

Laboratory	Shriram Institute for Industrial Research, 19, University Road, Delhi		
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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
I. MECHANICAL PROPERTIES OF MATERIALS				
1.	Ferrous & Non Ferrous - Pipes Structural steel Reinforcement steel bar Square tube Sheet Plane Sections Fittings Steel Wire Round bar/ bolt/fasteners	Tensile test	IS 1608: 2005	0.001to1000 kN
		Yield Strength	ISO 6892 :1998	50 to 2000 N/mm ²
		Tensile Strength	ASTM E 8 M-2009	50 to 4000 N/mm ²
		Elongation %	ASTM A 370 –2009ae1	1 to 80 %
		%Reduction of area	ASME SEC-IX-10	1 to 80 %
			IS 3600 (Part 3): 2009	
		Shear Strength	IS 5242: 1979 (RA 2010)	0.001 to 1000 kN
		Hardness by Vickers	IS 1501: 2002	50 to 200 HV ₅
			ISO 6507: 1 1997	100to 600 HV ₁₀ ,
			ASTM E 92: 1982(2003)e2	300to 900 HV ₃₀
		Hardness by Brinell	IS 1500 (Part 1 to 3): 2013	50 to 400 HBW
			ISO 6506(Part 1 to) 2005	(2.5/187.5)
			ASTM E 10-2008	
		Hardness by Rockwell	IS 1586 (Part 1to3): 2012	45 to 88 HRA
			ISO 6508 (Part1to 3) 2005	(L.C 1 HRA)
			ASTM E 18-2008b	30m to 100 HRB
				(L.C 1 HRB)
				20 to 70 HRC
				(L.C 1 HRC)
		Bend Test	IS 1599: 2012	Qualitative
			IS 2329: 2005	(Mandrel Sizes
			ISO 8491: 1998	upto 486 mm)
			ASME Sec IX-10	
			IS 3600 (Part5): 1983	
			(RA2010)	
			ISO 5173:1981 (RA 2006)	
			IS 3600 (Part-6): 1983 (RA 2008)	
			ISO 5177: 1981 (RA 2003)	

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		Izod Impact tests (Room Temp.)	IS 1598: 1977 (RA2003)	2 to 168 Joule (L.C.-2 Joule)
		Charpy Impact Test (V-Notch & U-Notch) (Room Temp. & upto -40°C)	IS 1757 : 1988 (RA 2003) IS 1499: 1977 (RA 2009) IS 3600 (Part 2): 1985 (RA 2008)	2 to 300 Joule (L.C.-2 Joule)
2.	Tubes & Sockets	Drift expansion test	IS 2335: 2005 ISO 8493: 1998	Qualitative
		Flattening test	IS 2328: 2005 ISO 8492:1998	Qualitative
3.	Wire & Bars	Reverse bend Test	IS 1716: 1985 (RA 2010)	Qualitative
4.	Reinforcement Bar	Re-bend test	IS 1786: 2008	Qualitative
5.	Aluminium & Ferrous Based	Measurement of Coating Thickness	IS 1868: 1996 (RA 2006) IS 6012: 1992 (RA 2010) IS 5523: 1983 (RA 2010) IS 3203: 1982 (RA 2006)	1 to 1000 Micron (L.C.-0.1 & 1µm)
6.	CI Pipe & Fittings	Hammer Test	IS 1729: 2002 (RA 2007)	Qualitative
		Ring Test	IS 1536 : 2001 (RA2006)	0.001 to 100 kN 50 to 1000 MPa
		Coating test (To Observe Chipping & Flow of tar Coating)	IS 1536 : 2001 (RA 2006) IS 1537 : 1976 (RA 2006) IS 1538: 1993 (RA 2009) IS 3989: 2009 IS 1729: 2002 (RA 2007)	Qualitative (0 ° to 80 ° C)

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7.	Ferrous & Non Ferrous - Pipes Structural steel Reinforcement steel bar Square tube Sheet Plate Sections Fittings Milk can Ghee Tin Steel Wire Door Bolt Tower Bolt Door Handle Sink	Dimension	IS 1239: (Part 1): 2004 IS 1239: (Part 2): 2011 IS 3589: 2001 (RA 2006) IS 1161: 2014 IS 2062: 2011 IS 4923: 1997 (RA 2003) IS 1786: 2008 Clause 5.2 IS 778: 1984 (RA 2010) IS 14846: 2000 (RA 2005) IS 781: 1984 (RA 2005) IS 8329: 2000 (RA 2005) IS 1978: 1982 (RA 2009) IS 4246: 2002 (RA 2008) IS 5116: 1996 (RA 2011) IS 13983: 1994 (RA 2004) IS 10325: 2000 (RA 2005) IS 10339: 2000 (RA 2005) IS 1825: 1983 (RA 2011) IS 10773: 1995 (RA 2006) IS 1135: 1995 (RA 2006) IS 277: 2003 (RA 2007) IS 208: 1996 (RA 2012) IS 281: 2009 IS 737: 2008 IS 204 (Part1): 1991 (RA2010) IS 204 (Part2): 1992 (RA2012) IS 13316: 1992 (RA2008) IS 1536: 2001 (RA2006) IS 1537: 1976 (RA2005) IS 1538: 1993 (RA2009) IS 1729: 2002 (RA2007) IS 3989: 2009	Measuring tape 1mm to 3 mtr Vernier caliper 0.01 mm to 450 mm Micrometer 0.01 to 25 mm 25 mm to 50 mm

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		Dimension	IS 733: 1983 (RA2006) IS 7452: 1990 (RA2003) IS 9396: (Part1): 1987 (RA 2005) IS 9503: 1988 (RA 2005) IS 9550: 2001 (RA 2004)	Measuring tape 1mm to 3 mtr Vernier caliper 0.01 mm to 450 mm Micrometer 0.01 to 25 mm 25 mm to 50 mm
8.	Structural steel Reinforcement steel bar Square tube Sheet Plate Sections Pipes / Tube	-Mass/meter	IS 1239 (Part1): 2004 IS 1161: 2014 IS 1786: 2008 IS 2062: 2011 IS 4923: 1997 (RA 2003) IS 3589: 2001 (RA 2006) IS 1825: 1983 (RA 2011) IS 1536 : 2001 (RA 2006) IS 1537 : 1976 (RA 2005) IS 1538: 1993 (RA 2009) IS 3989: 2009 IS 1729: 2002 (RA 2007) IS 7138: 1973 (RA 2003) IS 7452: 1990 (RA2003)	1g to 8kg (L.C.- 0.1 g.) 0.01kg to 150kg (L.C.- 1 g)
II.	METALLOGRAPHY TEST			
1.	Cast Iron/Ductile Iron and Ferrous Material	Macro structural analysis	ASTM E3-01 (RA 2011)e1 IS 11371: 1985 (RA 2007) IS 3600 (Part 9): 1985 (RA 2008)	Qualitative
		Micro structural analysis	ASTM E3: 01 (RA2011)e1 IS 3600 (Part 9): 1985 (RA 2008) IS 7739 (Part 1): 1975 (RA 2010) IS 7739 (Part 5): 1976 (RA 2007) IS 7754: 1975 (RA 2007) Metals handbook Vol 7 8 th edition	Qualitative

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Cast Iron/Ductile Iron and Ferrous Material	Estimation of grain size by microscopic method	ASTM E 112-2010 IS 4748: 2009	Qualitative (1to10)
		Determination of case depth by microscopic method	IS 6416: 1988 (RA 2007)	Qualitative (0.01 to 1.0mm)
		Determination of case depth by Micro-Hardness	IS 6416: 1988 (RA 2007)	Qualitative (0.01 to 1.0mm)
		Determination of inclusion rating	ASTM E45-2005 e3 IS 4163: 2004 ISO 4967 : 1998	Qualitative (Thin /Thick to 5)
		Determination of depth of decarburized layer by Microscopic Method	ASTM E1077-2001 (RA 2005) IS 6396: 2000 (RA 2007)	Qualitative 0.01 to 0.5mm)
2.	Metallic /Non metallic coating on Ferrous/ Non-ferrous	Measurement of Coating Thickness by Microscopy Method	ASTM E 3-2001 (RA2 011)e1 IS 5523: 1983 IS 3203: 1982 (RA 2006)	15 to 250 Micron
3.	Thin material & Coating	Determination of Micro hardness	IS 1501: 2002 ISO 6507-1 2013 ASTM E384 – 2009	50 to 900 HV1 50 g to 1kg
III. BUILDING MATERIALS				
1.	Cement	Setting Time	IS 4031 (Part 5): 1996 (RA 2009) ASTM C 191-2008 BS EN 196 (Part 3)2005+A1 2008	10 min. to 24 hours

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		Fineness (Blains)	IS 4031 (Part 2): 1990 (RA 2008) ASTM C 204 -2007 BS EN 196 (Part 6) 2010	100 to 700 m ² /kg
		Soundness (Le Chatlier)	IS 4031 (Part 3): 1990 (RA 2009) BS EN 196 (Part 3): 2010	0.2 to 50mm
		Soundness (Autoclave)	IS 4031 (Part 3): 1990 (RA 2009) ASTM C 151-2009 BS EN 196 (Part 3) 2005+A1 2008	0.01 to 5%
		Compressive Strength	IS 4031 (Part 6): 1988 (RA 2009) ASTM C 109-2008 BS EN 196 (Part1): 2005	2 to 70 N/mm ²
		Drying Shrinkage	IS 4031 (Part10): 1988 (RA 2005) ASTM C 596 -2009 , ASTM C 157- 1999	0.01 to 2%
		Density	IS 4031: (Part11): 1988 (RA2009) ASTM C 188-2009	2 to 3.5 g/cm ³
		Consistency	IS 4031 (Part4): 1988 (RA2009) ASTM C 187-2010 BS EN 196 (Part 5) 2005 +A1 2008	10 to 50 %

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2.	Aggregates (Coarse, Graded aggregates, Key aggregate, Stone Metal, Ballast)	Heat of Hydration	IS 4031 (Part 9): 1988 (RA 2005) ASTM C 186-2005 BS EN 196 (Part 9) -2010	50 to 600 KJ/kg
		Degree of Whiteness (For WPC only)	IS 8042: 1989 (RA2009)	40 to 95%
		Pozzolanicity	BS EN 196 (Part 5): 2011	1 to 25%
		Sieve analysis (Gradation)	IS 2386 (Part 1):1963 (RA 2011) ASTM C 136 : 2006 IS 383: 1970 (RA 2011)	0 to 100%
		Water absorption	IS 2386 (Part 3): 1963 (RA 2011) ASTM C 127- 2007 AASHTO T 85 2004	0.1 to 20%
		Impact value	IS 2386 (Part 4): 1963 (RA 2011) IS 5640 -1970 (RA 2013) ASTM C 131-2011	10 to 50%
		Abrasion value	IS 2386 (Part 4): 1963 (RA2011) ASTM C 131-2006	5 to 50%
		Crushing value	IS 2386 (Part 4): 1963 (RA 2011)	5 to 50%
		Bulk density/ Density	IS 2386 (Part 3): 1963 (RA 2011) ASTM C 29-2009 & C 128-2007	1 to 3kg/L
		Specific gravity	IS 2386 (Part 3): 1963 (RA 2011) ASTM C 127-2007 , ASTM C 128 -2007 AASHTO T 85: 2004	1.0 to 3.5

