(OES)	0.4% to 1.3%
		Cu	IS 11035-1984 RA 2010 (OES)	0.1% to 5%
		Mn	IS 11035-1984 RA 2010 (OES)	0.1% to 1.5%
		Cr	IS 11035-1984 RA 2010 (OES)	0.01% 0.3%
		Zn	IS 11035-1984 RA 2010 (OES)	0.1% to 1%
		Fe	IS 11035-1984 RA 2010 (OES)	0.001% to 1%
		Ti	IS 11035-1984 RA 2010 (OES)	0.001% to 0.3%
6.	**Tin and Tin Alloys**			
	Tin Based Alloys (Solders)	Tin	IS 998, Part1-1983,RA2008 SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.5% to 70% 0.005% to 70%
		Al	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.05% to 5%
		Zn	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.001% to 5%
		Cu	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.001% to 2%
		Cd	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.001% to 2%
		Sb	SOP/NTH/AAS/01, Issue No. 02,date. 15-03-2013	0.01% to 2%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
VI.	**METALLIC COATING & TREATMENT SOLUTIONS**			
1.	**Metallic coatings and Conversion coating**			
	Anodic coating on Aluminium	Thickness of anodic coating by stripping method	IS :5523-1983, RA 2016	5 micron to 100 micron
	Mass of Zinc Coating	Mass of Zinc coating (On Ferrous Material)	IS 6745-1972, RA 2016	5 g/m^2 to 1000 g/m^2
VII.	**GASES**			
1.	**Industrial Gases**			
	Compressed Oxygen gas	Purity of O_2 Gas, % by volume.	IS 309-2005. RA 2011.	0.5% to 100% by volume
	Dissolved acetylene gas	Total impurities	IS 308-1988 RA 2010	1% to 5% by volume
		Sulphur compound (as H_2S)	IS 308-1988 RA 2010	0.001% to 0.2% by volume
		Phosphorus compound (as PH_3)	IS 308-1988 RA 2010,	0.001% to 0.5% by volume.
		Moisture content	IS 308-1988 RA 2010	0.01% to 0.25% by mass.
		Purity of acetylene by Qualitative test	IS308-1988 RA 2010, (Clause. 2.2-A-2)	Qualitative
	Carbon dioxide	Purity of Carbon dioxide, % by volume.	IS 307-1966, RA 2012.	5% to 100% by volume

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		ELECTRICAL TESTING		
I.	**CABLES &ACCESSORIES**			
1.	**Volume and surface resistivity of solid electrical insulating materials**	Volume Resistivity	IS 3396-1979 Clause 10.1	1 X10^6 Ωcm to 1X10^{14} Ωcm at 500V DC
		Surface Resistivity	IS 3396-1979 Clause 10.2	1 X10^6 Ω to 1X10^{14} Ω at 500V DC
2.	**Electric strength of solid insulating materials at power frequencies**	Dielectric Strength	IS 2584-1963 (Amd: 1)	0.2 kV to 20 kV AC
3.	**PVC insulated cable for working Voltages up to 750/ 1100Volts**		IS 694-2010	
		Conductor Resistance	IS 10810 (Part-5)-1984	Upto1mΩ 1mΩ to 10mΩ 10 mΩ to 100mΩ 0.1 Ω to 1.051Ω
		High voltage Test AC &DC	IS 10810(Part-45)-1984	0.2 kV to 10 kV AC 0.2 kV to 1.5 kV DC
		High voltage test at room temperature	IS 10810 (Part-45)-1984	0.2 kV to 10 kV AC
		Insulation resistance	IS 10810 (Part-43)-1984	1 X10^6 Ωcm to 1X10^{14} Ωcm at 500V DC
		Shrinkage	IS 10810 (Part-12)-1984	Up to 200mm
		Hot deformation	IS 10810 (Part-15)-1984	Upto 200mm
		Heat shock	IS 10810 (Part-14)-1984	Qualitative
		Loss of mass	IS 10810 (Part-10)-1984	Upto 125g
		Thermal stability	IS 10810 (Part-60)-1984	Upto 200°C
		Overall dimension and thickness of insulation and sheath	IS 10810(Part-6)-1984	Upto 200mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tensile strength (Before Aging & After aging)	IS 10810 (Part-7)-1984	5 kg to 500 kg
		% Elongation	IS 10810 (Part-7)-1984	10% to 900 %
		Flammability	IS 10810 (Part-53)-1984	Upto 1000mm
		Smoke Density	IS 13360 (Part-6 /sec-9)-2001	0 to 100 %
		Halogen Gas	IS 10810 (Part-59) :1988	0 to 50 %
4.	**PVC insulated (Heavy Duty) Electric Cables for working Voltages up to and including 1100 V**		IS 1554(Part-1)1988	
		Conductor Resistance	IS 10810(Part-5)-1984	Upto 1mΩ 1mΩ to 10mΩ 10mΩ to 100mΩ 0.1 Ω to 1.051Ω
		High voltage AC/DC	IS 10810 (Part-45)-1984	0.2 kV to 10 kV AC 0.2 kV to 1.5 kV DC
		High voltage test at room temperature	IS 10810 (Part-45)-1984	
		Insulation resistance	IS 10810(Part-43)-1984	1 $X10^6$ Ωcm to $1X10^{14}$ Ωcm at 500V DC
		Tensile strength before aging	IS 10810 (Part-7)-1984	5 kg to 500 kg
		% Elongation	IS 10810 (Part-7)-1984	10% to 900 %
		Shrinkage	IS 10810 (Part-12)-1984	Upto 200mm
		Hot deformation	IS 10810 (Part-15)-1984	Upto 200mm
		Heat shock	IS 10810 (Part-14)-1984	Qualitative
		Loss of mass	IS 10810 (Part-10)-1984	Upto 125gm
		Thermal stability	IS 10810 (Part-60)-1984	Upto 200°C
		Test for overall dimension & thickness of insulation & sheath	IS 10810 (Part-6)-1984	Upto 200mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tensile strength after aging	IS 10810 (Part-7)-1984	5 kg to 500 kg
		% of Elongation		10% to 900 %
		Flammability	IS 10810 (Part-53)-1984	Upto 1000mm
		Resistance test on armour wire	IS 10810 (Part-42)-1984	Upto 1mΩ 1mΩ to 10mΩ 10mΩ to 100mΩ 0.1 Ω to 1.051Ω
		Uniformity of Zinc coating	IS 10810 (Part-40)-1984	Qualitative
		Mass of Zinc coating	IS 10810 (Part-41)-1984	Upto 125g
		Smoke Density	IS 13360 (Part-6 /sec-9)-2001	0 to 100 %
		Halogen Gas	IS 10810 (Part-59) :1988	0 to 50 %
