

Laboratory Central Institute of Plastics Engineering & Technology (CIPET), SP-1298, Sitapura Industrial Area, Phase–III, Tonk Road, Jaipur, Rajasthan

Accreditation Standard ISO/IEC 17025: 2005

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

I.	PLASTIC & RESINS			
1.	Resin, Plastic & Polymers, Raw material, Plastic Films	Resistance to Sulphuric Acid	IS 12235- 2004 (Part 7) RA 2009, IS 13592-2013, IS 14735-1999 RA 2009	0 to 10 gms. Max.
		Vicat Softening Temperature	IS 6307-1985 (RA 1997), IS 16098 (Part 1&2)-2013 IS 12235 -2004 (Part -2 RA 2009, IS 4985-2000 RA2010, IS 14735-1999 RA 2009, IS 15778-2007 RA 2017 ASTMD 1525-06	25°C to 300°C
		Dichloro methane Test	IS 12235 (Part 13)-2004 RA 2009, IS 13592-2013, IS 16098 (Part 1&2)-2013	Qualitative
		Sulphated Ash Content	IS 4985-2000 RA 2010, IS 14735-1999 RA 2009	1% to 80 %
		Melt Flow Index	IS 2530 -1963 (RA 2008) ASTMD1238 (04C)-2013 ISO 1133-1985, IS 4984-2016, IS 14885-2001 RA 2017, IS 14333-1996 RA 2017, Is 14151-1999 RA 2009, IS 16098 (Part 1&2) -2013	0.001 gms/10 min. to 60 gms/10 min.
		Comparative Tracking Index (CTI)	ASTMD 3638-13, IEC 60112, IS 14772-2000 RA 2015	0.001 V to 750 V

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		Resistance to Humid Condition	14772-2000 RA 2015	500 D.C. volt, 0 to 100 MΩ
		Overall Migration	IS 9845 -1998 (RA 2004), 15410-2003 RA 2009 ,14625-2015,15609-2005 RA 2010 IS 10146-1982	1 mg/dm ² to 15 mg/dm ²
		Carbon Black Content	IS : 2530- 1963 (RA-2008) ASTM D1603-06, IS 7903-2017 , IS 4984-2016, IS 14333-1996 RA 2017, IS 14151-1999 RA 2009, IS 12786-1989 RA 2009, IS 2508,-2016 IS 10889-	0.01% to 50 %
		Carbon Black Dispersion, Pigment Dispersion	IS : 2530 –1963 (RA-2008), IS 14885-2001 (RA 2017)	Qualitative
		Susceptibility to Environmental Stress Cracking	IS 12786-1989 Annex.D (RA-2009), ASTM D 1693-05	Qualitative
		Water absorption	IS 13411-1992- ANNEX-D (RA 2003), ASTM D 570-2005	0.001% to 80 %
		Ash Content	ASTM D-5630-06	1% to 90%
		Resistance to Rusting	IS 14772-2000 RA2015	Qualitative
		K-Value	IS 4669-1968 RA 2008, IS 4985-2000 RA 2010, IS 9271-2004 RA 2009	30 to 80

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		Melting point	IS 5762-1970 (RA 1998), IS 13360 (Part -6 sec10-1992,ASTMD 3418	50°C to 300°C
		Flammability	IS 11731-Pt-II (1986)	Qualitative
		Effect on Water Test	IS 12235-2004 RA 2009 , IS 4985-2000 RA 2010, IS 7834 (Part 1 to 8)-1987 RA 2008 , IS 10124(Part 1 to 13)-2009, IS 15778-2007 RA2017	10 mg/kg
		Water Potability Test	IS 15410-2003 RA2009 (Annex. B); IS 15609-2005(RA 2010)	Qualitative