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	Aggregates (Coarse, Graded aggregates, Key aggregate, Stone Metal, Ballast)	Flakiness index	IS 2386 (Part1): 1963 (RA 2011)	2 to 80%
		Elongation index	IS 2386 (Part 1): 1963 (RA 2011)	2 to 80%
		Deleterious materials	IS 2386 (Part 2): 1963 (RA 2011) ASTM C 142-1978 (RA 1984)	0.1 to 30%
		Soundness	IS 2386 (Part 5):1963 (RA 2011) ASTM C 88-2005	0.0 5 to 20 %
		10% Fines Value	IS 2386 (Part 4):1963 (RA 2011) BS 812 (Part 111): 1990	5 to 50 ton
		75 micron passing materials	IS 2386 (Part 1): 1963 (RA 2011)	0.01 to 10.0%
		Fineness Modulus	ASTM C 136 -2006	1 to 10
		Alkali aggregate Reactivity (Chemical)	IS 2386 (Part 7): 1963 (RA2011)	
		Dissolved Silica		2 to 25 milli moles /liter
		Reduction in alkalinity		10to 200 milli moles /liter
		Nature		Qualitative
		Potential Alkali Aggregate Reactivity (Mortar Bar), Length Change	IS 2386 (Part 7): 1963 (RA 2011) ASTM C 1260 :2007, ASTM C 227 : 2010, ASTM C 33 : 2008, ASTM C 586 : 2005, ASTM C 1105: 2008	0.01 to 2 %
		Organic Impurities	IS 2386 (Part 7): 1963 (RA 2011) ASTM C 40: 2004	Qualitative (Visual)

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3.	Aggregates (Coarse, Graded aggregates, Key aggregate, Stone Metal, Ballast)	Polished Stone Value (PSV)	DIN EN 1097 (Part 8) 2009 BS 812 (Part 114) 1989 IS 2386 (Part 4):1963 (RA 2011)	30 to 70
		Stripping Value	IS 6241: 1971 (RA 2013)	40 to 100 %
	Aggregates (Fine, Stone dust, Sand , Crusher dust, Binding & Screening material)	Sieve analysis (Gradation)	IS 2386 (Part 1):1963 (RA 2011) ASTM C 136 : 2006 IS 383: 1970 (RA 2011)	0 to 100%
		Water absorption	IS 2386 (Part 3):1963 (RA2011) ASTM C 127- 2007 AASHTO T 85 2004	0.1 to 20%
		Bulk density/ Density	IS 2386 (Part 3):1963 (RA 2011) ASTM C 29-2009 & C 128-2007	1 to 3kg/L
		75 micron passing materials	IS 2386 (Part 1):1963 (RA 2011)	0.01 to 25.0%
		Specific gravity	IS 2386 (Part 3): 1963 (RA 2011) ASTM C 127-2007 ASTM C 128 -2007 AASHTO T 85: 2004	1.0 to 3.5
		Deleterious materials	IS 2386 (Part 2): 1963 (RA 2011) ASTM C 142-1978 (RA 1984)	0to 30%
		Soundness	IS 2386 (Part 5): 1963 (RA2011) ASTM C 88-2011	0.01to 20 %
		Alkali aggregate Reactivity (Chemical)	IS 2386 (Part 7):1963 (RA2011)	
		Dissolved Silica		2to 25 milli moles /liter
		Reduction in alkalinity		10 to 200 millimoles /liter
		Nature		Qualitative

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	Aggregates (Fine, Stone dust, Sand , Crusher dust, Binding & Screening material)	Potential Alkali Aggregate Reactivity (Mortar Bar), Length Change	IS 2386 (Part 7):1963 (RA 2011) ASTM C 1260 -2007, ASTM C 227-2010, ASTM C 33 –2008, ASTM C 586 – 2005, ASTM C 1105 -2008	0.01 to 2%
		Clay & Fine silt or fine dust (Sedimentation method)	IS 2386 (Part 2):1963 (RA 2011)	0.1 to 50%
		Fineness Modulus	ASTM C 136 2006	1 to 10
		Bulking	IS 2386 (Part 3):1963 (RA 2011)	0.1 to 30%
		Organic Impurities	IS 2386 (Part 2):1963 (RA 2011) ASTM C 40- 2004	Qualitative (Visual)
		Sand Equivalent Value	IS 2386 (Part 37):1976 (RA 2011) ASTM D 2419 -2009	20to 95%
4.	Bricks (Burnt Clay bricks/ Modular Brick/ Non Modular / Sewer Brick)	Dimensions	IS 1077: 1992 (RA201) IS 2222 : 1991(RA2007) IS 4885: 1988 (RA2011)	25to 5000 mm
		- Length - Width - Thickness		
		Compressive strength	IS 3495 (Part 1): 1992 (RA 2011)	35 to 2000 N/mm ²
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2011)	Qualitative (Visual)
		Water absorption	IS 3495 (Part 2): 1992 (RA 2011)	0.1 to 50%

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5.	Bricks Fly Ash Bricks / Fly Ash Lime Bricks)	Dimensions	IS 12894 : 2002 (RA 2012)	25 to 5000 mm
		Length	IS 13757: 1993 (RA 2011)	
		Width		
		Thickness		
		Compressive strength	IS 3495(Part 1): 1992 (RA 2011)	35 to 2000 N/mm ²
6.	Bricks (Calcium Silicate Bricks)	Efflorescence	IS 3495(Part 3): 1992 (RA 2011)	Qualitative (Visual)
		Water absorption	IS 3495(Part 2): 1992 (RA 2011)	0.1to 50%
		Drying Shrinkage	IS 4139: 1989 (RA 2004)	0.01to 2 %
		Dimensions	IS 9428: 1993 (RA 2006)	25 to 5000 mm
		Length		
		Width		
		Thickness		
		Compressive strength	IS 9428: 1993 (RA 2010)	50 to 2000 N/mm ²
		Flexural strength	IS 9428: 1993 (RA 2010)	10 to 1000 kN/m ²
		Heat Resistance	IS 9428 : 1993 (RA 2010)	
		Linear shrinkage		0.01to 10%
		Loss in mass		0 to 2%
		Compressive Strength		100 to 500 kN/ mm ²
		Bulk density	IS 9428 : 1993 (RA2010)	1 to 3 g/cm ³
		Moisture content	IS 9428 : 1993 (RA2010)	0.1 to 50%

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7.	Bricks (AR Bricks)	Compressive strength	IS 4860: 1968 (RA 2011)	50 to 2000 N/mm ²
		Water absorption	IS 4860: 1968 (RA 2011)	0.1 to 50%
		Warpage	IS 4860: 1968 (RA 2011)	0.1 to 5mm
		Resistance to Acid	IS 4860: 1968 (RA 2011)	0.1 to 10%
		Abrasion resistance	IS 4860: 1968 (RA 2011)	0.1 to 10%
		Flexural strength	IS 4860: 1968 (RA 2011)	10 to 1000 kN/m ²
8.	Bricks (Fire Clay, Castable Refractory)	Squareness	IS 4860: 1968 (RA 2011)	10 to 300 kN/m ²
		Bulk density	IS 1528 (Part 6) : 2010 IS 10570 : 2011	1 to 3 g/cm ³
		True Density / Specific gravity	IS 1528(Part 6): 2010 IS 10570 :1983 (RA 2002)	2 to 3.5
		Apparent porosity	IS 1528 (Part 6): 2010 IS 10570: 1983 (RA 2002)	0.1to 100%
		Linear change	IS 1528 (Part 6): 2010 IS 10570 : 1983 (RA 2002)	(-)5 to 5%
		Cold crushing strength	IS 1528 (Part 6): 2010 IS 10570 :1983 (RA 2002)	50 to 2000 N/mm ²
9.	Stones (Marble)	Dimensions	IS 1528 (Part 6): 2010 IS 10570 :1983 (RA 2002)	10 to 100 N/mm ²
			IS 1130: 1969 (RA 2013) ASTM C 615 2010, EN 98 : 1991	5 to 500 mm

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	Stones (Marble)	Moh's hardness (Scratch Hardness)	IS 1130: 1969 (RA2013) ASTM C 615 2010	1 to 9
		Water absorption/ Moisture	IS 1130: 1969 (RA 2013) ASTM C 615 2010 EN 99 :1991 IS 1123 : 1974 (RA 2008) IS 1124 : 1974 (RA 2008)	0.01 to 20%
		Specific gravity/ Real & Bulk density	IS 1130: 1969 (RA 2013) ASTM C 615 2010	2 to 3.5
10.	Stones (Granite)	Compressive strength	IS 3316 : 1974 (RA 2013)	20 to 300 N/mm ²
		Water absorption	IS 3316 :1974 (RA 2013) EN 99:1991	0.01 to 20%
		Specific gravity/ Real & Bulk density	IS 3316 :1974 (RA 2013)	2 to 3.5
		Moh's hardness (Scratch Hardness)	IS 1130: 1969 (RA2013) ASTM C 615: 2010	1 to 9
11.	Stones (Slate Stone, Quartz Base Stone, Sand stone, Dholpur stone, Kota Stone)	Compressive strength	IS 1121 (Part 1):1974 (RA2013) ASTM C170 – 09 guidelines EN 1926: 2006 EN 772 (Part 1): 2011	20 to 300 N/mm ²
		Water absorption	IS 1124: 1974 (RA2013) IS 13030: 1991 (RA2001) ASTM C-97-2009 EN 772 (Part 11): 2011 EN 99: 1991	0.01 to 20%

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	Stones (Slate Stone, Quartz Base Stone, Sand stone, Dholpur stone, Kota Stone)	Apparent /Open Porosity	IS 1124: 1974 (RA2013) IS 13030: 1991 (RA2001) EN 772 (Part 4): 1998	0.1 to 50%
		Specific gravity/ Real & Bulk density	IS 1122: 1974 (RA2013)	2 to 3.5
		Modulus of Rupture	IS 1121(Part 2): 2013, Guidelines of EN 100 1991	5 to 50 N/mm ²
		Moh's hardness (Scratch Hardness)	IS 1130: 1969 (RA2013) ASTM C 615: 2010	1 to 9 Scale
		Dimensions	IS 1130: 1969 (RA2013) ASTM C 615: 2010 EN 98 :1991, EN 176 1992	10to 800 mm
		Resistance to thermal shock	EN 104: 1991	Qualitative (Visual)
		Weathering	IS 1125 :1974(RA 2008)	Qualitative (Visual)
		Durability	IS 1126 :1974 (RA 2008)	Qualitative
		Dimensions & Surface quality	IS 13630 (Part 1):2006 (RA 2012) IS 15622 :2006 (RA 2011) BS 6431 (Part 10): 1997 EN 98 1991 ISO 10545 (Part 2): 1985 IS 4457: 2007 IS 654: 1992 (RA 2002) IS 6250: 1981 (RA 2008)	5 to 900 mm
12.	Tiles (Ceramic/ Glazed Vitrified)			

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	Tiles (Ceramic/ Glazed Vitrified)	Water absorption	IS 13630 (Part 2): 2006 (RA 2012) BS 6431 (Part 11): 1995 EN 99 1991 ISO 10545 (Part 3): 1995 IS 4457: 2007, EN 176 1991 IS 6250:1981 (RA 2008) IS 13801: 1993 (RA 2006)	0.01 to 25%
		Scratch hardness (Moh's Hardness)	IS 13630 (Part 13):2006 (RA 2012) BS 6431 (Part 13):1986 EN 101 1991	1 to 9 Scale
		Crazing Resistance	IS 13630 (Part 9): 2006 (RA 2012) BS 6431 (Part 17): 1983 EN 105 2014 EN 106 1991 ISO 10545 (Part 1): 2014	Qualitative (Visual)
		Chemical Resistance/ Chemical Properties	IS 13630 (Part 8): 2006 (RA 2012) BS 6431 (Part 19): 1984 EN 122 1991 EN 106 1991 ISO 10545(Part 13): 1995 IS 4457 :2007	Qualitative (Visual)
		Frost Resistance	IS 13630 (Part 10): 2006 (RA 2012) BS 6431 (Part 22): 1986 EN 202 2007 ISO 10545(Part 12): 1997 ASTM C 67 –2009	Qualitative (Visual)