5.	**Cross linked Polyethelene Insulated PVC sheathed cable** **Working voltage upto 1100 V.**		IS 7098(Part 1)1988	
		Conductor Resistance	IS 10810 (Part-5)-1984	Upto 1mΩ 1mΩ to 10mΩ 10 mΩto 100mΩ 0.1 Ω to 1.051Ω
		High voltage Test AC/DC	IS 10810 (Part-45)-1984	0.2 kV to 10 kV AC 0 to 1 kV DC 1 kV to 1.5kV DC 0.2kV to 10 kV AC
		High voltage test at room temperature	IS 10810 (Part-45)-1984	0.2kV to 10 kV AC
		Insulation resistance test	IS 10810 (Part-43)-1984	1.00 MΩ to 9.99MΩ 10.0 MΩ to 99.9MΩ 100 MΩ to 999MΩ 1.00GΩ to 9.99GΩ 10.0GΩ to 99.9GΩ 100 GΩ to 999GΩ at 500V DC
		Tensile strength before aging	IS 10810 (Part-7)-1984	5kg to 20kg 20kg to 40kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
				40kg to 100kg 100kg to 200kg 200kg to 500kg
		% Elongation	IS 10810 (Part-7)-1984	10 % to 900 %
		Shrinkage test on outer sheath	IS 10810 (Part-12)-1984	Upto 200 mm
		Hot deformation test on outer sheath	IS 10810 (Part-15)-1984	Upto 200 mm
		Heat shock test on outer sheath	IS 10810 (Part-14)-1984	Qualitative
		Loss of mass on outer sheath	IS 10810 (Part-10)-1984	Upto 125g
		Thermal stability test on outer sheath	IS 10810 (Part-60)-1984	Upto 200°C
		Test for overall dimension and thickness of insulation and sheath	IS 10810 (Part-6)-1984 IS 7098(Part-1)1988	Upto 200mm
		Tensile strength after aging	IS 10810(Part-7)-1984	5 kg to 20 kg 20 kg to 40 kg 40 kg to 100 kg 100 kg to 200 kg 200 kg to 500 kg
		% Elongation		10% to 900 %
		Hot set test	IS 10810 (Part – 30)-1984	Upto 200°C
		Water Absorption test	IS 10810 (Part -33)-1984	Upto 200°C
		Resistance test on armour wire	IS 10810 (Part-42)-1984	1mΩ to 100 mΩ
		Uniformity of Zinc coating	IS 10810 (Part-40)-1984	Qualitative
		Mass of Zinc coating	IS 10810 (Part-41)-1984	Upto 125 g
		Test for Smoke Density	IS 13360 (Part-6 /sec-9)-2001	0 to 100 %
		Test for Halogen Gas	IS 10810 (Part-59) :1988	0 to 50 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
6.	**Aerial bunched cables for working voltage upto &including 1100 volts.**		IS 14255-1995	
		Tensile strength on conductor	IS 10810 -(Part 2)-1984	5 kg to 500 kg
		Wrapping test	IS 10810 –(Part 3)-1984	Qualitative
		Conductor Resistance test.	IS 10810 -(Part 5)-1984	Upto 1mΩ 1 mΩto 10 mΩ 10 mΩ to 100 mΩ 0.1 Ω to 1.051Ω
		Tensile strength of insulation &Sheath.	IS 10810 –(Part 7)	5 kg to 500 kg
		Ageing in air oven	IS 10810 –(Part 11)	80°C to 125°C
		Hot set test	IS 10810 –(Part 30)	Ambient to 200°C
		Shrinkage test	IS 10810-(Part-12)	0 to 200 mm
		Water absorption	IS 10810-(Part 33)	200 °C 125mg
		Melt flow index	IS 10810-(Part 23)	Qualitative
		Vicat softening point	IS 10810-(Part 22)	Weight 20 kg 200°C to 250°C
	.		IS 14255-1995	
		Thickness of insulation	IS 10810-(Part-8)	Upto 200mm
		Insulation resistance	IS 10810 –(Part-43)-1984	1 X10^{6} Ωcm to 1X10^{14} Ωcm at 500V DC
		High voltage Test AC/DC	IS 10810-(Part-45)-1984	0.2 kV to 10 kV AC
		Smoke Density	IS 13360-(Part-6/Sec-9)-2001	0 to100 %
		Halogen Gas	IS 10810 (Part-59) :1988	0 to 50 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
II.	**WIRING ACCESSORIES**			
1.	**Electrical switches for domestic &similar purposes**	Verification of Rating and classification	IS 3854 -1997 (Amd 1 to7) Clause 6, Clause 7	Qualitative
		Verification of Marking	IS 3854 -1997 (Amd 1 to7) Clause 8.1,8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8,8.10)	Qualitative
		Dimensional checking Creepage distance & clearances.	IS 3854 -1997 (Amd 1 to7) Clause 9, Clause 23	Upto 200mm
		Protection against electric shock	IS 3854 -1997 (Amd 1 to7) Clause 10	40V to 60V, 5N to 75 N
		Provision of earthing	IS 3854 -1997 (Amd 1 to7) Clause 11	Qualitative
		Terminals and screws	IS 3854 -1997 (Amd 1 to7) Clause 12	0.2Nm to 6.0Nm
		Screws, current carrying, parts and connections.	IS 3854 -1997 (Amd 1 to7) Clause 22	0.2Nm to 6.0Nm
		Constructional requirements	IS 3854 -1997 (Amd. 1 to7) Clause 13	Qualitative
		Mechanism	IS 3854 -1997 (Amd. 1 to7) Clause14.1, 14.2,14.4,14.5)	Qualitative
		Resistance to ageing	IS 3854 -1997 (Amd. 1 to7) Clause 15	Ambient to 80°C RH 50% to 95% at 25°C
		Insulation resistance	IS 3854 -1997 (Amd. 1 to7) Clause 16	1.00 to 1 TΩ at 500V DC
		High voltage test (Electric Strength Test)	IS 3854 -1997 (Amd. t 1 to7) Clause 16	0.2 kV to 10 kV ac
		Temperature rise	IS 3854 -1997 (Amd. 1 to7) Clause 17	1A to 63A Ambient to 100°C
		Making and breaking capacity	IS 3854 -1997 (Amd. 1 to7) Clause 18	Upto 300V

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Normal operation	IS 3854 -1997 (Amd. 1 to7) Clause 19	6 A to 32 A
		Normal operation for fluorescent lamp circuits	IS 3854 -1997 (Amd. 1 to7) Clause 19.2	6 A to 16 A
		Mechanical strength	IS 3854 -1997 (Amd. 1 to7) Clause 20	Qualitative
		Resistance to heat.	IS 3854 -1997 (Amd. 1 to7) Clause 21	Upto 200 mm
		Resistance to abnormal heat and fire	IS 3854 -1997 (Amd. 1 to7) Clause 24.1	600°C to 900°C
		Resistance to tracking	IS 3854 -1997 (Amd. 1 to7) Clause 24.2	Qualitative