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<u>MECHANICAL TESTING</u>				
I.	PLASTICS AND PLASTIC PRODUCTS			
1.	Plastic sheet, Plastic material & products, Molded components, packaging container, Polymer Products, Fibre Reinforce Plastic Product, Rubber Products, Plastic Film, Plastic Pipes & Accessories, Meter Boxex, Conduits, Meter Boxes & Enclosures, Plastic Profile, Fabric	Stress Relief Test	IS 12235- 2004 RA 2009 IS 7834 (Part 1 to 8)-1987 RA 2008, IS 13592-2013, IS 15328-2003 RA 2008, IS 14735-1999 RA2009	40 mm to 160 mm
		Reversion Test	IS 12235 -2004 (Pt.5) RA 2009, IS 4984-2016 (Annex. F) IS 12786 -1989 (RA 2009) IS 14151 (Part 1 1999), RA 2009 IS 14885-2001(RA 2017)	- 5% to (+ 5%)
		Axial Shrinkage	IS 14333- 1996 RA 2017, IS 4985-2000, RA 2010 IS 15778-2007 RA 2017, IS 13592 –2013	0 to 5%
		Dimension (Wall Thickness)	IS 4984-2016, IS 4985-2000 RA 2010 IS 14151(Part 1)-1999 RA 2009 IS 12701: 2006 RA 2017 IS 12786 1989 (RA 2009) IS 14333 1996 (RA 2017) IS 12235-2004 (Part 1), RA 2009 IS 14885-2001 RA 2017 IS 2798-1998	0.01 mm to 70 mm

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			IS 2508 - 2016 (Annex. A) IS 7834 (Pt 1 to 8)-1987 RA 2008, IS 10124 (Part 1 to 13)-2009, IS 13592-2013, IS 15328-2003 RA 2008, IS 14735-1999 RA 2009, IS 15265-2003 RA 2008, IS 15778-2007 RA 2017, IS 15143-2002, IS 15427-2004 IS 9537(Part 3)-1983 RA 2015, IS 9271-2004 RA 2009, IS 14885-2001 RA 2017	
		Dimension (Outside & Inside Diameter)	IS 4984-2016 IS 14151(Part 1)-1999 RA 2009, IS 16098 (Part -1&2)-2013 IS 12701: 1996 RA 2017, IS 12786: 1989 (RA 2009) IS 14333: 1996 (Annex. A) RA 2017, IS 14885-2001 RA 2017 IS 12235-2004 (pt-1) RA 2009, IS 13488-2008 IS 9537 (Part 3)-1983 RA 2015, IS 14625-2015 ,IS 4985-2000 RA 2010,15328-2003 RA 2008	1 mm to 3200 mm

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		Dimension (Length & Width)	IS 13488-2008, IS 11584-1986 RA 2009 IS 1954- 1990 RA 2007, IS 15907-2010, IS 16098 (Part 1&2)-2013 IS 14887-2014, IS 5175-2014, IS 9755-2016, IS 8674-2013, IS 11652-2017, IS 14252-2015, IS 14968-2015, IS 15907-2010, IS 16208-2015, IS 7903-2017, IS 14611-2016 IS 9271-2004 RA 2009, IS 16008-2012, IS 16098 (Part 1&2)-2013	1 mm to 15000 mm
		Flow Path Measurement	IS 13488-2008, IS 13487-1992 RA 2009	0 to 10 mm
		Visual Appearance	IS 4985-2000 RA 2010, IS 4984-2016, IS 11584-1986 RA 2009, IS 14151(Part 1)-1999 RA 2009, 14151 pt 2 2008 IS 13592-2013, IS 12701-1996 RA 2017, IS 12786- 1989 (RA 2009) IS 14333 - 1996 RA 2017 IS 5175-2014, IS 8674-2013, IS 15328-2003 RA 2008,	Qualitative

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			IS 14735-1999 RA 2009, IS 15778-2007 RA 2017, IS 16008-2012, IS 16098 (Part 1&2)-2013, IS 14885-2001 RA 2017 IS 12235-2004 (Part 8) RA 2009, IS 4984-2016 Annex-E	
		Hydraulic Characteristics (Acceptance & Type)	IS 14151 (Part 1 1999 Annex-A (RA 2009) IS 12786: 1989 (RA 2009) Annex-C IS 14333 -1996 Annex-B (RA 2017) IS 13487-1992 RA 2009, IS 13488-2008 IS 7834 (Part 1 to 8)-1987 RA 2008, IS 10124 (Part 1 to 13)-2009, IS 15265-2003 RA 2008, IS 15778-2007 RA 2017, IS 14885-2001 (Annex. A) RA 2017 IS 15328-2003 (Annex. D) RA 2008, IS 16098 (Part 1&2)-2013	Qualitative
		Resistance to External Blow at 0°C	IS 4985- 2000 (RA 2010) (Annex. C) IS 12235- 2004 (Part -9) RA 2009 IS 15328-2003 (Annex. B) RA 2008,	Qualitative