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	Tiles (Ceramic/ Glazed Vitrified)	Color Resistance	DIN 51094: 2009	Qualitative (Visual)
		Stain Resistance	IS 13630 (Part 7& 8):2006 (RA 2012) , ISO 10545 (Part 14) 1995	Qualitative (Visual)
		Apparent ,Relative & Bulk Density	ISO 10545 (Part 3): 1995 IS 13630 (Part 2):2006 (RA 2012)	1 to 3
		Flatness	IS 1237: 2012 IS 13801: 1993 (RA 2006)	0.01to 10mm
		Perpendicularity	IS 1237:2012 IS 13801:1993 (RA 2006)	0.01to 10mm
		Straightness	IS 1237:2012 IS 13801: 1993 (RA 2006)	0.01to 10 mm
		Modulus of Rupture	IS 13630 (Part 6):2006 (RA 2012) BS 6431 (Part 12): 1983 EN 100 1991 ISO 10545 (Part 4): 2004 IS 4457 :2007 AS 4459.4 1997 IS 6250: 1981 (RA 2008)	10 to 100 N/mm ²
		Breaking Strength	IS 13630 (Part 6): 2006 (RA2012) ISO 10545 (Part 4): 2004 IS 4457 : 2007 AS 4459.4 1997	100 to 20000 N

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13.	Tiles (Ceramic/ Glazed Vitrified)	Thermal Shock Resistance	IS 13630 (Part 5): 2006 (RA 2012) BS 6431 (Part 16): 1992 EN 104 1991 ISO 10545 (Part 9): 2004	Qualitative (10 to 50 cycles)
		Tile Abrasion (surface)	IS 13630 (Part 11): 2006 (RA2012) BS 6431 (Part 20): 1984 EN 154 : 1991	Qualitative (Class 1 to 5)
	Tiles (Terrazzo/ Cement Concrete /Chequered)	Dimensions	IS 1237:2012 IS 13801:2013	5 to 500mm
		Water absorption	IS 1237 : 2012 IS 13801 : 2013	0.5 to 25%
		Resistance to wear	IS 1237 : 2012 IS 13801 : 2013	0.1 to 10mm
		Wet transverse strength	IS 1237 : 2012 IS 13801 : 2013	0.5 to 10 N/mm ²
		Thickness of wearing layer	IS 1237 : 2012 IS 13801 : 2013	0.1to 15mm
		Flatness	IS 1237 : 2012 IS 13801 : 2013	0.01to 10mm
		Perpendicularity	IS 1237 : 2012 IS 13801 : 2013	0.01to 10mm
		Straightness	IS 1237 : 2012 IS 13801 : 2013	0.01to 10 mm

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14.	Tiles (Clay roofing tile/ Roof Slate tiles)	Dimensions & Surface quality	IS 6250 : 1981 2013 ISO 10545 (Part 2) : 1985	5 to 700 mm
		Water absorption	IS 6250 : 1981 (RA2013) ISO 10545 (Part 2): 1985	0.0 1to 25%
		Wet transverse test	IS 6250 : 1981 (RA2013) ISO 10545 (Part 2): 1985	0.5 to 10 N/mm ²
		Modulus of Rupture	IS 6250 : 1981 (RA 2013)	10 to 100 N/mm ²
		Permeability to water	IS 6250 : 1981 (RA 2013)	Qualitative (Visual)
		Wetting and drying	IS 6250 : 1981 (RA2013)	Qualitative (Visual)
15.	Tiles (AR tiles)	Dimensions & Surface quality	IS 4457 : 2007	5 to 700 mm
		Water absorption	IS 4457 : 2007 (RA 2012)	0.01 to 25%
		Chemical Resistance/ Chemical Properties	IS 4457 : 2007 (RA 2012)	Qualitative (Visual)
		Tile Abrasion (surface)	IS 4457 : 2007 (RA 2012)	Qualitative (Class 1 to 5)
		Breaking strength	IS 4457 : 2007 (RA 2012)	500 to 2500 N/mm ²
16.	Building Limes	Residue on slaking	IS 6932 (Part 3) : 1973 (RA 2009) BS 890 : 1995 ASTM C 110 : 2009	0.1 to 100%
		Workability test	IS 6932 (Part 8) : 1973 (RA 2009) BS 890: 1995	5 to 15

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	Building Limes	Setting time	IS 6932 (Part 6) : 1973 (RA 2009) BS 890 : 1995	1 to 60 minutes
		Volume yield test	IS 6932 (Part 6) : 1973 (RA 2009) BS 890 : 1995	1.20to 3.5 ml/g
		Popping and pitting	IS 6932 (Part 10): 1973 (RA 2009) BS 890 :1995	Qualitative (Visual)
		Compressive strength	IS 6932 (Part 7): 1973 (RA 2009) BS 890:1995	1 to 10 N/mm ²
		Transverse strength	IS 6932 (Part 7) :1973 (RA2009) BS 890 : 1995	0.5 to 10 N/mm ²
		Soundness	IS 6932 (Part 9) : 1973 (RA 2009) BS 890 ASTM C 110 : 2009	0.5 to 100 mm
		Fineness	IS 6932 (Part 4) : 1973 (RA 2009) BS 890 : 1995	0.1 to 100 %
17.	Gypsum Products (Plaster of Paris)	Fineness (retaining on 75 & 150 microns)	IS 2333 : 1992 (RA2009) IS 2542 (Part 1/ Sec 8) : 1978	0 to 100%
		Normal Consistency	IS 2333 : 1992 (RA 2009)	10 to 100%
		Free Moisture	IS 2333 : 1992 (RA 2009)	0.1 to 5%
		Modulus of rupture (Transverse strength)	IS 2333 : 1992 (RA 2009) IS 2542 (Part 1/ Sec 4) : 1978	05 to 20 N/mm ²
		Temp. rise during setting	IS 2333 : 1992 (RA 2009)	1 to 20°C

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	Gypsum Products (Plaster of Paris)	Setting time	IS 2333 : 1992 (RA 2009) IS 2542 (Part 1/ Sec 3) : 1978	5 to 200 minutes
		Soundness (Popping & Pitting)	IS 2542 (Part 1/ Sec 6): 1978	Qualitative (Visual)
		Expansion after setting	IS 2333 : 1992 (RA 2009) IS 2542 (Part 1/ Sec 9) : 1978	0.1 to 0.5%
		Water absorption	IS 2333 : 1992 (RA2009)	10 to 50%
		Mechanical Resistance of set neat plaster	IS 2542 (Part 1/ Sec 7) : 1978	2 to 6 mm
		Compressive strength(Dry)	IS 2333 : 1992 (RA 2009)	5 to 100 N/mm ²
18.	Gypsum Products (Gypsum Building Plaster board)	Dimensions	IS 2542 (Part 2 / Sec 1) : 1978 (RA 2012) IS 2380 (Part 16) :1977 (RA 2013) EN 520: 2009 IS 2095 : 1996 (RA 2011)	10 to 3000 mm
		Transverse strength (Breaking load)	IS 2542 (Part 2/ Sec 4) : 1981 (RA2007) EN 520: 2009	100 to 1500N
		Water absorption	IS 2542P 2 /Sec 6) : 1978 (RA 2012) IS 2380 (Part 16): 1977 (RA 2013) EN 520 2009	0.1t o 50%
		Mass of Plaster	IS 2542 (Part 2/ Sec 3) : 1981 (RA 2012)	7 to 15 kg/m ²

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19.	Gypsum Products (Gypsum Building Plaster board)	Free Moisture / Moisture	IS 2095 : 1996 IS 2542 (Part 2/ Sec 7) : 1978	1 to 20%
		Swelling	IS 2380 (Part 17) :1977 (RA 2013)	0.1 to 2 %
		Surface hardness	IS 2095 (Part 3) : 1996	0.5 to 20mm
	Gypsum Products (Asbestos cement sheets)	Dimensions	IS 459 : 1992 (RA2007) IS 5913 : 2009	10to 3000 mm
		Density	IS 459 : 1992 (RA 2007) IS 5913 : 2009	1 to 3 g/cc 500 to 3000 kg/m ³
		Water absorption	IS 459 : 1992 (RA 2007) IS 5913 : 2009	0.1 to 50%
		Impermeability	IS 459 : 1992 (RA 2007) IS 5913 : 2009	Qualitative (Visual)
		Frost cracking	IS 459 : 1992 (RA 2007) IS 5913 : 2009	Qualitative (Visual)
	Building Chemicals (Integral WPC)	Permeability to water	IS 2645 : 2003 (RA 2012)	0 to 100%
		Setting time	IS 4031 (Part 5) : 1988 (RA 2009)	10 to 600 minutes
		Compressive strength	IS 4456 : 1967 (RA 2006)	5 to 600 kg/cm ²

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21.	Building Chemicals (Chemical Resistant Mortar Deep Penetrating Sealant /Epoxy/Grouts/)	Permeability to water	IS 2645 : 2003 (RA2012)	0 to 80mm
		Setting time	IS 4031(Part 5) : 1988 (RA 2009)	10 to 600 minutes
		Working time	IS 4456 : 1979 (RA 2001) IS 9162 : 1979 (RA 2001)	1 to 60 minutes
		Flexural strength	IS 4456 : 1967 RA 2006 IS 9162 : 1979 (RA 2001)	10 to 200 kg/cm ²
		Compressive strength	IS 4456 : 1967 RA 2006 IS 9162 : 1979 (RA 2001)	5 to 600 kg/cm ²
		Bond strength	IS 4456 : 1967 (RA 2006)	1 to 300 kg/cm ²
		Toluene Absorption	IS 4456 : 1967 (RA 2006)	0.1 to 30%
		Chemical resistance	IS 4456 : 1967 (RA 2006) IS 4832 : 1969 (RA 2006)	Qualitative (Visual)
		Consistency	IS 12027 :1987 (RA 2013)	Qualitative (Visual)
		Early Water Repellency	IS 12027 :1987 (RA 2013)	Qualitative (Visual)
		Absorption of Water	IS 12027 : 1987 (RA 2013)	0.1 to 20%
		Evaporation of Water	IS 12027 :1987 (RA 2013)	0.1 to 20%
		Durability	IS 12027 :1987 (RA2013)	Qualitative (Visual)

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22.	Building Chemicals (Silicon Water Repellant)	Permeability to water	IS 2645 : 2003 (RA 2012)	5 to 80 mm
		Setting time	IS 4031 (Part 5) : 1988 (RA 2009)	10 to 600 minutes
		Working time	IS 4456 : 1967 (RA 2006)	1 to 60 minutes
		Flexural strength	IS 4456 : 1967 (RA 2006)	10 to 200 kg/cm ²
		Compressive strength	IS 4456 : 1967 (RA 2006)	5 to 600 kg/cm ²
		Bond strength	IS 4456 : 1967 (RA 2006)	1 to 20 kg/cm ²
		Toluene Absorption	IS 4456 : 1967 (RA 2006)	0.1 to 30%
		Chemical Resistance	IS 4456 : 1967 (RA 2006) IS 4832 : 1969 (RA 2006)	Qualitative (Visual)
		Consistency	IS 12027 :1987 (RA2013)	Qualitative (Visual)
		Early Water Repellency	IS 12027 :1987 (RA2 013)	Qualitative (Visual)
		Absorption of Water	IS 12027 :1987 (RA 2013)	0.1 to 20%
		Evaporation of Water	IS 12027 :1987 (RA 2013)	0.1 to 20%
23.	Concrete	Compressive Strength	IS 516 : 1959(RA 2008)	5 to 150 N/mm ²
			ASTM C 494 : 2013 BS 1881(Part 116): 1983 IS 10262 :2009 IS 456 : 2000 (RA 2005)	

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	Concrete	Setting Time	IS 8142: 1976 (RA 2011) ASTM C 494 2013	50 to 400 minutes
		Flexural Strength	IS 516 : 1959 (RA 2008) ASTM C 494 : 2013 IS 10262 :2009 IS 456 : 2000 (RA 2005)	5 to 50 N/mm ²
		Bleeding	IS 2386 (Part 3):1963 (RA 2011) ASTM C 494 : 2010 IS 9103 :1999 (RA 2008)	1 to 10 %
		Slump	IS 9103 :1999 (RA 2008) IS 1199 :1959 (RA 2008) ASTM C 494 : 2013 IS 10262:2009	20 to 200 mm
		Air content	IS 1199 :1999(RA 2008) ASTM C 494 : 2013	0.1 to 10%
		Water content	ASTM C 494 : 2013 IS 9103 :1999 (RA 2008)	50 to 90 %
		Loss of Workability	IS 9103 :1999 (RA 2008) ASTM C 494 : 2013	Qualitative (Visual)
		Flow	IS 9103 :1999 (RA 2008) ASTM C 494 : 2013	100 to 200mm
		Length Change	IS 1199 : 1959 (RA 2008) ASTM C 494 : 2013	0.01to 0.5%
		Split Tensile strength	IS 5816 :1999 (RA 2008) BS 1881 (Part 117): 1983	1 to 10 N/mm ²