		Resistance to rusting	IS 3854 -199 (Amd. 1 to7) Clause 25	ambient to 100°C Qualitative
2.	**Plugs and socket-outlets of rated voltage up to and including 250 volts and rated current up to 16 amperes**	Verification of Rating and Classification	IS: 1293-2005(Amd. 1 to 6) Clause 6, Clause 7	Qualitative
		Verification of Marking	IS: 1293-2005 (Amendment 1 to 6) Clause 8	Qualitative
		Dimensions	IS: 1293-2005 (Amendment 1 to 6) Clause 9	Upto 200mm
		Protection against electric shock	IS: 1293-2005 (Amendment 1 to 6) Clause 10	40V to 60V, 5 N to 75 N
		Provision for earthing	IS: 1293-2005 (Amendment 1 to 6) Clause 11	Qualitative
		Terminals	IS: 1293-2005 (Amendment 1 to 6) Clause 12	upto 6.0 Nm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Screws, current carrying parts and connections	IS: 1293-2005 (Amendment 1 to 6) Clause 26	upto 6.0 Nm
		Constructional requirements of fixed socket	IS: 1293-2005 (Amendment 1 to 6) Clause 13	Qualitative
		Constructional requirements of plug	IS: 1293-2005 (Amendment 1 to 6) Clause 14	Qualitative
		Interlocked socket-outlet	IS: 1293-2005 (Amendment 1 to 6) Clause 15	Qualitative
		Resistance to ageing and to humidity	IS: 1293-2005 (Amendment 1 to 6) Clause 16	Ambient to 80°C RH 50% to 95% at 25°C
		Insulation resistance	IS: 1293-2005 (Amendment 1 to 6) Clause 17	1.00 to 1TΩ at 500V DC
		High voltage test (Electric Strength Test	IS: 1293-2005 (Amendment 1 to 6) Clause 17	0.2 kV to 10 kV ac
		Operation of Earthing contacts	IS: 1293-2005 (Amendment 1 to 6) Clause 18	Visual examination
		Temperature-rise	IS: 1293-2005 (Amendment 1 to 6) Clause 19	1A to 16A Ambient to 100°C
		Making and breaking capacity	IS: 1293-2005 (Amendment 1 to 6) Clause 20	Upto to 300V 0-1-0 PF
		Normal operation	IS: 1293-2005 (Amendment 1 to 6) Clause 21	Upto to 300V 0-1-0 pf 1A to 16A

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Force necessary to withdraw the plug	IS: 1293-2005 (Amendment 1 to 6) Clause 22	5 N to 75 N.
		Flexible cables and their connection	IS: 1293-2005 (Amendment 1 to 6) Clause 23	Qualitative
		Mechanical strength	IS: 1293-2005 (Amendment 1 to 6) Clause 24	Qualitative
		Resistance to heat	IS: 1293-2005 (Amendment 1 to 6) Clause 25	ambient to 150°C Upto 10mm
		Resistance of insulation material to abnormal heat, to fire and to tracking	IS: 1293-2005 (Amendment 1 to 6) Clause 28	600°C to 900°C
		Resistance to rusting	IS: 1293-2005 (Amendment 1 to 6) Clause 29	ambient to 100°C Qualitative
		Pins provided with insulating sleeves	IS: 1293-2005 (Amendment 1 to 6) Clause 30	Qualitative
3.	**Ceiling Rose**	Verification of Marking	IS 371 –1999 (Amendment 1 to 4) Clause 9	Qualitative
		DimensionsCreepage distances and clearances	IS 371 –1999 (Amendment 1 to 4) Clause 10 Clause 21	Up to 200mm
		Accessibility of live parts	IS 371 –1999 (Amendment 1 to 4) Clause 11	40V to 60V, 5N to 75 N
		Provision of earthing	IS 371 –1999 (Amendment 1 to 4) Clause 12	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Terminals	IS 371 –1999 (Amendment 1 to 4) Clause 13	Upto 6.0 Nm
		ConstructionScrews, current-carrying parts and connectors	IS 371 –1999 (Amendment 1 to 4) Clause 14 Clause 20	Upto 6.0 Nm
		Resistance to moisture and humidity	IS 371 –1999 (Amendment 1 to 4) Clause 15	Ambient to 80°C RH 50% to 95% at 25°C
		Insulation resistance	IS 371 –1999 (Amendment 1 to 4) Clause 15	1.0 MΩ to 9.99MΩ 10.0 to 1TΩ at 500V DC
		Electric strength	IS 371 –1999 (Amendment 1 to 4) Clause 15	0.2kV to 10 kV ac
		Temperature rise	IS 371 –1999 (Amendment 1 to 4) Clause 16	1A to 6 A Ambient to 100°C
		Mechanical strength	IS 371 –1999 (Amendment 1 to 4) Clause 17	1.9 Nm to 2 Nm
		Resistance to heat	IS 371 –1999 (Amendment 1 to 4) Clause 18	Ambient to 150°C Upto 200mm
		Resistance to abnormal heat fire and tracking	IS 371 –1999 (Amendment 1 to 4) Clause 19	600 ^{0}C to 900^{0}C
		Resistance to excessive residual stresses and to rusting	IS 371 –1999 (Amendment 1 to 4) Clause 22	Ambient to 150°C
4.	**Conduits for Electrical Installation**			
		Verification of Marking	IS 9537 Part 3- 1983 (Clause.6)	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Rigid Plain Conduit of Insulating Material	Durability of Marking	IS 9537 Part 3- 1983 (Clause.6.2)	Qualitative
		Construction	IS 9537 Part 3- 1983 Clause. 8	Qualitative
		Compression Test	IS 9537 Part 3- 1983 Clause. 9.3	Compression 750N Upto 200mm
		Impact Test	IS 9537 Part 3- 1983 Clause. 9.4	Qualitative Height of fall up to 100 mm
		Collapse Test	IS 9537 Part 3- 1983 Clause. 9.5	Qualitative
		Resistance to heat	IS 9537 Part 3- 1983 Clause.10	Upto 20mm
		Resistance to burning	IS 9537 Part 3- 1983 Clause. 11	Upto 600mm Upto 125s
		Electrical strength	IS 9537 Part 3- 1983 Clause. 12.1.1	0.2 kV to 10 kV ac
		Insulation Resistance	IS 9537 Part 3- 1983 Clause. 12.1.2	1.00 to 1 TΩ at 500V DC
III.	**LAMPS, LUMINAIRES AND ACCESSORIES**			
