

Laboratory	CQA-Testing and Calibration Laboratory, Varroc Polymers Pvt. Ltd., VPPL-II, Plot No. E-88, Ranjangaon MIDC, Shirur, Pune, Maharashtra		
Accreditation Standard	ISO/IEC 17025: 2005		
Discipline	Mechanical Testing	Issue Date	07.06.2014
Certificate Number	T-2262	Valid Until	06.06.2016
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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
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I. PLASTICS, RUBBER AND LEATHER

1.	Plastics & Plastics films	Tensile, Elongation	ASTM D-638:2010, ISO 527-1:2012, ISO 527-2:2012, ISO 527-3:1995, ASTM D-882:2012	Upto 100 kN Contact Extensometer Extension: 0.1 to 4 mm L.C.: 1µm , 0.1 to 550 mm L.C.: 0.1 mm
		Flexural	ASTM D-790:2010, ISO 178:2010	Upto 100 kN
		Density (Specific Gravity)	ASTM D-792:2013, ISO 1183(1):2012	Upto 2 g/cm ³
		Izod Impact	ISO 180:2000, ISO 2818:1994, ASTM D-256:2010	Hammers 2.75 J, 5.75 J, L.C.: 0.001 J
		Charpy Impact	ISO 179-1:2010, ISO 2818:1994	Hammers 2.0 J, L.C.: 0.001 J
		Heat Deflection Temperature (HDT)	ASTM D-648:2007, ISO 75 (1, 2): 2013	Ambient to 210°C , L.C.: 0.1°C , Dial LC 1 µm
		Vicat Softening Temperature (VST)	ASTM D-1525:2009, ISO 306:2013	Ambient to 210°C , L.C.: 0.1°C
		Ash content	ASTM D-5630:2013 (Method B), ISO 3451-1:2008 (Method A)	Upto 1200°C, Min 0.5 to 50%

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	Plastics & Plastics films	Color, 60 deg Gloss measurement	ASTM D-2244:2011 (Colour), ASTM D-523:2014 (Gloss)	Spectral: 400 to 700 nm, Photometric: 0 to 100%, Color Spectrophotometer Geometry: 45°/0 , d/8
		Melt Mass -Flow rate (MFR)	ASTM D-1238:2013, ISO 1133(1,2):2011	0.15 to 300 gm/min L.C.: 0.1 gm/10 min
		Melt Volume -Flow rate (MVR)	ASTM D-1238:2013, ISO 1133(1,2):2011	0.15 to 300 cc/min L.C.: 0.1 gm/10 min
		Hardness Shore D	ASTM D-2240:2010	Shore D: 20-92, L.C. 1 Shore D
		Peel Strength	ISO 8510-2:2006	Upto 100 KN
2.	Plastic, Rubber, Coated fabrics	Analysis of polymers by infrared spectroscopy	ASTM E 1252-1998	Qualitative, Wavelength range: 8300 to 350 cm-1, Solid samples, Powders, Liquids, Films, Spectral Resolution: 0.4 cm-1, Wavelength Precision: 0.01cm-1, Wavelength Accuracy: 0.1cm-1, SN Ratio: 7000:1 -5 seconds scan, FTIR with ATR accessory, Film holder, liquid holder

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3.	Plastic (Components / Assemblies)	Resistance to Environmental Cycling	EDS T 7007:2003	Qualitative Temp: -50°C to 180°C, Humidity: 10% to 95%, Size: 2 m x 1.5 m x 1 m
4.	Rubber	Density/Specific Gravity	ASTM D-792:2013, ISO 1183-1:2012	Upto 2 g/cm ³
		Hardness Shore A	ASTM D-2240:2010	Shore A: 20 to 92, L.C.: 0.5 Shore A
		Heat Aging	IS 3400 (Part-4): 2012, ISO 188 :2011	Upto 250°C
		Ash content	ASTM D-297:2013, Section No. 35 IS 3400 (Part 22): 1993 Sect.A-8	Upto 1200°C, Min 0.5 to 50%
		Tensile , Elongation	IS 3400 (Part 1):2012, ASTM D-412:2006 (Method A), ISO 37:2011	Upto 100 kN , Contact Extensometer Extension: 0.1 to 4 mm L.C.: 1 µm, 0.1 to 550 mm L.C.: 0.1 mm
		Tear Strength	IS 3400 (Part XVII):1974, ASTM D-624:2012	Upto 100 kN

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5.	Foam	Tensile ,Elongation	ASTM D-3574:2011 Test E, ISO 1798:2011, IS7888-1976	Upto 100 kN, Contact Extensometer Extension: 0.1 to 4 mm L.C.: 1µm , 0.1 to 550 mm L.C.: 0.1 mm
		Tear Strength	ASTM D-3574:2011 Test F, ASTM D-624:2012 Die C, JIS K 6301:1995	Upto 100 kN
		Density	ASTM D-3574:2011 Test A , IS7888-1976	Min 10 kg/m ³
		Heat Aging	ASTM D-3574:2011 (Method K), IS 7888-1976	Upto 180°C
		Indentation load test	ASTM D-3574:2011 (Method B1, B2, C), IS 7888-1976	Upto 100 kN
		Compression set	ASTM D-3574:2011 (Method D), ISO 1856:2000, IS 7888-1976	Recovery Upto 100%. Max 70 mm X 70 mm

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II. TEXTILE MATERIALS

1.	Coated Fabrics	Tensile , Elongation	IS 7016 - (Part II):1981, JIS K 6772:1994	Upto 100 kN, Contact Extensometer Extension: 0.1 to 4 mm L.C.: 1 µm , 0.1 to 550 mm L.C.: 0.1 mm
		Tear Strength	IS 7016 (Part III):1981 (Method A2), JISK 6772:1994	Upto 1 kN
		Peel /Adhesion Strength	IS 7016 (Part 5): 2003, ISO 2411 :2000, JIS K 6772:1994	Upto 1 kN
		Mass per Square meter(GSM)	IS 7016 (Part I):1982	Upto 200 gm
		Thickness	IS 7016 (Part I):1982 , JIS K 6772:1994 , IS 8698:1984	Upto 5 mm L.C.: 0.01 mm
		Resistance to heat (Without removing coating)	IS 1259:1984	Upto 180°C
		Colour Shade	IS 1259:1984	Qualitative
		Appearance	IS 1259:1984, IS 8698:1984	Qualitative

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	Coated Fabrics	Color, 60 deg Gloss measurement	ASTM D-2244:2011 (Colour), ASTM D-523:2014 (Gloss)	Spectral: 400 to 700 nm, Photometric: 0 to 100%, Color Spectrophotometer Geometry 45°/0, d/8
		Width of Roll	IS 7016 (Part-1):1982	30 to 2000 mm scale L.C.: 1 mm
		Gelling test	IS 8698:1984 Clause 4.7	Upto 50 mm width

III. MECHANICAL PROPERTIES OF MATERIALS

1.	Metals, Coated, Plated, Painted Parts	Resistance to corrosion	ISO 9227:2012 , IS 9844:1981, JIS 2371:2000	0.4 m ³ , Ambient to 70°
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IV. AUTOMOTIVE COMPONENTS

1.	Automotive Materials	Density/Specific Gravity	ASTM D-792:2013 ISO 1183 (1):2012	Upto 20 gm/cm ³
		Flammability/Burning Behavior (Horizontal burning , Vertical flame, LPG gas)	FMVSS302/IS15061-2002	Upto 300 mm L.C.: 0.1 mm

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