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24.	Concrete	Drying Shrinkage	IS 1199 : 1959 (RA 2008)	0.001 to 0.5 %
		Compaction Factor	IS 1199 : 1959 (RA 2008)	Qualitative
		RCPT	ASTM C : 1202 : 2009	400 to 6000 coulombs
		Concrete Permeability	DIN 1048 (Part 5): 2005	0.1 to 150 mm
	Admixtures	Compressive Strength	IS 516 : 1959 (RA 2008) ASTM C 494 : 2010 BS 1881(Part 116) : 1983 IS 10262 :2009 IS 456 : 2000 (RA 2011)	5 to 150 N/mm ²
		Setting Time	IS 8142 : 1976 (RA 2007) ASTM C 494 2013	100 to 400 minutes
		Slump	IS 9103 : 1999 (RA 2008) ASTM C 494 : 2013	10 to 200 mm
		Flexural Strength	IS 516 : 1959 (RA 2008) ASTM C 494 : 2010 IS 10262 : 2009 IS 456 : 2000 (RA2011)	5 to 50 N/mm ²
		Bleeding	IS 2386 (Part 3): 1963 (RA2011) ASTM C 494 : 2013 IS 9103 :1999(RA 2008)	0.1 to 10 %
		Air content	IS 1199 :1959 (RA 2008) ASTM C 494 : 2013	0.1 to 10%
		Water content	ASTM C 494 : 2010 IS 9103 :1999 (RA 2008)	50 to 90 %

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25.	Pozzolana (Fly ash / Fuel Ash , Bottom Ash)	Admixtures		
		Loss of Workability	IS 9103 :1999 (RA 2008) ASTM C 494 : 2013	Qualitative (Visual)
		Flow	IS 9103 :1999 (RA 2008) ASTM C 494 : 2013	100 to 200mm
		Length Change	IS 1199 :1959 (RA 2008) ASTM C 494 : 2013	0.01 to 0.5%
		Drying Shrinkage	IS 1199 :1959 (RA 2008)	0.01to 0.5 %
		Fineness- Specific surface (Blains)	IS 1727 : 1967 (RA 2008) BS 3892 (Part 1): 1997 & (Part 2) 1984 ASTM C 311 : 2007	100 to 700 m ² /kg
		Lime reactivity	IS 1727 : 1967 (RA 2008) ASTM C 311 : 2007	0.1 to 20 N/mm ²
		Compressive strength	IS 1727 : 1967 (RA 2008) BS 3892 (Part 1, Part 2 &Part 3) 1997 1984 & 1997) ASTM C 311: 2000	2 to 100 N/mm ²
		Drying Shrinkage	IS 1727 : 1967 (RA 2008)	0.02 to 4%
		Setting time	IS 1727 : 1967 (RA 2008)	1 to 5 minutes
		Soundness, Autoclave	IS 1727 : 1967 (RA 2008)	0.01to 2 %
		Sieve Analysis (45 microns retained)	IS 1727 : 1967 (RA 2008) ASTM C : 1240 : 2004	0 to 80%
		Moisture	BS 3892 (Part 1) 1997 , (Part 2): 1984 & (Part 3): 1997	0.1 to 25%

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	Pozzolana (Fly ash / Fuel Ash , Bottom Ash)	Bulk Density	IS 6441 (Part 1): 1972 (RA2007) IS 6598 :1972 (RA2004)	0.4 to 3.0 g/cm ³
26.	Pozzolana (Micro silica , Silica Fume)	Compressive strength	IS 1727: 1967(RA 2008) BS 3892 (Part 11997 , Part 2 1984 & Part 3:1997) ASTM C 311: 2000	2 to 100 N/mm ²
		Sieve Analysis	IS 1727: 1967 (RA 2008) ASTM C-1240- 2004	0 to 80%
		Moisture	BS 3892 (Part 1, Part 2& Part 3) 1997, 1984 & 1997	0.1 to 25%
		Pozzalana Activity Index	ASTM C-1240-2005	10 to 150 N/mm ²
		Bulk Density	IS 6441 (Part 1): 1972 (RA 2012) IS 6598 :1972 (RA 2004)	0.2 to 3.0 g/cm ³
27.	AAC/ CLC blocks	Compressive Strength	IS 6441 (Part 5): 1972 (RA 2012) IS 5688 :1982 (RA 2004)	1 to 10 N/mm ²
		Drying Shrinkage	IS 6441 (Part 2): 1972 (RA2012)	0.01 to 1%
		Moisture	BS 3892 (Part 1 1997 , Part 2 1984 & Part 3 1997)	0.1 to 10%
		Dimensions	IS 2185 (Part 3): 1984 (RA 2010) IS 5688 : 1982 (RA 2004)	80 to 800 mm
		Bulk Density	IS 6441 (Part 1): 1972 (RA 2012) IS 6598 :1972 (RA 2004) IS 2185 (Part 3 & 5): 1984 (RA 2010)	350 to 1500 kg/m ³

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28.	Hardened Concrete (Precast Concrete Blocks, Kerbs, RCC slab, Channels, Manhole cover, Paver block)	Dimensions	IS 15658 : 2006 (RA2011)	
		Length	IS 5758: 1984 (RA2010)	100 to 600 mm
		Width	IRC SP 63-2004	100 to 300 mm
		Thickness		50 to 200 mm
		Aspect Ratio		2 to 5
		Chamfer		2 to 10 mm
		Plan Area		0.01 to 0.2 m ²
		Wearing face area		0.01 to 2 m ²
		Squareness		0 to 5 mm
		Thickness of Wearing Layer	IS 15658 : 2006 (RA 2011) IRC SP 63: 2004	0.1 to 25 mm
29.	Concrete Pipe (Reinforced, Asbestos & Stoneware)	Water absorption	IS 15658 : 2006 (RA 2011) IRC SP 63: 2004	1 to 10%
		Compressive Strength	IS 15658 :2006 (RA 2011) IRC SP 63:2004	10 to 100 N/mm ²
		Abrasion Resistance (Loss in volume after 16 cycles)	IS 15658 : 2006 (RA 2011) IRC SP 63-2004	2000 to 8000 mm ³ / 5000 mm ²
		Freeze & Thaw durability	IS 15658 : 2006 (RA 2011)	Qualitative (Visual)
		Load Test	IS 12592 :2002 (RA 2013)	100 to 500 kN
		RCPT	ASTM C-1202-2009	400 to 6000 coulombs
		Hydraulic Pressure (Hydrostatic Test)	IS 458: 2003(RA 2008) IS 651 : 2007	Qualitative 0.050 to 0.2 N/mm ² (MPa)
		Dimensions	IS 458: 2003(RA 2008)	10 to 2600 mm
		- Barrel wall thickness	IS 651 : 2007 (RA2012)	
		- Length	IS 1592: 2003(RA 2008)	
		- Internal diameter		

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30.	Concrete Pipe (Reinforced , Asbestos & Stoneware)	Finish	IS 458: 2003 (RA 2008)	Qualitative (Visual)
		Absorption test (water absorption)	IS 651: 2007 (RA 2012)	0.1 to 10 %
		Alkali Resistance	IS 651 : 2007, (RA 2012)	Qualitative (Visual)
		Acid Resistance	IS 651 : 2007 (RA 2012)	0.1 to 5%
	Sanitary Wares (Cisterns , Water Wash down closets , Squatting Pans Urinals, Wash Basins)	Dimensions	IS 2556 (Part 2 , 3 , 4): 2009 IS 2556 (Part 6): 2003	1 to 1000 mm
		Load bearing test	IS 2556 (Part 2 & 4): 1994 (RA 2009)	Qualitative (Visual)
		Tap Holes	IS 2556 (Part 4): 1994 (RA 2009)	Qualitative (Visual)
		Impact test	IS 7231: 1994 (RA 2009) IS 774 : 2004 (RA 2009)	Qualitative (Visual)
		Defects	IS 7231: 1994 (RA 2009) IS 774 : 2004 (RA 2009) IS 2556 (Part 2): 2009	Qualitative (Visual)
		MOR (of bar)	IS 774 : 2004 (RA 2009) IS 2556 (Part 1): 2011	1 to 150 MPa
		Chemical Resistance	IS 774 : 2004 (RA 2009) IS 2556 (Part 1): 2011	Qualitative (Visual)
		Resistance to staining	IS 774 : 2004 (RA 2009) IS 2556 (Part 2 & 4): 2009	Qualitative (Visual)

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31.	Sanitary Wares (Cisterns , Water Wash down closets , Squatting Pans Urinals, Wash Basins)	Resistance to burning	IS 774 : 2004 (RA 2009). IS 2556 (Part 2 & 4) : 2009	Qualitative (Visual)
		Crazing	IS 774 : 2004 (RA 2009) IS 2556 (Part 2 & 4) : 2009	Qualitative (Visual)
		Water absorption	IS 774 : 2004 (RA 2009) IS 2556 (Part 1) : 2011	01 to 2.0%
	Sub Base Non Bituminous GSB, WBM,WMM Stone metal)	10% Fines Value	BS 812 (Part 111): 1990 IS 2386 (Part 4) : 1963 (RA 2011)	10 to 100 ton
		Water Absorption	IS 2386 : 1963	0.1 to 5%
		Gradation (Sieving)	IS 2386 :1963 (RA 2011)	0 to 100%
		Soundness	IS 2386 :1963 (RA 2011)	0.1 to 20 %
		Proctor Compaction Test (OMC, MDD)	IS 2720 :1983 (Part 8) Heavy Compaction (RA 2010) IS 2720 :1980 (Part 7) Light Compaction- (RA 2011)	1 to 5 g/cc MDD 5 to 20% OMC
		Deleterious Materials	IS 2386 :1963 (RA 2011)	0.1 to 30%
		CBR	IS 2720 :1963 (Part 16): 1987 (RA 2011)	10 to 100
		Plasticity Index	IS 2720 (Part 5):1985 (RA 2010)	0 to 20%
		Liquid Limit	IS 2720 (Part 5): 1985 (RA 2010)	0 to 50%

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	Sub Base Non Bituminous GSB, WBM,WMM Stone metal)	Plastic Limit	IS 2720 (Part 5): 1985 (RA 2010)	0 to 50%
		Abrasion Value	IS 2386: 1963 (RA 2011)	5 to 50%
		Polished Stone Value (PSV)	DIN EN 1097 (Part 8) 2010 BS 812 (Part 114), IS 2386 (Part 4): 1963 (RA 2011)	30 to 70
		Stripping Value	IS 6241: 1971 (RA 2003)	Qualitative (Visual)
		Impact Value	IS 2386 : 1963 (RA 2007)	10 to 50%
		Combined EI/ FI	MOST , MORTH IS 2386 (Part 1) 1963(RA2011)	5 to 80%
32.	Base & Surface Course Bituminous AC/DAC/SDBC/B C/SDAC BM/ BM/SDBM Premix Carpet , Seal coat, Slurry Seal , Mix Seal Surfacing, Mastic , BUSG, Bitumen Penetration Macadam	Gradation (Sieving)	MORTH V revision MOST IV revision , IS 2386 :1963 (RA 2011)	0 to 100%
		Binder content	ASTM D 6307 2010	0.5 to 20%
		Field Density	AASHTO T-166 2010	2 to 3 g/cc
		Marshall Stability	MS 2 manual 1997	1 to 15 kN
		Sand Equivalent Value	IS 2720 (Part 37):1976 (RA 2011)	20 to 80%
		Hardness Number	IS1195 :2002 (RA2012) IS 5317 :2002	1 to 20
		Stone Polishing Value	BS 812 (Part 114): 1989 IS 2386 (Part 4): 1963 (RA 2011)	30 to 70%