1.	**Lamps, Luminaires And Accessories**	Verification of Rating and Classification	IS 1258-2005 (Amendment 1 to 4) Clause 6, Clause 7	Qualitative
		Verification of Marking	IS 1258-2005 (Amendment 1 to 4) Clause 8	Qualitative
		Creepage distances and clearances	IS 1258-2005 (Amendment 1 to 4) Clause 18	Upto 200mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Provision for earthing	IS 1258-2005 (Amendment 1 to 4) Clause 12	Qualitative
		After Moisture resistance Insulation resistance test	IS 1258-2005 (Amendment 1 to 4) Clause 15	Ambient to 80°C RH 50% to 95% at 25°C 1.0 MΩ to 99.9MΩ at 500V DC
		After Moisture resistance High voltage test	IS 1258-2005 (Amendment 1 to 4) Clause 15	0.2 kV to 10 kV AC
		Mechanical Strength	IS 1258-2005 (Amendment 1 to 4) Clause 16	0.9 Nm to 2.4 Nm
		Screws, current carrying parts and connections	IS 1258-2005 (Amendment 1 to 4) Clause 17	0 to 0.2 Nm 0.2 Nm to 0.4 Nm
		General resistance to heat	IS 1258-2005 (Amendment 1 to 4) Clause 19	Ambient to 200°C
		Protection against electric shock	IS 1258-2005 (Amendment 1 to 4) Clause 10	40V to 60V
IV.	**ENVIRONMENTAL TEST FACILITY**			
1.	**Electronic Items (Photocopier, Printer, Projectors, Interactive Pads , Panels, Interactive Boards, Information Kiosks, Desk-Top Computers, Lap-Tops)**	Cold Test	IS 9000, (Part II/ Sec 2)-1977	(-)40 °C to 0 °C rate 3°C/ Min
		Damp (Cyclic) Test	IS 9000, (Part V/ Section 1): 16+8 h Cycle Section 2: 12+12 h Cycle	25 °C to 60 °C ±3% /Min 30% RH to 95% RH
		Dry Heat Test	As per IS 9000 (Part-3/Sec-1 to 5) 1977 RA 2004	Ambient to 180°C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		MECHANICAL TESTING		
I.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Ferrous Non-Ferrous and Welded Materials**	Tensile Test: Tensile Strength 0.2%Proof/ Yield Stress %of Elongation	IS 1608:2005 RA-2017	6 kN to 500 kN (Load) 6 kN to 400 kN (Load) 5 % to 80 %
2.	**Steel Tube**	Flattening Bend	1S 2328:2005, RA-201 IS 2329:2005 RA-2017	Qualitative (Mandrel radius R-85, R-105, R-150, R-218, R270,R-343.2,R-390.4, R-486.4 mm.) Bend Angle up to I80º
3.	**Plate, Sheet, Strip, Welded material** **TMT Bar**	Bend Test	IS 1599:2012 RA-2015	Qualitative (Mandrel Diameter (5, 10,12.8,16,19,24,26, 32, 33,54, 85, I00,160, 168,192, 200, 218, 270 , 343.2, 390.4, 486.4 mm), Mandrel diameter (TMT Bar): (24, 30, 32,36, 40,48,54, 60, 64, 72,80, 88,100, 112, 128,140,144,160,180 mm), Bend Angle up to I80º
4.	**TMT bar**	Mass / Meter Re-bend	IS 1786:2008 RA -2013	0.2-60Kg (Load) Qualitative (Mandrel diameter: 40,48,50,60,84,112,126, 140, 154,175,196, 224,252mm)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
5.	**Steel Tube, bar, Hinges, Sluice valve, Plate, Sheet, Strip, Wire**	**Dimensions** Length Diameter Thickness	IS 2062:2011 RA -2016, IS I239 (Part I): 2004 RA-2014, IS 3589: 2001 RA -2017, IS I16I: 2014, IS 14846:2000 RA-2015, IS 277:2003 RA-2013, IS I34I: 1992 RA-2017, IS 513:2016 IS 1875:1992 RA-2014, IS 16014:2012 RA-2017, IS 280:2006 RA-2015, IS 1079:2017, IS 814:2004 RA-2011	 1 m to 15 m 1 mm to 600 mm 0.1 mm to 25 mm
6.	**Tube, Sluice Valve,**	Hydraulic Test	IS I239 (Part I): 2004 RA-2014, IS 3589-2001 IS 14846:2000 RA-2015,	2 kg/cm^2 to 150 kg/cm^2 Qualitative
II.	**METALLOGRAPHIC TEST**			
1.	**Aluminium materials, Alloys and Products**	Thickness of Anodic coating (Micro section Method)	IS 5523:1983 RA-2016	0.01 mm to 1.00 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	**Welds and Welded tests specimens (Fusion welding on steel)**	Visual examination Macro examination Bend test(face and Root bend tests) Fillet weld fracture test	IS 7318(Part-1):1974 RA-2016	Qualitative Qualitative Qualitative (Mandrel Diameter 5, 10,12.8,19,21,26, 33, 39, 50, 54 & 55mm Bend Angle up to I80º) Qualitative
III.	**BUILDING MATERIALS**			
1.	**Cement**	Setting time -Initial -Final	IS 4031(Part 5)-88 RA 2009	 1 minute to 200 minutes 30 minutes to 600 minutes
		Fineness by specific surface.	IS 4031(Part 2)-99 RA 2008	60 m^2/kg to 600 m^2/kg
		Soundness by Le-Chatelier's expansion. Method.	IS 4031(Part 3)-88 RA 2014	0.5 mm to15 mm
		Soundness by autoclave expansion method.	IS 4031(Part 3)-88 RA 2014	0.001% to 2.0%.
		Compressive strength	IS 4031(Part 6)-88 RA 2009	10 N/mm^2 to 100 N/mm^2.
		Density	IS 4031(Part 11)-88 RA 2009	2.0 g/cc to 3.5 g/ cc
		Drying Shrinkage	IS 4031(Part 10)-88 RA 2009	0.01% to 2%
		Sulphate Expansion	IS 12330-88 RA 2009	0.001% to 1%
		Standard Consistency	IS 4031(Part 4)-88 RA 2009	20 % to 38%
		Degree of whiteness	IS 8042: 2015	50% to 80%
2.	**Pozzolanic Materials Fly Ash**	Specific gravity.	IS 1727:1967RA 2008	2 to 3.5
		Fineness by specific surface	IS 1727:1967 RA 2008	60 m^2/kg to 600 m^2/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		(Blaine's air permeability apparatus)		
		Lime reactivity.	IS 1727:1967 RA 2008	1 N/mm^2 to 20 N/mm^2
		Compressive strength.	IS 1727:1967 RA 2008	1 N/mm^2 to 50 N/mm^2
		Soundness by autoclave expansion	IS 1727:1967 RA 2008	0.001% to 2.0%.