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			IS 14735-1999 RA 2009, IS 15778-2007 RA 2017, IS 16098 (Part 1&2)-2013	
		Internal Negative Hydrostatic Pressure	IS 15328-2003 (Annex. E) RA 2008, IS 15265-2003 RA 2008	Qualitative
		Specific Gravity	IS 12235- 2004 (Part 14) RA 2009	0.7 to 3.0
		Density	IS 13360-1992 (Part 3/Sec,1) RA 2008, IS 7328-92 (RA 1997) Annex-A, IS 11584-1986 RA 2009 IS 2530-1963 (RA 2008) (5.1), IS 4984-2016 , IS 14333 - 1996 RA 2017 , IS 14151-1999 RA 2009, IS 12235 -2004 (Part 14) RA 2009, IS 4985-2000 RA 2010, IS 9271-2004 RA 2009, IS 15778-2007 RA 2017 IS 2508 -2016 Approx-A1, IS 14885-2001 RA 2017 ASTMD 792-2013, IS 16098 (Part 1&2) -2013	700 kg/m ³ to 3000 kg/m ³
		Tensile Strength	IS 13360 -1992 (RA 2008) Part -5 Sec 1, IS 8543-1978 (Part 4 Sec-1) RA 2010, ASTMD 638-10, IS 12235 (Part 13) RA 2009, IS 14885-2001	1 MPa to 500 MPa

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			RA 2017, IS 15143-2002, IS 15427-2004 IS 14151 (Part 1 1999) RA 2009, IS 1969, ISO 527-223-1995, IS :2508 (Annex. A4) RA 2016 IS 14611-2016, IS 15778-2007 RA 2017,13592-2013	
		Breaking Srength	IS 14887-2014 , IS 5175-2014, IS 9755-2016, IS 8674-2013, IS 11652-2017, IS 14252-2015, IS 14968-2015, IS 15907-2010, IS 16208-2015, IS 16008-2012	1 N to 5000 N
		Elongation	IS 13360 -1992 (RA 2008) Part -5 Sec 1, IS 8543-1978 (Part 4 Sec-1) RA 2010, ASTMD 638-2014, IS 14151 (Part -1 1999) RA 2009 IS 12818- 1992 ISO 527-223-1995, 15609-2005 RA 2010 IS 14887-2014 ,IS 5175-2014,	1% to 1000%

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			IS 9755-2016, IS 8674-2013, IS 11652-2017, IS 14252-2015, IS 14968-2015, IS 15907-2010, IS 16208-2015, IS 9271-2004 RA 2009, IS 16008-2012,13592-2013	
		Ring Stiffness	IS 15328-2003(Annex. C) RA 2008, IS 9271-2004 RA 2009, IS 16098 (Part 1&2)-2013	1 N/m ² to 16 kN/m ²
		Water Tightness of Joint	IS 13592 -2013 , IS 14735-1999 RA 2009, IS 16098 (Part 1&2)-2013	Qualitative
		Fusion compatibility test	IS 14151-1999 (Part 1) Annex-B RA 2009	Qualitative
		Weldability test	IS 14151-2008 (Part 2)	Qualitative
		Leakage Test	IS 14151-2008 (Part 2) IS 14625-2015 IS 15410-2003 RA 2009 IS 15609-2005 RA 2010	Qualitative
		Gross Capacity	IS 12701-1996 RA 2017, Annex-D	200 Litre to 10000 Litre
		Net Capacity	IS 12701-1996 RA 2017, Annex-D	200 Litre to 10000 Litre
			IS 14625-2015	
			IS 15410-2003 RA 2009	
		Resistance to deformation	IS 12701-1996 RA 2017, Annex-B	100 mm to 5000mm

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		Top load deformation	IS 12701-1996 RA 2017	Qualitative
		Resistance to Impact	IS 12701-1996 RA 2017, Annex-B	Qualitative
		Flexural Modulus	IS 13360-1992 (Part 5/Sec.7) RA 2008 ASTMD 790-2017	100 MPa to 20000 MPa
		Impact Resistance	IS 2508 – 84 (RA 2016), APPD-A IS 13360 -1992 RA 2008 ASTM D 256-2010, ASTMD 6110-2010	1 KJ/m ² to 200 KJ/m ²
		Linear Density (Denier)	IS 14887-2014, IS 5175-2014, IS 9755-2016, IS 8674-2013, IS 11652-2017, IS 14252-2015, IS 14968-2015, IS 15907-2010, IS 16208-2015, IS 2530-1996 RA 2008	100 denier to 1500 denier
		Determination of Gloss & Haze	IS 2508-84 RA 2016, APPDX-A ASTMD 2457-13, ASTMD 1003-2013	0 to 100
		Opacity Test	IS 12235 Pt-3: 2004 RA 2009, IS 4985-2000 RA 2010, IS 7834 (Part 1 to 8)-1987 RA 2008, IS 10124(Part 1 - 13)-2009, IS 15778-2007 RA 2017	0 to 100%
		Rockwell Hardness	ASTMD 785-08	+/- 180
		Barcol Hardness	ASTMD 2583-95-13	1 to 100 Barcol Unit