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33.	Antistripping agent	Stripping Value	IS 6241: 1971 (RA2013)	75 to 100%
		Specific Gravity	IS 1202 :1978 (RA2004)	0.50 to 3.0
		Under water Coating	IS 14982: 2001 (RA 2007)	Qualitative (Visual)
34.	Bentonite	Stripping Value	IS 6241: 1971 (RA 2013)	Qualitative (Visual)
		Sand content	IS 2720 (Part 4): 1985 (RA 2010)	0.1 to 50%
		Density	IS 2911 (Part1 , Sec 2): 1979 (RA 2010)	1 to 1.2 g /ml
		Marsh Viscosity	IS 2911 (Part 1 , Sec 2): 1979 (RA2010) , ASTM-D-6910 M 09	10 to 100 seconds
		Liquid Limit	IS 2720 (Part 5): 1985 (RA 2010)	0 to 500%
		Differential Free Swell Index	IS 2720 (Part 40) : 1977 (RA 2011)	50 to 900 %
		Moisture content (wood)	IS 287: 1993 (RA 2008) IS 1708 (Part 1):1986 RA 2010	0.5 to 90 %
35.	Timber/ Wood	Density/ Specific gravity	IS 1708 (Part 2): 1986 (RA 2008)	100 to 1200 Kg/m ³
		Nail holding test	IS 1708 (Part 15):1986 (RA 2005)	10 to 1000 Kg

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	Timber/ Wood	Screw holding test	IS 1708 (Part 15): 1986 (RA 2005)	10 to 1000 Kg
		Moisture	IS 287: 1993 IS 11215: 1991	2 to 35%
		Dimension & Squareness	IS 4020 (Part 2): 1998	0.5 to 3000mm
		MOR & MOE	IS 1708 (Part 5): 1985 (RA 2008)	10 to 150 N/mm ²
		CS (Parallel & Perpendicular to grain)	IS 1708 (Part 8 & 9): 1986 (RA 2008)	5 to 50 N/mm ²
		Tensile Strength	IS 1708 (Part 12): 1986 (RA 2008)	10 to 100 N/mm ²
36.	Flush door shutter	Screw withdrawal strength	IS 4020 (Part 16):1998	10 to 1000 kg
		Knife test	IS 4020 (Part 14):1998	Qualitative (Visual)
		Glue adhesion test	IS 4020 (Part 25): 1998	Qualitative (Visual)
		End immersion test	IS 4020 (Part 13): 1998	Qualitative (Visual)
		Moisture	IS 2202 (Part 1) : 1991	2 to 25%
		Dimension	IS 4020 (Part 2): 1998	1to 3000mm

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37.	Plywood (General, Marine, Concrete Shuttering, Decorative)	Glue shear strength	IS 1734 (Part 4) :1983 (RA 2003)	10 to 300 kg
		Adhesion of plies	IS 1734 (Part 5): 1983 (RA 2003)	Qualitative (Visual)
		Water resistance test(Adhesion of Plies)	IS 1734 (Part 6) :1983 (RA 2003)	Qualitative (Visual)
		Water resistance (Glue shear strength)	IS 1734 (Part 6): 1983 (RA 2003)	10 to 300 kg
		Moisture content	IS 1734 (Part 1): 1983 (RA 2003)	0.5 to 25 %
		Tensile strength parallel to surface Along the grain Across the grain	IS1734 (Part 9): 1983 (RA2003)	5 to 1000 kg/cm ²
		Static bending Strength Modulus of Rupture (Along & Across the grains) Modulus of Elasticity (Along & Across the grains)	IS 1734 (Part 11): 1983 (RA 2003)	10to 100 N/mm ² 10 to 100 N/mm ²
		Dimensions Thickness Variation in thickness Squareness Length Width	IS 4020 (Part 2): 1998(RA2003) IS 1659: 2004 IS 3087: 2005 IS 3097 : 2006 IS 12406 : 2003 IS 12823: 1990 (RA2005)	25 to 3000 mm 0.01 o 1.0 % Qualitative (Visual)

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38.	Boards (HDF / MDF panel board/ Panel shutter / Bamboo mat board / Fiber board, block Boards , Particle boards, Prelaminated Particle board , Veneered Particle board)	General flatness	IS 4020 (Part 3):1998 (RA 2003)	0 to 10 mm
		Local Plainness	IS 4020 (Part 4):1998 (RA 2003)	0.1 to 1.0 mm
		Impact Indentation	IS 4020 (Part 5): 1998 (RA 2003)	0.01to 0.2 mm
		Flexure Test	IS 4020 (Part 6): 1998 (RA 2003)	Qualitative (Visual)
		Edge loading	IS 4020 (Part 7): 1998 (RA 2003)	0.1 to 10 mm
		Shock Resistance	IS 4020 (Part 8): 1998 (RA 2003)	Qualitative (Visual)
		Buckling	IS 4020 (Part 9): 1998 (RA 2003)	1 to 60 mm
		Slamming test	IS 4020 (Part 10): 1998 (RA 2003)	Qualitative (Visual)
		Misuse test	IS 4020 (Part 11): 1998 (RA2003)	Qualitative (Visual)
		End immersion	IS 4020 (Part 13): 1998 (RA2003)	Qualitative (Visual)
		Glue Adhesion	IS 4020 (Part 15): 1998 (RA2003)	Qualitative (Visual)
		Screw Withdrawal	IS 4020 (Part 16): 1998 (RA2003) IS 2380 (Part14):1977 (RA 2003)	10 to 3500 N
		Density	IS 2380 (Part 3): 1977 (RA 2003)	200 to 1500 kg/m ³

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	Boards (HDF / MDF panel board/ Panel shutter / Bamboo mat board / Fiber board, block Boards , Particle boards, Prelaminated Particle board , Veneered Particle board)	Moisture	IS 2380 (Part 8): 1977 (RA 2003)	1 to 20 %
		Water Absorption	IS 2380 (Part 16): 1977 (RA 2003)	1 to 80%
		Swelling	IS 2380 (Part 17): 1977 (RA 2003)	0.1 to 20%
		MOR/ MOE	IS 2380 (Part 8): 1977 (RA 2003)	10 to 4000 N/mm ²
		Internal Bond (Tensile strength perpendicular to surface)	IS 12406 : 2003 IS 2380 (Part 5): 1977 (RA 2003)	0.1 to 2 N/mm ²
		Dimensional changes	IS 1659: 2004	0.01to 5mm
		Resistance to water	IS 1659:2004 IS 3097: 2006	Qualitative (Visual)
		Adhesion of plies	IS 1659: 2004	Qualitative (Visual)
		Tensile strength perpendicular to surface	IS 2380 (Part 5): 1977 (RA 2003)	10to 60 N/mm ²
		Resistance to stain	IS 12823: 1990 (RA 2005)	Qualitative (Visual)
		Resistance to crack	IS 12823: 1990 (RA 2005)	Qualitative (Visual)
		Resistance to cigarette burns	IS 12823: 1990 (RA 2005)	Qualitative (Visual)
		Resistance to steam	IS 12823: 1990 (RA 2005)	Qualitative (Visual)

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IV.	SOIL & ROCK			
1.	Soil Testing Earthwork Subgrade Blanketing material	Gradation (Sieving)	MORTH V revision MOST IV revision , IS 2386 (Pt 1) : 1963 (RA 2011)	0 to 100%
		Classification	IS 1498 : 1970 (RA 2011)	Qualitative (Visual)
		Free Swell Index	IS 2720 (Part 40): 1977 (RA 2011)	1to 500%
		Atterberg's Limit	IS 2720 (Part 5): 1985 (RA 2010)	0 to 50%
		Liquid Limit		0 to 50%
		Plastic Limit		0 to 20%
		Plasticity Index		
		Deleterious Material	IS 2386 :1963 (RA 2011)	0.1to 30%
		California Bearing Ratio (CBR) Lab	IS 2720 :1963 (Part 16): 1987 (RA 2011)	1 to 30 kN & 0.01 to 25 mm
		Proctor Compaction Test (OMC, MDD)	IS 2720 : 1983 (Part 8) Heavy Compaction- (RA 2010) IS 2720 :1980 (Part 7) Light Compaction- (RA 2011)	1 to 5 g/cc MDD 5 to 20% OMC
		Shrinkage Limit	IS 2720 (Part 6): 1972 (RA 2011)	0.1 to 20%
		Permeability	IS 2720 (Part 17): 1986 (RA 2011) & IS 2720 (Part 36): 1987 (RA 2011)	1×10^{-2} to 1×10^{-7}
		Specific gravity	IS 2720 (Part 3): 1980 (RA 2011)	1 to 3

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	Soil Testing Earthwork Subgrade Blanketing material	Swelling pressure	IS 2720 (Part 4): 1985	0.1 to 50%
		Consolidation (Oedometer test)	IS 2720 (Part 15) :1986 (RA 2002) BS 1377 (Part 1): 1990 ASTMD 2435 -2001	0.1to 4 kg/cm ² & 0.01to 25 mm
		Moisture content	IS 2720 (Part 2): 1973 (RA 2010)	0.1 to 50%
		Grain size analysis	IS 2720 (Part 4): 1985 (RA 2010)	0 to 100%
		Shear strength	IS 2720 (Part 13): 1986 (RA 2011)	0to 5kg/cm ² (Cohesion) 0to 60degree (Angle of internal friction)
2.	Soil Testing (Field)	California Bearing Ratio (CBR)	IS 2720 :1963 (Part 16): 1987 (RA 2011)	1 to 30 kN & 0.01 to 25 mm
		Standard Penetration test (SPT)	IS 2131:1981 (RA2011) & Hand book of civil engineering	1 to 100 blows
		Load bearing capacity (LBC) / Plate load test	IS 1888: 1982 (RA 2011) & Hand book of civil engg.	5 to 50 ton/ m ²
		Field density test (Core cutter method)	IS 2720: 1975 (Part 29) (RA 2010)	1 to 3 g/cc
		Dry density (Sand replacement method)	IS 2720: 1975 (Part 28) (RA2010)	1 to 3 g/cc
		Earth Resistivity	IS 15736 : 2007	1 to 1000 OHM-M

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
V.	PLASTIC & RUBBER			
1.	Plastic (Rigid Flexible Laminated Cellular), Rubbers (Composite)	Density/Specific gravity	IS 2508: 1984(RA 2008) IS 4671: 1984 (RA2004) IS 7328: 92 (2003), ASTM D792-2013, ISO 1183: 2004	0.8 to 5 g/cc
		Hardness (Shore A, Shore D, IRHD)	IS 3400 (Part 2)(RA 2008) IS 13360 (Part 5, Sec-11): 2013 ASTM D2240-2005 (2010)	20 to 90 Shore A & D 30 to 100 IRHD
		Low temperature brittleness	ASTM D 2137-2011	-10 to - 60 °C
		Tensile strength	IS 1998 : 1962 ((RA 2008)), IS 2508: 1984 ((RA 2008)), IS 3400 (Part 1): 2012, IS 6307:1985 (RA 2008),	0.05 to 490 MPa
		Elongation	ASTM D412-2013, ASTM D638-2010, ISO 527-2009, DIN 53455 -2008 BS 2782 -2011	0.5 to 900%
		Flexing/Cut growth test	IS 3400 (Part 16):1974 (RA 2012)	Qualitative
		Compression set	IS 1741: 1960 (RA 2008), IS 3400 (Part 10):1977 (RA 2008) IS 7888: 76(RA 2008) ASTM D395 :2003 ((RA 2008)	0.1 to 90%
		Compression test	IS 1998: 1962(RA 2008), IS 4671: 1984 (RA2004), ASTM D 695-2010, DIN 53454-04	0.05 to 500 MPa