		Particles retained on 45 micron IS Sieve (wet sieving)	IS 1727:1967 RA 2008	0.1% to 100%
3.	**Water Proofing Compound**	Settingtime Initial Final	IS 4031(Part.5)-88 RA 2009	1 minute to 200 minutes 30 minutes to 600 minutes
		Compressive strength	IS 4031(Part.6)-88RA 2009	10 N/mm^2 to 100 N/mm^2.
		Permeability to water	IS 2645:2003RA2017	5 ml to 200 ml
4.	**Common Burnt clay Building Bricks** **Pulverised Fuel Ash-Lime Bricks**	Dimension	IS 1077:1992RA2011	30mm to 5000 mm
		Water absorption	IS 3495 (Part-2):92 RA 2011	1% to 50%
		Efflorescence	IS 3495 (Part-3):92 RA 2011	Qualitative
		CompressiveStrength	IS 3495 (Part-1):92 RA 2011	2 N/mm^2 to 35 N/mm^2.
5.	**Hardened Cement concrete**	Compressive Strength	IS 516-1959RA 2013	10 N/mm^2 to 120 N/mm^2.
		Flexural Strength	IS 516-1959RA 2013	1 N/mm^2 to 15 N/ mm^2
		Permeability to water	DIN 1048:2005	1mm to100 mm
		Pull out test	IS 2770 (Part 1):1967 RA 2017	8 mm Ø to 25 mm Ø
6.	**Concrete flooring tiles, Chequered cement concrete tiles**	Dimension	IS 1237:2012 IS 13801: 2013	1 mm to 600 mm.
		Water absorption.	IS 1237:2012 RA 2016 IS 13801: 2013	5 % to 15 %
		Wet transverse strength.	IS 1237:2012 RA 2016 IS 13801: 2013	1 N/mm^2 to 10 N/mm^2.
		Resistance to wear	IS 1237:2012 RA 2016 IS 13801: 2013	0.01 mm to 10 mm.

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7.	**Acid Resistant Bricks& Tiles**	Dimension	IS 4860:1968 RA 2016 IS 4457:2007 RA 2012	0 to 300 mm.
		Waterabsorption	IS 4860:68RA 2016 & IS 4457:2007 RA 2012	0.1% to 5%
		Flexural Strength.	IS 4860:68RA 2016 & IS 4457:2007 RA 2012	1 N/mm^2 to 40 N/mm^2
		Resistance to wear	IS 1237:2012RA 2016	0.01 mm to 10 mm.
		Compressive Strength	IS 4860:68 &IS 4457:82	5 N/mm^2 to 150 N/mm^2
8.	**Coarse Aggregate**	Size and Grading	IS 2386 (Part-1) 63 RA2016	1% to 100%
		Impact	IS 2386(Part-4):1963 RA 2016	1% to 50%
		Crushing strength	IS 2386(Part-4):1963 RA 2016	1% to 50%
		Aggregate abrasion value (Los Angeles)	IS 2386 (Part-4):1963 RA 2016	1% to 60%
		Coal and Lignite	IS 2386 (Part 2) – 1963 RA2016	0.01% to 5%
		Clay Lumps	IS 2386(Part 5) –1963 RA2011	0.010% to 2%
		Material finer than 75 micron	IS 2386 (Part 4) –1963 RA 2016	0.1% to 10%
		Soundness ofAggregates	IS 2386 (Part 5) –1963- RA 2016	0.1% to 25%
		Water absorption	IS 2386 (Part 3) –1963 RA 2016	0.1% to 30 %
		Flakiness Index	IS 2386 (Part 1) – 1963 RA 2016	1% to 50 %
		Elongation Index	IS 2386 (Part 1) – 1963 RA 2016	1% to 50 %
	Fine Aggregate	Size and Grading	IS 2386 (Part-1) 1963 RA 2016	1% to 100%
		Coal and Lignite	IS 2386 (Part 2) – 1963 RA 2016	0.01% to 5%

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 5) –1963 RA2011	0.010% to 2%
		Material finer than 75 micron	IS 2386 (Part 4) –1963 RA 2016	0.1% to 10%
		Bulking of Fine Aggregate	IS 2386 (Part 3) – 1963 RA 2016	0.1 % to 30 %
		Soundness ofAggregates	IS 2386 (Part 5) –1963 RA 2016	0.1% to 25%
		Water absorption	IS 2386 (Part 3) –1963 RA2016	0.1% to 30 %
9.	**Hollow and solid concrete blocks**	Dimension	IS 2185 ((Part I):2005 RA2010 Annexure-B	40 mm to 700 mm
		Density	IS 2185 ((Part I):2005 RA2010 Annexure-C	500 kg/m^3 to 2500 kg/m^3
		Compressive strength	IS 2185 ((Part I):2005 RA2010Annexure-D	1.5 N/mm^2 to 40 N/mm^2
		Drying Shrinkage	IS 2185 ((Part I):2005 RA2010Annexure-F	0.001% to 1%
		Moisture Movement	IS 2185 ((Part I):2005 RA2010Annexure-G	0.001% to 1%
		Water Absorption	IS 2185 ((Part I):2005 RA2010Annexure-E	1% to 10%
10.	**AAC Block**	Dimension	IS 2185 (Part.3):1984 RA 2010	40 mm to 700 mm
		Block Density	IS 6441 (Part-1):1972 (RA2011)	250 kg/m^3 to 1200 kg/m^3
		Compressive Strength	IS 6441 (Part-5): 1972 (RA2011)	1 N/mm^2 to 10N/mm^2
		Drying Shrinkage	IS 6441 (Part-2): 1972 (RA2011)	0.001% to 1%
11.	**Precast Interlocking Concrete Tiles (Paver Blocks)**	Dimensions	IS 15658:2006 (RA2016) Annexure-B	10 mm to 600 mm
		Water Absorption	IS 15658:2006 (RA2016)Annexure-C	1 % to 6%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Compressive Strength	IS 15658:2006 (RA2016) Annexure-D	10 N/mm^2 to 80 N/mm^2
		Flexural Strength	IS 15658:2006 (RA2016) Annexure-F	1 N/mm^2 to 10N/mm^2
		Split Tensile Strength	IS 15658:2006 (RA2016) Annexure-E	1 N/mm^2 to 5 N/mm^2
		Abrasion Resistance	IS 15658:2006 (RA2016) Annexure-G	3000 mm^3 to15000 mm^3 /5 000mm^2
12.	**Ceramic Tiles**	Dimension Length Width Thickness	IS 13630:2006 RA2016	100mm to 650mm 100mm to 650mm 5 mm to15mm
		Surface Quality	IS 13630:2006 (RA2016)	Qualitative
		Water Absorption	IS 13630:2006 (RA2016)	0.001% to 30 %
		MOR /Breaking Strength	IS 13630:2006 (RA2016)	5 N/mm^2 to 50 N/mm^2/ 50 N to 5000N