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		Durometer Hardness (Shore A & Shore D)	ASTMD 2240-2015 IS14151-(Part -2 (2008)	1 to 100 Shore A 1 to 100 Shore D
		Bulk Density	IS 4669-1968 RA 2008 ASTMD 1895-2017	0.3 g/cc to 2.0 g/cc
		UV Exposure Exposure Range 0.48 - 1.55W/m ²	IS 14887-2014 (Annex. D), ASTMG 154-2012, IS 16208-2015, IS 15907-2010	TS: 1MPa to 500MPa EB : 1%to 1000%
		Tear Resistance	ASTM D1922-2015, IS 15351-2015 IS 14611-2016, IS 15907-2010	16 g/f to 5000 g/f
		Transparency	IS 15410-2003 RA 2009; IS 14625-2015	0 to 100%
		Drop Test	IS 15410-2003 RA 2009; IS 14625-2015; IS 15609-2005 RA 2010	Qualitative
		Stack Load Test	IS 15609-2005 RA2010	Qualitative
		Resistance to Ageing	IS 14772-2000 (RA 2005) IS 14625-2015	Qualitative
		Resistance to Heat	IS 14772-2000 (RA 2005) IS 9537(Part 3)-1983 RA 2015	Qualitative
		Glow Wire Test	IS 14772- 2000 (RA 2005) IEC 60695-2-1 RA 2015& IS 11000-2-1: 2008 RA 2016	Qualitative

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		Compression Test	IS 14930 (Part 1 & 2)-2001 RA 2016 IS 14772 2000 (RA 2005), IS 9537(Part 3)-1983 RA 2015 IS 14625-2015	1 N to 100 kN
		Compressive Strength	ASTM D 695: 2015	1MPa to 500 Mpa
		Impact test At -5 ^o c	IS 14930 (Part -1 & 2)-2001 RA 2016, IS 16098 (Part 1&2)-2013 IS 9537(Part 3)-1983 RA 2015	Qualitative
		Bending Test	IS 14930 (Part 1 & 2)-2001 RA 2016 IS 9537(Part -3)-1983 RA 2015	Qualitative
		Resistance to Flame Propagation	IS 14930 (Part 1 & 2)-2001 RA 2016	Qualitative
		Degree of Protections	IS/IEC: 60529 : 2013	Qualitative
		Heat Deflection Temperature	ASTMD 648-2016 ISO 75-2001 RA 2004	25°C to 300°C
		Collapse Test	IS 9537(Part -3)-1983 RA 2015	Qualitative
		Resistant to burning	IS 9537(Part -3)-1983 RA 2015	Qualitative
		Resistance to Combined Temperature Cycling and External Loading	IS 16098 (Part.-2)-2013 (Annex. G)	Qualitative

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<u>ELECTRICAL TESTING</u>				
I.	CABLES & WIRES			
1.	Domestic Electrical appliances, Measuring Instruments, Electrical & Electronic (Static) Energy Meters, Electrical Material solid Insulating Materials	Di-electric Strength / Breakdown Voltage	ASTM D 149-09(2013) (cl 12.1)	Upto100 kV
		High Voltage Test	IS 9537-1983 (Part 1 & 3) (cl 12.1.1,12.1.2) RA 2015, IS 1554-1988 (Part 1 & 2) (cl 19.7) ,IS 694-2010 (cl 16.2), IS 10810 (Part 45) -1984 (RA 2001)	Upto 6 kV
		Volume & Surface Resistivity	ASTM D 257-14 (cl 12.2 & 12.3), IS 7098 (Part 1 & 2) 1988 (cl 5), IS 10810 (Part 43)-1984 RA 2001	Upto10 ¹⁵ Ω
		Insulation Resistance/Electrical Resistance	IS 9537-1983 (Part 1 & 3) (cl 12.1.2) RA 2015, , IS 7098 (Part 1 & 2 1988 (cl 5),IS 10810 (Part 43)-1984 RA 2001	500 Volt D.C to 100 MΩ