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	Plastic & Rubber (Rigid Flexible Laminated Cellular) Rubbers Composite	Thermal conductivity	IS 3346:1988 (RA 2010) ASTM C177-2010	0.01 to 20 W/mK
		Transverse (flexural) test	IS 13360 (Part 5, Sec-7): 1996 IS 13411: 1992 (RA 2008) ASTM D790-2007, ISO 178-2001	0.05 to 5000 N
		Bond strength of bonded material	IS 3400 (Part 5 & 14) (RA2003) &(RA 2008)	0.05 to 100 N
		Heat deformation temperature	IS 867: 1963(RA 2008), ASTM D648-2007, ISO 75-2006	25 to 200°C
		Heat (Vicat) softening point	IS 10810 (Part 22): 1984 (RA 2011), ASTM D1525-2009, DIN 53460-1976, ISO 306-2004	25 to 200°C
		Melt flow rate	IS 2530: 1963(RA 2008), ASTM D1238-2013, ISO 1133-2005	0.1 to 20 g/10 min.
		Inflammability / fire resistance test	ASTM D635-10	0.01 to 50 mm/min
		Tear strength	IS 2076: 1981 (RA 2003), IS 14611: 1998 (RA 2008)	0.5 to 10 N/m
		Dart impact	IS 2508 :1984 (RA 2008), ASTM D1709-2009	10 to 700 gm

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2.	PVC Pipe/ SWR pipe/ CPVC	Reversion test of pipe	IS 12235: 2000 (Part 5) (RA 2010)	0.5 to 20 mm
		Heat (Vicat) softening point	IS 12235: 2000 (Part 5) (RA 2010) IS 6307: 1985	RT to 200°C
		Density	IS 12235: 2000 (Part 14)	1.0 to 5.0 g/cc
		Hydraulic test of pipes upto 280 mm	IS 12235 (Part 8/sec1): 2000 (RA 2010)	0.1to 70 kg/cm ²
		Resistance to external blows	IS 4985 Annexure –C 2000 (RA 2010)	Qualitative
		Stress Relief test	IS 12235 (Part 6): 2005 (RA2010)	0.1 to 10 %
		Effect of Sunlight	IS 13592: 2013	Qualitative
		Tensile Strength	IS 8543 (Part 4): 1984 IS 12235 (Part 13): 2005 (RA 2010)	10to 100 MPa
		Axial Shrinkage	IS 13592 : 1992	Qualitative
		Fire exposure test	IS 16088: 2012	Qualitative
3.	HDPE Pipe	Reversion test of pipe	IS 4984 : 2002 (RA 2008)	0.01to 20 mm
		Density	IS 7328: 1998: (Part 14)	1.0 to 5.0 g/cc
		Hydraulic test of pipes upto 280 mm	IS 12235 (Part 8/sec1) 2005 (RA 2010)	0.1to 70 kg/cm ²

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		Reversion test of pipe	IS 12235: 2000 (Part 5) (RA 2010)	0.01to 20 mm
4.	Surgical rubber gloves	Dimension (Length, Width and Thickness)	IS: 4148 1989 (RA 2011), IS: 13422 -1992-(RA 2008)	0.1 to 300 mm,
		Tensile strength/ elongation before and after ageing / autoclaving	IS: 3400 (Pt-1&4) 1987(RA-2003)	Tensile Strength 0.1 to 500 MPa Elongation 5 to 1000%
		Tension test	IS: 4148 -1989 (RA-2006)	10 to 1000%
5.	Non-Percolating Fire Fighting Hose	Dimension (Length, Inner & Outer Diameter)	IS 636: 988 (RA 2008)	0.1 to 100 cm
		Mass	IS 636: 988(RA 2008)	5 to 100 kg
		Hydrostatic Burst pressure	IS 636: 988(RA 2008)	Qualitative
		Hydrostatic Proof pressure	IS 636: 988 (RA 2008)	Qualitative
		Kink Test	IS 636: 988 (RA 2008)	Qualitative
		Dimension stability	IS 636: 988 (RA 2008)	0.01 to 100 cm
		Adhesion	IS 636: 988 (RA 2008)	0.05 to 10 N
		Abrasion Resistance	IS 636: 988 (RA 2008)	Qualitative
		Water Absorption	IS 636: 988 (RA 2008)	0.1 to 10 %
		Heat Resistance	IS 636: 988 (RA 2008)	Qualitative
		Oil Resistance	IS 636: 98 8(RA 2008)	Qualitative

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6.	Decorative Thermosetting Laminate	Resistance to surface wear	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to immersion in boiling water	IS 2046: 1995 (RA 2010)	0.01 to 500 g
		Resistance to dry heat at 180°C	IS 2046: 1995 (RA 2010)	Qualitative
		Dimension Stability at deviated temperatures at 20°	IS 2046: 1995 (RA 2010)	0.01 to 100 cm
		Resistance to cracking	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to scratching	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to colour change (in Xenon Arc Light)	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to cigarette burning	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to steam	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to crazing	IS 2046: 1995 (RA 2010)	Qualitative
		Resistance to moisture	IS 2046: 1995 (RA 2010)	Qualitative
		Flexural Modulus	IS 2046: 1995 (RA 2010)	50 to 1500 MPa
		Flexural Strength	IS 2046: 1995 (RA 2010)	0.5 to 500 MPa
		Tensile Strength	IS 2046: 1995 (RA 2010)	0.5 to 500 MPa,

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7.	Multilayered cross laminated PE Film	Total Mass Per Unit Area	IS 7016 : 1982 (RA 2008)	5 to 200 GSM
		Tensile strength / elongation	IS 2508 : 1994 (RA 2008)	Tensile strength 0.5 to 4900 N/m ² Elongation 5 to 900%
		Tear Strength	IS 14611: 1998 (RA 2008)	5 to 6400 g
		Tensile strength/ elongation /Tear Strength after ageing at 70 ±1°C for 168h	IS 2508 : 1994(RA 2008)	Tensile Strength 0.5 to 4900 N/m ² Elongation 5 to 900%
		Dart Impact	IS 2508 :1994 (RA 2008)	10 to700 gm
8.	Rigid Cellular Foam Material	Dimension (Length, Width & Thickness)	IS 12436: 1998(RA 2010)	0.5 to 100 mm
		Apparent Density	IS 12436: 1998(RA 2010)	28 to 40 Kg/m ³
		Dimensional Stability at elevated temperature	IS 12436: 1998(RA 2010)	0.1 to 100mm
		Water vapour transmission rate	IS 12436: 1998(RA 2010)	0.001to 20 g/m ² .h
		Flame height, Time of Burning and Loss of Mass	IS 12436: 1998(RA 2010)	0.01 to 50 mm/min
		Water Absorption	IS 12436: 1998(RA 2010)	10 to 50%
		Flexural Strength	IS 12436: 1998(RA 2010)	0.05 to 50 MPa
		Compressive Strength	IS 12436: 1998(RA 2010)	0.05 to 5 MPa

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	Rigid Cellular Foam Material	Horizontal Burning Characteristics Determination of Flammability by oxygen index	IS 12436: 1998(RA 2010)	0.01 to 50 mm/min
		Thermal conductivity	IS 3346 : 1980 (RA 2010)	0.1 to 20 W/mK
9.	LLDPE water tank	Gross capacity	IS 12701: 1996 (RA 2006)	200 to 20000 l
		Weight	IS 12701: 1996 (RA 2006)	5 to 100 kg
		Resistance to deformation	IS 12701: 1996 (RA 2006)	0 .01to 5 %
		Resistance to impact	IS 12701: 1996 (RA 2006)	Qualitative
		Test for top load resistance	IS 12701: 1996 (RA 2006)	Qualitative
		Tensile strength	IS 12701: 1996 (RA 2006)	0.1 to 100 MPa
		Flexural modulus	IS 12701: 1996 (RA 2006)	0.1 to100 MPa
10.	Irrigation equipment sprinkler pipes - Polythene pipes and couplers	Density	IS 14151: 1999 (RA 2009)	0.5 to 1 g/cc
		MFI	IS 14151: 1999 (RA 2009)	0.1 to 10 g/10 min.
		Dimensions (Length, Width, Thickness, Inner & outer Diameter)	IS 14151: 1999 (RA 2009)	0.5 mm to 2 m
		Hydraulic pressure	IS 14151: 1999 (RA 2009)	0.1to12kg/cm ²
		Reversion test	IS 14151: 1999 (RA 2009)	0.01 to5 %
		Tensile strength	IS 14151: 1999 (RA 2009)	0.1 to5 MPa

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11.	Polycarbonate Sheets	Grammage	IS 14443 : 1997 (RA 2008)	10 to 1000 GSM
		Light transmission	IS 14443 : 1997(RA 2008)	0.1 to 100 %
		Flammability	IS 14443 : 1997(RA 2008)	0 to 50 mm/min
		Dart drop impact	IS 14443 : 1997(RA 2008)	1 to 200 J/m
		No of layer of walls	IS 14443 : 1997(RA 2008)	Qualitative
12.	Plastics feeding bottles	Capacity	IS 14625: 1999 (RA2010)	1 to 500 ml
		Wall thickness	IS 14625: 1999 (RA2010)	1 mm to 5 mm
		Leakage test	IS 14625: 1999 (RA 2010)	Qualitative
		Drop test	IS 14625: 1999 (RA 2010)	Qualitative
		Compressive deformation resistance	IS 14625: 1999 (RA 2010)	1 to 20 %
		Product resistance of printed container	IS 14625: 1999 (RA 2010)	Qualitative
		Transparency	IS 14625: 1999 (RA 2010)	0 .1 to 100 %
13.	PVC Water Stop	Tensile strength and Elongation	IS 8543 (Part4/ sec 1) (RA 2008)	Tensile Strength 0.01 to 10 MPa Elongation 0 to500%
		Hardness Shore A	IS 13360 (Part 5/ sec1) (RA 2008)	10 to 80
		Water absorption	IS 15058: 2002 (RA 2008) annexure- A	0.01 to 10%

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	PVC Water Stop	Cold bend temperature	IS 9766 : 1992(RA 2008) annexure- G	10 to to 40°C
		Accelerated extraction test	IS 15058: 2002(RA 2008) annexure- B	Tensile Strength 0.01 to 10 MPa Elongation 0 to 500%
		Stability in effect of alkalies test	IS 15058: 2002(RA 2008) annexure- C	0.1 to 100 mm
		Change in hardness	IS 13360 (Part 5/ sec1) (RA 2008)	10 to 80
		Weight increase/decrease in 7 days	IS 15058: 2002 (RA 2008) annexure- C	0.01 to 5 %
		Weight increase/decrease in 20 days	IS 15058: 2002 (RA 2008) annexure- C	0 .01 to 5 %
		Change in dimension	IS 15058: 2002 (RA 2008) annexure- C	0 .01 to 10%
		Change in hardness at 7 days	IS 15058: 2002 (RA 2008) annexure- C	0.01 to 10
14.	Containers for packaging of Natural mineral water and packaged drinking water	Capacity	IS 15410: 2003 (RA 2009)	100 ml to 5 L
		Wall thickness	IS 15410: 2003 (RA 2009)	0.1 to 5 mm
		Transmittance	IS 15410: 2003 (RA 2009)	0 .1 to 100%
15.	Rubber sealing ring	Finish	IS 5382: 1985 ((RA 2008))	Qualitative
		Stretch on ring	IS 5382: 1985 ((RA 2008))	Qualitative

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	Rubber sealing ring	Hardness IRHD	IS 3400 (Part-2) (RA 2008) for IRHD	30 to 100
		Tensile strength and Elongation	IS 3400 (Part1 & 4): 2012	Tensile Strength 0.01 to 4.5 MPa Elongation 0 to 500%
		Compression SET	IS 3400 (Part 10): 1977(RA 2008)	0.1 to 90%
		Water absorption	IS 3400 (Part 6): 2012	0.1 to 10%
		Water immersion	IS 3400 (Part 6): 2012	0.1 to 20 %
		Change in volume	IS 3400 (Part 6): 2012	0.1 to 10%
		Cold resistance	IS 5382: 1985 appendix B (RA 2008)	Qualitative
		Splice strength	IS 5382: 1985 appendix B (RA 2008)	1 to 200 N/mm
		Accelerated ageing at temperature 70°C	IS 5382: 1985(RA 2008)	Qualitative
		Change in hardness	IS 3400 (Part-2): (RA 2008) for IRHD	30 to 100
		Change in tensile strength	IS 3400 (Part1 & 4): 2012	0.01 to 10 MPa
		Change in elongation	IS 3400 (Part1 & 4): 2012	0.01 to 30%
16.	Rubber gasket for pressure cooker	Tensile strength and Elongation	IS 3400 (Part1 & 4): 2012	Tensile Strength 0.01 to 4.5 MPa Elongation 0 to 1000%
		Hardness, IRHD	IS 3400 (Part 2) (RA 2008)	30 to 100