		Crazing Resistance	IS 13630:2006(RA2016)	Qualitative
		Scratch Hardness	IS 13630:2006 (RA2016)	1 to 9
		Abrasion Resistance	IS 13630:2006 RA2016	Class I to Class IV
		Chemical Properties: -Resistance to staining - Resistance to household chemicals and swimming pool water cleansers except to cleansing agents containing hydrofluoric acid and its compounds -.Resistance to acids and alkalies	 IS 13630(Part-8):2006 (RA2016) IS 13630 (Part-7&8):2006 (RA2016) IS 13630 (Part-7&8):2006 (RA2016)	 Qualitative Qualitative Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
13.	**Water for Construction**	Compressive Strength	IS 516-59RA2013	10 N/mm^2 to 80 N/ mm^2
		Setting time	IS 4031(Part.5)-88(RA2009)	5 minutes to 600 minutes
IV.	**WOOD AND WOOD PRODUCTS**			
1.	**Plywood for General Purpose**	Dimensions Length Width Thickness	IS 303:1989 (RA2013)	 1000 mm to 3000 mm 500 mm to 1500 mm 0.5 mm to 30mm
		Edge Straightness	IS 303:1989 (RA2013)	0.01% to 3%
		Squareness	IS 303:1989 (RA2013)	0.01% to 0.3%
		Water Resistant Test	IS 1734(Part 5):1983 (RA2013)	Qualitative
		Mycological Test	IS 1734(Part 7):1983 (RA2013)	Qualitative
		Moisture Content	IS 1734(Part 1):1983 RA2013	2 % to 20%
		MOR MOE	IS 1734(Part 11):1983 RA2013	5 N/mm^2 to 50 N/mm^2 500 N/mm^2 to 20000 N/mm^2
2.	**Marine plywood /Shuttering Ply**	Dimensions Length Width Thickness	IS 710:2010 IS 4990:2011	 1000 mm to 3000mm 500 mm to 1500 mm 0.5mm to 30 mm
		Edge Straightness	IS 710:2010/4990:2011	0.01% to 3%
		Squareness	IS 710:2010/4990:2011	0.01% to 0.3%
		Water Resistant Test Adhesion of Plies	IS 1734(Part 5):1983 RA2013	Qualitative
		Mycological Test Adhesion of Plies	IS 1734(Part 5):1983 RA2013	Qualitative
		Glue Shear Strength	IS 1734(Part 4):1983 RA2013	10N to 3000 N

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Surface Quality and defects	IS303:1989 RA 2013 IS710:2010 IS 4990:2011	Qualitative
		Tensile Strength	IS 1734(Part 9):1983 RA2013	5 N/mm^2 to 100 N/mm^2
		WetBending Strength	IS 1734(Part 11):1983 RA2013	5 N/mm^2 to 70 N/mm^2
		Adhesion of Plies	IS 1734(Part 5):1983 RA2013	Qualitative
		Moisture Content	IS 1734(Part 1):1983 RA2013	1% to 15%
		MOR	IS 1734(Part 11):1983 RA2013	5 N/mm^2 to 70 N/mm^2
		MOE	IS 1734(Part 11):1983 RA2013	500 N/mm^2 to 20000 N/mm^2
3.	**Particle Board**	Dimensions Length Width Thickness	IS 3087:2005 RA2010	 1000 mm to 3000 mm 500 mm to 1500 mm 0.5 mm to 30 mm
		Edge Straightness	IS 3087:2005 RA2010	0.01% to 3%
		Squareness	IS 3087:2005 RA2010	0.01% to 0.3%
		Density	IS 2380(Part 3):1977 RA2013	500 kg/m^3 to 900 kg/m^3
		Moisture Content	IS 2380(Part 3):1977 RA2013	5% to 15%
		Water Absorption	IS 2380(Part 16):1977 RA2013	1% to 80%
		Linear Expansion Swelling in Water/ Swelling in thickness due to surface absorption	IS 2380(Part 17):1977 RA2013	0.1% to 12%
		MOR	IS 2380(Part 4):1977 RA2013	5 N/mm^2 to 150 N/mm^2

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		MOE	IS 2380(Part 4):1977 RA2013	500 N/mm^2 to 20000 N/mm^2
		Tensile Strength perpendicular to surface	IS 2380(Part 5):1977 RA2013	0.1N/mm^2 to 5 N/mm^2
		Tensile Strength perpendicular to surface after ageing	IS 2380(Part 5):1977 RA2013	0.1N/mm^2 to 5 N/mm^2
		Screw Withdrawal Test	IS 2380(Part 14):1977 RA2013	50 N to 5000 N
4.	**Veneered Particle Board**	Density(Variation)	IS 2380(Part 3):1977 RA2013	1% to 10%
		Moisture Content	IS 2380(Part 3):1977 RA2013	5% to 16 %
		Water Absorption	IS 2380(Part 16):1977 RA2013	1% to 50%
		Swelling in Water/Swelling in thickness due to surface absorption	IS 2380(Part 17):1977 RA2013	0.1% to 7 %
		Adhesion of Plies	IS 3097:2006 RA 2011	Qualitative
		MOR	IS 2380(Part 4):1977 RA2013	1 N/mm^2 to 150 N/mm^2
		MOE	IS 2380(Part 4):1977 RA2013	500 N/mm^2 to 20000 N/mm^2
5.	**Wooden flush door**	Dimension and Squareness	IS 4020 (Part 2)– 1998 RA2008	15 mm to 2500 mm
		Knife test	IS 4020 (Part 14)– 1998 RA2008	Qualitative
		Screw Withdrawal Test	IS 4020 (Part 16)–1998 RA2008	10 N to 5000N
		Slamming Test	IS 4020 (Part 10)– 1998 RA2008	Qualitative
		Local planeness	IS 4020 (Part 4)– 1998 RA2008	0.01mm to 10 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Impact Indentation	IS 4020 (Part 5)– 1998 RA2008	0.01mm to 10 mm
		Glue Adhesion Test	IS 4020 (Part 15)– 1998 RA2008	1mm to 150 mm
		End Immersion Test	IS 4020 (Part 13)– 1998 RA2008	1mm to 1200 mm
		General Flatness	IS 4020 (Part 3)– 1998 RA2008	0.01mm to 10 mm
		Flexure Test	IS 4020 (Part 6)– 1998 RA2008	0.01mm to 100 mm
		Misuse Test	IS 4020 (Part 11)– 1998 RA2008	Qualitative