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	Rubber gasket for pressure cooker	Tensile strength and Elongation after ageing at 100°C for 3-days	IS 3400 (Part1 & 4): 2012	Tensile Strength 0.01 to 4.5 MPa Elongation 0 to 1000%
		Change in hardness after ageing at 100°C for 3-days	IS 3400: (Part-2):(RA 2008) for IRHD	30 to 100
		Tensile strength and Elongation after ageing in autoclave for 8-hours steam pressure of 100 kN/m ²	IS 3400 (Part1&4): 2012	Tensile Strength 0.01 to 4.5 MPa Elongation 0 to 1000%
		Hardness after ageing in autoclave for 8-hours steam pressure of 100 K N/m ²	IS 3400: (Part-2):(RA 2008)	30to100
		Volume change after ageing in autoclave for 8-hours steam pressure of 100 kN/m ²	IS 3400 (Part6): 2012	0.1 to 10%
		Compression set	IS 3400 (Part10): 1977 (RA 2008)	0.1to 90%
17.	Rubber Catheter	pH	IS 7523: 1974 appendix A (RA 2012)	1 to 14
		Extractable colour	IS 7523: 1974 appendix B (RA 2012)	Qualitative
		Tensile strength Elongation	IS 3400 (Part1& 4): 2012	0.01 to 4.5 MPa 0 to 1000%
		Hydraulic test	IS 443: 1975 (RA2012)	Qualitative

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
18.	Self Adhesive tape	Tensile Strength	IS 7809: 1975	0.1 to 10 MPa
		Adhesion to steel	IS 7809: 1975	1 to 500 N/mm
		Adhesion to backing	IS 7809: 1975	1 to 500 N/mm
		Flammability	IS 7809: 1975	Qualitative
		Stability to accelerated ageing	IS 7809: 1975	Qualitative
		Dimensions (Width Length Thickness)	IS 7809: 1975	1 to 100 meter
		Appearance	IS 7809: 1975	Qualitative
19.	Injection moulded PVC socket & fittings	Short term Hydraulic test	IS 7834: 1987(RA 2008)	Qualitative
		Socket Length	IS 7834: 1987(RA 2008)	14 to 500 mm
20.	Flexible Polyurethane Foam	Density	IS 7888: 1976(RA 2008)	1 to 40 Kg/m ³
		Tensile strength Elongation	IS 7888: 1976 (RA 2008)	1 to 50 MPa 0.01 to 100%
		Indentation & Hardness	IS 7888: 1976 (RA 2008)	Load in kg upto 70 % deflection
		Compression SET	IS 7888: 1976 (RA 2008)	0.01 to 25%
		Flammability	IS 7888: 1976 (RA 2008)	Qualitative

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21.	Flexible polyurethane foam for domestic mattresses	Colour	IS 7933: 1975 (RA 2008)	Qualitative
		Dimension (Length, Width & Thickness)	IS 7933: 1975 (RA 2008)	0 .01to 150 mm
		Density	IS 7933: 1975 (RA 2008)	5 to 40 Kg/m ³
		Tensile strength	IS 7933: 1975 (RA 2008)	0.1 to 2.5 MPa
		Compression SET	IS 7933: 1975 (RA 2008)	0.01to 25 %
		Indentation hardness	IS 7933: 1975 (RA 2008)	0.01 to 70 % deflection
		Durability	IS 7933: 1975 (RA 2008)	0.01 to 10 %
22.	HDPE bags for pesticides	Dimensions (Length, Width & Thickness)	IS 8069: 1989 (RA 2007)	100 to 1000 mm
		Mass	IS 8069: 1989 (RA 2007)	1 to 1000 GSM
		Breaking strength	IS 8069: 1989 (RA 2007)	0.1 to 10 N
23.	Rubber flooring materials for general purpose	Dimensions (Thickness)	IS 809: 1992 (RA 2011)	1 mm to 5 m
		Width of sheet applicable on roll	IS 809: 1992 (RA 2011)	0.1to 2.5 m
		IRHD Hardness	IS 3400 (Part2): (RA 2008)	30 to 100
		Water absorption	IS 3400 (Part6): 2012	0.1 to 10%
		Compression SET	IS 3400 (Part10): 1977 (RA 2008)	0.1to 90%
		Resistance to abrasion	IS 3400 (Part3): 1987 (RA 2008)	Qualitative

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24.	Hospital rubber sheeting	Autoclaving change upto 125°C	IS 8164: 1976 (RA 2008)	Qualitative
		Resistance to detergents	IS 8164: 1976 (RA 2008)	Qualitative
25.	Rubber hose for oil suction	Accelerated ageing	IS 8189: 1996 (RA 2012)	Qualitative
		Type of wire	IS 8189: 1996 (RA 2012)	Qualitative
		Identification of fabric	IS 8189: 1996 (RA 2012)	Qualitative
		Tensile strength and Elongation of lining & cover	IS 8189: 1996 (RA2012)	1to 25 N/ m ² 0.1to 500 %
		Dimensions (Length, Thickness, Inner & Outer Diameter	IS 8189: 1996 (RA2012)	1 mm to 5 m
		Hydrostatic test	IS 8189: 1996 (RA2012)	0.1 to 10 kg/cm ²
26.	Flexible load bearing PU foam components	Colour	IS 8255: 1976(RA 2008)	Qualitative
		Dimension (Length, Width, Thickness)	IS 8255: 1976 (RA 2008)	1 mm to 5 m
		Tensile strength Elongation	IS 8255: 1976 (RA 2008)	1to 25 N/ m ² 0.1to 500 %
		Heat ageing test	IS 8255: 1976 (RA 2008)	0.01 to 20 %
		Compression SET	IS 8255: 1976 (RA 2008)	0.01to 10 %
		Component mass	IS 8255: 1976 (RA 2008)	0.01to 1.0 kg
		Hardness	IS 8255: 1976 (RA 2008)	Load in kg upto 70 % deflection

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	Flexible load bearing PU foam components	Load quotient	IS 8255: 1976 (RA 2008)	1.5 to 5
		Flammability	IS 8255: 1976 (RA 2008)	Qualitative
		Fatigue test	IS 8255: 1976 (RA 2008)	Loss of thickness 0.1 to 50 %
27.	HDPE fitting for potable water supply	Dimensions (Thickness, Inner & outer Diameter)	IS 8360: 1977 (RA 2008)	0.01 cm to 100 cm
		Hydraulic proof test	IS 8360: 1977 (RA 2008)	Qualitative
28.	Phenol formaldehyde resin	Flexural strength	IS 867: 1963 (RA 2008)	0.1 to 15.0 MPa
		Impact test	IS 867: 1963(RA 2008)	0.1 to 25 J/m
		Tensile strength and Elongation	IS 867: 1963 (RA 2008)	0.1 to 5.0 MPa
		Density	IS 867: 1963 (RA 2008)	1to 2g/cc
29.	Rigid PVC conduit pipe	Dimension (Length, Wall Thickness, Inner & Outer Diameter)	IS 9537: 2012	1mm to 100mm
		Compression test	IS 9537: 2012	0 to 25 %
		Impact test	IS 9537: 2012	Qualitative
		Resistance to heat	IS 9537: 2012	Qualitative
		Resistance to burning	IS 9537: 2012	Qualitative
30.	Elastic tape	Dimension (Thickness)	IS 9686: 1980 (RA 2012)	0.1 mm to 50 mtr
		Accelerated ageing	IS 9686: 1980 (RA 2012)	27 to 100 °C

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	Elastic tape	Colour	IS 9686: 1980 (RA 2012)	Qualitative
		Colour fastness to light	IS 9686: 1980 (RA 2012)	Qualitative
31.	HDPE containers for pesticides	Dimension (wall Thickness, Height)	IS 9754: 1981 (RA2009)	1 mm to 5 mtr
		Capacity	IS 9754: 1981 (RA2009)	1to 1000ltr
		Leakage Test	IS 9754: 1981 (RA2009)	Qualitative
		Drop Test	IS 9754: 1981 (RA2009)	Qualitative
		Ink Adhesion	IS 9754: 1981 (RA 2009)	0.15 to 1 MPa
32.	Composite LPG cylinders	Ambient cycle test	ISO 11119: 1984 (RA2012)	Qualitative
		Environment cycle test	ISO 11119: 1984 (RA 2012)	Qualitative
		High temperature creep test	ISO 11119: 1984 (RA 2012)	Qualitative
		Drop test	ISO 11119: 1984 (RA 2012)	Qualitative
		Fire resistance test	ISO 11119: 1984 (RA 2012)	Qualitative
		Permeability test	ISO 11119: 1984 (RA 2012)	Qualitative
		Pneumatic cycle test	ISO 11119: 1984 (RA 2012)	Qualitative
		Burst pressure test	ISO 11119: 1984 (RA 2012)	Qualitative
33.	PVC compounds	Tensile strength and Elongation	IS 9766: 1992 (RA 2008)	Tensile Strength 0.01to 5.0 MPa Elongation 1 to 500 %

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
34.	PVC compounds	Thermal Stability upto 250 °C	IS 9766: 1992 (RA 2008)	0.01 to 100 mm
		Cold bend test	IS 9766: 1992 (RA 2008)	Qualitative
		Ageing	IS 9766: 1992 (RA 2008)	27°C to 100 °C
	HDPE bags for cement	Ends/picks	IS 11652: 2000 (RA 2010)	50 to 300
		Mass	IS 11652: 2000 (RA 2010)	10 to 180gms
		Breaking load & Elongation	IS 1969 : 1985 (RA 2006)	5 to 10000 N
		Dimensions	IS 11652: 2000 (RA 2010)	1cm to 3 00 cm.
		Av. Breaking strength of seam	IS 9030: 1979 (RA2 003)	5 to 10000 N
35.	Packaging materials / glass plastic containers	Physical Chemical tests	IP.2014	
		Non Volatile residue	BP.2014	0.1 to 50%
		Residue on ignition	USP-36.2013	0.1 to 50%
		Heavy Metals		1 to 20mg/kg
		Buffering Capacity		0 to 10 ml
		Light transmission		0 to 10 %
		Multi internal reflectance (IR)		Qualitative (Identification)
		WVTR / MVTR		0 to 100 mg/ day/ L
		TGA		50°C to 400°C
		DSC		50°C to 1000°C
		Colour extraction		Qualitative
		ESCR test		Visual
36.	HDPE / PP Woven Sacks for Fertilizers	Ends/picks	IS 1963 : 1981(RA 2008)	50 to 300
		Mass	IS 1964 : 2001 (RA 2010)	10 to 180 g

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
37.	HDPE / PP Woven Sacks for Fertilizers	Breaking load & Elongation	IS1969 : 1985 (RA 2006)	5 to 10000 N
		Dimensions	IS 1954: 1990 (RA 2007)	1cm to 3 00 cm.
		Av. Breaking strength of seam	IS 9030: 1979 (RA 2003)	5 to 10000 N
	HDPE / PP Woven Sacks for Food Grains	Ends/picks	IS 14887 : 2000 (RA 2006)	50 to 300
		Mass	IS 1964 : 2001 (RA 2010)	10 to 180 g
		Breaking load & Elongation	IS 1969 : 1985 (RA 2006)	5 N to 10000 N
38.	HDPE / PP Woven Sacks for Suger	Dimensions	IS 1954 : 1990 (RA 2007)	1cm to 3 00 cm.
		Av. Breaking strength of seam	IS 9030:1979 (RA 2003)	5 to 10000 N
		Ends/picks	IS 14968 : 2001 (RA 2006)	50 to 300
		Mass	IS 1964 : 2001 (RA 2010)	10 to 180gms
		Breaking load & Elongation	IS 1969 : 1985 (RA 2006)	5 to 10000 N
		Dimensions	IS 1954 : 1990 (RA 2007)	1cm to 3 00 cm.
39.	Surgical Items & Sutures	Av. Breaking strength of seam	IS 9030 :1979 (RA 2003)	5 to 10000 N
		Physical Dimensions	IP.2014	0.1cm to 10mt
		Length	BP.2014	
		Diameter	USP-37.2014	
		III)Tensile Strength/ Min. Breaking Load		1 to 100N
		Needle attachment		Qualitative
		Extractable Colour		
		Soluble chromium compounds		Qualitative

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
40.	Male Latex Condoms	Packaging and labeling requirements Length Width Thickness Lubricant Colour fastness Burst volume Bursting Pressure Water leakage	ISO 4074 SRI/DRUG/072 Issue dt 22-01-14 Rev no. 01 dt 22-01-16	Qualitative 100mm to 250mm 10 mm to 100mm 0.04mm-0.5mm 50 to 500mg Qualitative 10 to 35dm3 0.2 to 2.5 KPa Qualitative
41.	Copper-T 380A/ Copper-T 200B	Packaging and labeling Requirements Pouch integrity test Pouch content Visual inspection on all the content Weigh of copper wire Diameter of copper collar Copper collar pull Strength of tie	Specification of Copper T 380A/IS 12418 Part-IV 1991 SRI/DRUG/072 Issue dt 22-01-14 Rev no. 01 dt 22-01-16	Qualitative Qualitative Qualitative Qualitative 10 to 1000 mg 1.0 to 5.0mm 10g to 3.0kg 10g to 3.0kg
42.	Tubal rings	Packaging and labeling requirements Identification of the material Content of pack Pack integrity test Visual inspection of colour, Shape, fibrous protrusion and cutting. Inner diameter	IS 13009: 1990 SRI/DRUG/072 Issue dt 22-01-14 Rev no. 01 dt 22-01-16	Qualitative Qualitative Qualitative Qualitative Qualitative 0.1to 10.0mm

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S.No.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Tubal rings	Outer diameter Thickness Memory test Friction force test Stain capacity Fracture		0.1 to 10mm 0.1 to 10mm 1 to 50 % 1 to 5kg 20 to 80% 1.0 to 5.0 kg
43.	Adhesive Tape	Dimensions Tensile Strength Adhesive Strength	BP.2014/USP-37.2014	10 cm to 10mt 0.98 to 980 4.9 to 980 N
VI. TEXTILES & TEXTILE AUXILIARIES				
1.	Woven fabric (Such as dress material handloom cotton, mosquito netting handloom, cambric handloom and lining cloth handloom cotton, handloom cotton crepe, cellular shirting handloom cotton, Handloom buckram cloth, First aid dressing, Cotton Mosquito netting, Cotton cellular shirting dved, Nylon filter cloth, etc.)	Mass Ends/Picks Av. Breaking strength and elongation of fabric Tear Strength Pilling Crease recovery angle Dimensions (Width)	IS 1964 : 2001 (RA 2010) IS 1963 :1981(RA 2008) IS 1969 (Part 1 & 2) :1985 (RA 2006) IS 6489 (Part 1 to 4) : 2011 IS 10971 (Part 1 to 2) : 2011 IS 4681 : 1990 (RA 2004) IS 1954 : 1990 (RA 2007)	10 to 180 gms. 50 to 120 0.5 to 10000 N 100 to 500 N Qualitative 40 to 360° 1cm to 3 00 cm

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2.	Geo-textiles Geo-synthetics Geo-grids Geo-membrane	Tensile strength and Elongation	ASTM D 4595 : 2011, ASTM D 6693 : 2004 (RA 2010), EN ISO 10319-2008	Tensile Strength 0.1 to 49 kN Elongation 5 to 100%
		Index Puncture test	ASTM D 4833: 2007 (2013)	10 to 10000 N
		Dynamic perforation (one drop) test	IS 13162 : 1992 IS 13162 (Part 2) (RA 2010) EN-918 -1983	1to 20 mm
		Static puncture test (CBR) test	EN ISO 12236: 2006	100 to10000 N
		Thickness	IS 13162 : 1992 EN : 964: 1995 (RA 2005)	0.01 to 10 mm
		Tear Test	ASTM D 4533: 2011	10 to 500 N
VII.	PAPER			
1.	All type of Papers (Such as Base paper for carbon paper, Writing & printing paper, Computer paper, Coated paper & Board, Cover paper, Plain copier paper, Base paper for tracing paper, Germination paper, Tracing paper, Map printing paper, Volatile corrosion inhibitor (VCI) treated paper etc.)	Tensile strength	IS 1060 (Part1) : 1966 (RA2009)	5 to 1000 N
		Burst strength and burst factor		0.01 to 10.5 MPa
		Tear strength and tear factor		0.5 to 6400 N
		Grammage		0.5 to 300 g/m ²
		Tensile index		0.1 to 70 mN/g
		Burst index		0.2 to 25 Kpa.m ² /g
		Brightness		0.5 to 100%
		Opacity		0.5 to 100%
		Tear index		0.2 to 10 mN.m ² /g
		Thickness		0.1 to 5mm

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VIII NOISE & VIBRATION				
1.	Measurement of Noise Reduction of Sound Isolating Enclosures	DG Set Acoustic Enclosures, Acoustically Treated DG Rooms & Machines Noise in dB (A)	SOP No.SRI/Air Environment-Noise & Vibration/00 dt.01.12.11, IS 4758: 1968 (RA 2002), IS 11446: 1985 (RA 2001)	20 to 140 dB (A)
		Environmental Noise Level in dB (A) (L ₁₀ , L ₅₀ , L ₉₀)	SOP No.SRI/Air Environment-Noise & Vibration/00,dt.01.12.11, IS 9876 : 1981 (RA 2001) IS 9989: 1981 (RA 2001)	20 to 140 dB (A)
2.	Measurement of Insertion Loss Ducts and Mufflers	Nose Insertion Loss measurements in dB (A)	SOP No.SRI/Air Environment-Noise & Vibration/00,dt.01.12.11, IS 9876 : 1981 (RA 2001) IS 9989 : 1981 (RA 2001)	20 to 140 dB (A)
3.	Mechanical Vibrations & Performance	Velocity (in mm/sec) (rms)	SOP No.SRI/Air Environment-Noise & Vibration/00 dt.01.12.11, IS 15591: 2005	0.5 to 100 mm/sec(rms)
		Acceleration (in mm/sec ²) (rms)	SOP No.SRI/Air Environment-Noise & Vibration/00 dt.01.12.11, IS 15591: 2005	0.5to 100 m/sec ² (rms)
IX. AUTOMOTIVE COMPONENTS				
1.	Conveyer belt	Dimension (Length, Width, Cover Thickness)	IS 1891: 1994 (RA 2005)	0.1 to 200 cm
		Tensile strength / elongation at break before and after ageing	IS 3400 (Part1& 4) (RA2 012)	Tensile strength 5 to 100 MPa, Elongation 5 to 1000%
		Full thickness Breaking strength & Elongation	IS 1891: 1994 (RA 2005)	Tensile strength 5 to 5000 kN/m Elongation 5 to 1000%
		Adhesion	IS 1891: 1994 (RA 2005)	2 to 100 kN/m

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2.	V-Belts	Nominal height of belt	IS 2494 : 1994 (RA 2008)	0.1 to 25 mm
		Nominal top width	IS 2494 : 1994 (RA 2008)	0.1 to 40 mm
		Tensile test/Elongation	IS 2494 : 1994 (RA 2008)	Tensile Strength 0.05 to 490 MPa Elongation 5 to 100%
3.	Cycle tubes	Dimension (width & thickness)	IS 2415: 2004 (RA 2010)	0.1 to 100 mm
		Tensile strength / elongation at break	IS 3400 (Part1) (RA 2012)	0.5 to 500 MPa
		Tension set	IS 3400 (Part13): 1983 (RA 2008)	2 to 100%,
		Joint adhesion strength	IS 3400 (Part1) (RA 2012)	0.5 to 100 N/mm,
4.	Valves and Accessories for Tyre & Tubes	Dimensions (Thickness)	IS 9081: 2011	1 mm to 5 meter
		Bendability 10 to -40°C	IS 9081: 2011	Qualitative
		Pull Out Strength	IS 9081: 2011	1 to 20 N
		Hardness SHORE A	IS 9081: 2011	10 to 73
		Adhesion Test	IS 9081: 2011	0.1 to 50.0 MPa
		Hot Air Treatment	IS 9081: 2011	Qualitative
5.	General purpose rubber water hose	Dimension (Length, Inner & Outer Diameter)	IS 444: 1987 (RA 2003)	10 mm to 500cm
		Tensile strength and Elongation at Break of Lining and Cover	IS 444: 1987 (RA 2003)	Tensile Strength 0.01 to 5.0 MPa Elongation 1 to 500 %

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	General purpose rubber water hose	Accelerated ageing test	IS 444: 1987 (RA 2003)	Qualitative
		Swelling Test	IS 444: 1987 (RA 2003)	0.01 to 100cm
		Adhesion strength	IS 444: 1987 (RA 2003)	0.15 to 100 J/m
		Hydraulic test	IS 444: 1987 (RA 2003)	0.1to 10 kg/cm ²
6.	LPG Rubber Hose	Dimension (Length, Wall Thickness, Inner & Outer Diameter)	IS 9573: 2012	1 mm to 500cm
		Tensile strength and Elongation break for Lining and Cover	IS 9573: 2012	Tensile Strength 0.01 to 5.0 MPa Elongation 1to 500 %
		Accelerated ageing test 27-100°C	IS 9573: 2012	Qualitative
		Resistance of Lining to n-pentane	IS 9573: 2012	Qualitative
		Adhesion	IS 9573: 2012	0.15 to 100 N/m
		Low Temperature Flexibility	IS 9573: 2012	Qualitative
		Flexibility of Hose	IS 9573: 2012	Qualitative
		Hydraulic Test	IS 9573: 2012	0.1 to 120 kg/cm ²
		Burning behaviour	IS 9573: 2012	Qualitative
		Proof pressure test	IS 9573: 2012	Qualitative
		Bursting pressure	IS 9573: 2012	Qualitative
		Thickness of Lining and Cover	IS 9573: 2012	1 to 5.0 mm

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X.	PERFORMANCE TEST			
1.	Pipes & Fittings/Valves Bib cock and stop cock	Hydraulic Pressure Test	IS 1239 (Part : 2) : 2011 IS 1536 : 2001 (RA 2006) IS 8329 : 2000 (RA 2005) IS 3989 : 2009 IS 1978 : 1982 (RA 2009) IS 1729 : 2002 (RA 2007) IS 778 : 1984 (RA 2010) IS 781: 1984 (RA 2005) IS 14846 : 2000 (RA 2005)	Qualitative (0.1 to 100 kg/cm ²)
2.	Aluminum Milk Can & Container	Capacity	IS 10325 : 2000 (RA 2005) IS 10339:2000 (RA 2005) IS 1825:1983 (RA 2011) IS 9992: 1991 (RA 2005) IS 9396 (Part 1):1987 (RA 2005) IS 9503: 1988 (RA 2005)	0.1 to 40 L
		Drop test	IS 1825:1983 (RA 2011)	Qualitative
		Handle pull test	IS 10325:2000 (RA 2005) IS 9992:1991 (RA 2005) IS 916:2000 (RA 2005)	Qualitative
3.	Domestic Pressure Cooker	Capacity Construction Workmanship and finish Air Pressure Test Proof Pressure Test Operating test for pressure Regulating device Test for safety Pressure Relief Device Bursting Pressure Test Test For Removal of Lid under Pressure	IS 2347: 2006	1 to 22 L Qualitative (0.01 to 6 kg/cm ²)

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4.	Coupler Joint/Welded Joint/Barbed Wire Block	-Breaking load test	IS 278: 2009 IS 1608: 2005 / ISO 6892: 1998	0.001 to 1000 kN
-X-X-X-X-X-X-X-X-X-X-X-				