		Buckling Test	IS 4020 (Part 9)– 1998 RA2008	0.01mm to 100 mm
		Edge loading test	IS 4020 (Part 7)– 1998 RA2008	0.01mm to 25 mm
		Shock Resistance test	IS 4020 (Part 8)– 1998 RA2008	50 N and 300 N
6.	**Block Board**	Dimensions Length Width thickness	IS 1659:2004RA2009	 1000 mm to 3000mm 500 mm to 1500 m 0.5 mm to 30mm
		Edge Straightness	IS 1659:2004 RA2009	0.01% to 3%
		Squareness	IS 1659:2004 RA2009	0.01% to 0.3%
		Dimensional Change caused by humidity	IS 1659:2004 RA2009 Annexure E	0.02 mm to 2mm
		Resistance to water	IS 1659:2004 RA2009 annexure F & G	Qualitative
		Adhesion of plies	IS 1659:2004 RA2009 annexure G	Qualitative
		MOR /MOE	IS 1659:2004 RA2009 annexure J	10N/mm^2 to 80 N/mm^2./ 500 N/mm^2 to 20000 N/mm^2

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Spot test	IS 1659:2004 RA2009 annexure K	1 mm to 20 mm
7.	**Prelaminated Particle Board, Prelaminated Medium Density Fibre Board**	Density	IS 2380(Part 3):1977 RA2013	500 kg/m^3 to 900 kg/m^3
		Moisture Content	IS 2380(Part 3):1977 RA2013	1% to 15 %
		Water Absorption	IS 2380(Part 16):1977 RA2013	0.1% to 30 %
		Swelling in Water/Swelling in thickness due to surface absorption	IS 2380(Part 17):1977 RA2013	0.1% to 8 %
		MOR	IS 2380(Part 4):1977 RA2013	5N/mm^2 to 60 N/mm^2
		MOE	IS 2380(Part 4):1977 RA2013	500 N/mm^2 to 6000 N/mm^2
		Tensile Strength (Perpendicular to surface)	IS 2380(Part 5):1977 RA2013	0.10 N/mm^2 to 1 N/mm^2
		Tensile Strength (Perpendicular to surface) After Ageing	IS 2380(Part 5):1977 RA2013	0.10 N/mm^2 to 1 N/mm^2
		Screw Withdrawal Test	IS 2380(Part 14):1977 RA2013	100 N to 5000N
		Abrasion Resistance	IS12823:2015 IS14587:1998 RA2013	80 revolution to 800 revolution
		Resistance to Steam	IS12823:2015 IS14587:1998 RA2013	Qualitative
		Resistance to Cracking	IS12823:2015 IS14587:1998 RA2013	Qualitative
		Cigarette Burn	IS12823:2015 IS14587:1998 RA2013	Qualitative
		Resistance to Stain	IS12823:2015 IS14587:1998 RA2013	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dimensions, Length Width thickness	IS 12823:2015 IS 12406:2003 RA2013	 1000 mm to 3000 mm 500 mm to 1500 m 0.5 mm to 30 mm
		Edge Straightness	IS 12823:2015 IS 12406:2003 RA2013	0.01% to 3%
		Squareness	IS 12823:2015 IS 12406:2003 RA2013	0.01% to 0.3%
8.	**Medium Density Fibre Board**	Density	IS 2380(Part 3):1977 RA2013	600kg/m^3 to 900 kg/m^3
		Moisture Content	IS 2380(Part 3):1977 RA2013	5 % to 10 %
		Water Absorption	IS 2380(Part 16):1977 RA2013	6 % to 45 %
		Linear Expansion Swelling in Water/Swelling in thickness due to surface absorption	IS 2380(Part 17):1977 RA2013	0.3 % to 7 %
		MOR	IS 2380(Part 4):1977 RA2013	5 N/mm^2 to 60N/mm^2
		MOE	IS 2380(Part 4):1977 RA2013	500 N/mm^2 to 3000N/mm^2
		Internal Bond/ Tensile Strength Perpendicular to surface	IS 2380(Part 5):1977 RA2013	0.1N/mm^2 to 5N/mm^2
		Internal Bond/ Tensile Strength Perpendicular to surface after Ageing	IS 2380(Part 5):1977 RA2013	0.1N/mm^2 to 5 N/mm^2
		Screw Withdrawal Test	IS 2380(Part 14):1977 RA2013	1250 N to 1500 N

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Dimensions, Length Width thickness	IS 12406:2003 RA2013	 1mm to 5000mm 1 mm to 5000mm 0 to 600 mm
		Edge Straightness	IS 12406:2003 RA2013	0.01% to 3%
		Squareness	IS 12406:2003 RA2013	0.01% to 0.3%
9.	**Timber**	Specific Gravity	IS 1708(Part 2):1986 RA2010	100 kg/m^3 to 999 kg/m^3
		Moisture Content	IS 1708(Part 1):1986 RA2010	1 % to 30 %
		MOR	IS 1708(Part 5):1986 RA2010	5 N/mm^2 to 500 N/mm^2
		MOE	IS 1708(Part 5):1986 RA2010	500N/mm^2 to 10000 N/mm^2
		Compression Strength (Perpendicular to grain)	IS 1708(Part 9):1986 RA2010	1 N/mm^2 to 100 N/mm^2
		Compression Strength (Parallel to Grain)	IS 1708(Part 8):1986 RA2010	1 N/mm^2 to 100 N/mm^2
		Tensile Strength (Parallel to Grain)	IS 1708(Part 12):1986 RA2010	5 N/mm^2 to 200 N/mm^2
		Shear Strength	IS 1708(Part 11):1986 RA2010	5 N/mm^2 to 50 N/mm^2
V.	**PLASTICS AND PLASTIC PRODUCTS**			
1.	**Plastics & Polymers**	Melt flow index of Thermoplastics	IS 2530–1963, (RA2008) ASTMD 1238	Upto 100g/ 10min
		Flexing properties of plastics & coated film. (Upto 999999 cycles)	IS 7016 (Part4)-2003 (RA2009) ISO7854:1995., IS 13217–1991, (RA2012)	Qualitative
		Vicat softening point.	IS 6307–1985 (RA2008) IS 10810(Part 22)-1984, (RA2016) ASTMD 1525–2003.	Upto 300°C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Water absorption of Plastics	ASTM D 570-95 IS 5382-1985 (RA2008)	Upto 100%
		Sulphated Ash content (Up to 50%)	IS 4985-2000 (RA2010)	Upto 50%
		Resistance to Sulphuric Acid	IS 12235-2004 (RA2009)	Upto 100%
		Dimensions; Diameter	IS;4984-2016 IS 12235-2004 (RA 2009) IS 4985-2000, (RA 2010)	Upto 960 mm
		Wall thickness	IS 10124(Part1-5)-2009 IS 12701-1996 (RA 2017), IS 12786-1989 (RA 2009) IS 12818-2010 IS 13592-2013IS 14151(Part1)1999 IS 7834(Part1-8) 1987,IS 2508-2016, IS 9537-1980 (RA 2015)	Upto 25 mm
		Weight (up to 75 kg.)	IS 12701-1996 (RA 2017)	Qualitative
		Visual Appearance.	IS 4984-2016, IS-4985-2000 (RA 2010) IS 12701-1996, (RA 2017) IS 12786-1989 (RA 2009) IS 13592-2013 IS 14151(Part-1 1999 &Part2-2008) IS 10124-2009, IS 7834-1987 (RA 2008),	Qualitative
		Reversion	IS 2530-1963 (RA 2008) IS-4984-2016, IS 14151(Part1)- 1999,IS 12786-1989 (RA 2009), IS13592-2013, IS 12235-2004 (RA 2009)	Upto 25%

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Tensile Strength	IS 2530-1963, IS 13360(Part5/Section I,II&III) ISO 527(Part-2&3) :1995, ISO 6239 & ISO1184 IS 12786-1989, IS 2508-2016 IS 7328-1992 (RA 2008), IS 12818-2010, IS-13592-2013, IS 14151-1999,	50000 kg/cm^2
		% Elongation at break	IS 2530-1963, IS;13360(Part5/Section I,II&III) ISO 527(Part-2&3) :1995, IS 12786-1989 IS 2508-2016 IS 7328-1992 IS 12818-2010 IS 13592-2013 IS 14151-1999 IS 13217-1991 (RA 2012)	3500%
		Density at 27ºC/ Specific gravity	IS 7328-1992, IS13360(Part3/ section I):1999	Upto 2.5 g/cc
		Stress Relief Test	IS 7834-1987(Part1 to 8), IS 12235- 2004, IS 4985-2000 (RA 2010) IS 13592-2013	Qualitative
		Impact Tests Pipes Films Tank	IS 4985-2000 (RA 2010) IS 13592-2013 IS 9537-1980(RA.2015) IS 2508-2016 IS 12235-2004 (RA 2009) IS 12701-1996 (RA 2017)	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Shore Hardness (A & D)	ASTMD2240-2002 IS 13360 (Part.5/Sec.XI)-1992	Upto to 100
		Test for internal diameter	IS 12818-2010	Upto 600 mm
		Axial Shrinkage /Reversion	IS 13592-2013	Upto 25%
		Resistance to burning	IS 9537 (Part.1)-1980 (RA 2015)	Qualitative
		Resistance to deformation (Upto 10%)	IS 12701-1996 (RA 2017)	Qualitative
VI.	**RUBBER AND RUBBER PRODUCTS**			
1.	**Rubber & Rubber Products**	Hydrostatic, Burst pressure. (Upto 50 kg/cm^2)	IS 636–1988 (RA 2008) IS 443–1975 (RA 2012 IS 446–1987 (RA 2008)	Qualitative
		Mass/meter of hose	IS 636–1988 (RA 2008)	Upto 1000 g
		Coil diameter (Up to 60 cm)	IS 636–1988 (RA 2008)	Qualitative
		Hydrostatic Proof pressure test of Hose (Upto 50 kg/cm^2)	IS 636–1988 (RA 2008) IS 443–1975 (RA 2012, IS 446–1987 (RA 2008).	Qualitative
		Kink test of hose (Upto 30 kg/cm^2)	IS 636–1988 (RA 2008)	Qualitative
		Change in length of hose	IS 636–1988 (RA 2008)	Upto 1000 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Change in diameter of hose	IS 636–1988 (RA 2008)	Upto 100 mm
		Adhesion of Rubber lining of hose	IS 636–1988 (RA 2008)	1 mm /min to 50 mm/min.
		Abrasion Resistance of hose (Upto 300 cycles)	IS 636–1988 (RA 2008)	Qualitative
		Heat Resistance	IS 636–1988 (RA 2008)	Upto 30s
		Resistance To flex cracking (Upto 999999cycles)	IS 3400(Part.VII)–1985 (RA 2012, IS 7016(Part4)-2003 ISO7854:1995	Qualitative
VII.	**TEXTILE MATERIALS**			
1.	**Textile Materials**	Weight per sq. meter	IS 1964–2001	0.2 g to 900 g
		Colour fastness to artificial light	IS 2454–1985 (RA 2010).	Qualitative
		Length and width of the fabric	IS 1954–1990 (RA 2007)	Upto 5 m
		Threads perunit length in woven fabric (end, picks)	IS 1963–2004 (RA 2008)	1 to 500/dm
VIII.	**PAPER & PAPER PRODUCTS**			
1.	**Paper & Paper Products**	Folding Endurance (Double Fold)	IS 1060 (Part 1)–1966 (RA 2016)	Qualitative
		Opacity %	IS 1060 (Part 1)–1966 (RA 2016)	Upto 100 %
		One Minute Cobb	IS 1060 (Part 1)–1966 (RA 2016)	0.0001 g to 220 g
		Tensile Index & Breaking length	IS 1060 (Part 1)-1966 (RA 2016)	5 N to 200 N
		Substance (GSM) Weight	IS 1060 (Part 1)-1966 (RA2016)	0.0001 g to 220 g

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		NON-DESTRUCTIVE TESTING		
I.	**EDDY CURRENT TESTING**			
1.	**Ferrous material** **Weld** **Casting**	Radiography Testing by X-ray (300 kV) Radiography Testing by Gamma rays (Ir-192)	IS 2595-2008 IS 1182-1983 (RA 2010) IS 4853-1982 (RA 2008) IS 8780-2004(RA-2010)	2.5 mm to 45 mm 10 mm to 65 mm
2.	**Non conductive coating on Non ferrous metals and alloys.**	Coating measurement by Eddy current test method.	IS 6012-1992 (RA 2016) IS5523-1983 (RA 2016)	10 µm to 75 µm
II.	**BUILDING MATERIALS – REINFORCED CONCRETE STRUCTURES**			
1.	**Hardened Concrete**	Ultrasonic Testing	IS 13311(Part-1):1992 (RA 1999)	0.5 km/s to 5 km/s
		Rebound Hammer	IS 13311(Part-2):1992 (RA 1999)	10 to 65
		Cover meter	BS1881 (Part-204):1986	1mm to 100 mm
		Carbonation	BS1881 (Part-201):1986	1 mm to 50 mm