

**Laboratory** CQA-Testing and Calibration Laboratory, Varroc Polymers Pvt. Ltd.,  
VPPL-II, Plot No. E-88, Ranjangaon MIDC, Tal. Shirur, Dist. Pune,  
Maharashtra

**Accreditation Standard** ISO/IEC 17025: 2005

**Certificate Number** TC-7550

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**Validity** 04.07.2018 to 03.07.2020

Last Amended on --

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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**MECHANICAL TESTING**

I.	<b>PLASTICS AND PLASTIC PRODUCTS</b>			
1.	<b>Plastics &amp; Plastics Films</b>	Tensile Strength Elongation	ASTM D-638 ISO 527-1 ISO 527-2 ISO 527-3 ASTM D-882	0.27 MPa to 250 MPa 0.5 % to 750 %
		Flexural	ASTM D-790 ISO 178	40 MPa to 4200 MPa
		Density/Specific Gravity	ASTM D-792 ISO 1183 (1)	0.79 g/cm <sup>3</sup> to 2 g/cm <sup>3</sup>
		Izod Impact	ISO 180 ISO 2818 ASTM D-256	0.8 kJ/m <sup>2</sup> to 80 kJ/m <sup>2</sup>
		Charpy Impact	ISO 179-1 ISO 2818	0.8 kJ/m <sup>2</sup> to 60 kJ/m <sup>2</sup>
		Heat Deflection Temperature (HDT)	ASTM D-648 ISO 75 (1,2)	24 °C to 210 °C
		Vicat Softening Temperature (VST)	ASTM D-1525 ISO 306	24 °C to 210 °C
		Ash content	ASTM D-5630 (Method B), ISO 3451-1 (Method A)	0.5 % to 90 %
		Color 60 deg Gloss	ASTM D-2244 ASTM D-523	1 to 95ΔE 1GU to 100 GU
		Melt Mass -Flow rate (MFR) Melt Volume - Flow Rate (MVR)	ASTM D-1238 ISO 1133 (1,2)	0.15 g/10minute to 300 g/10minute

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		Hardness Shore D	ASTM D-2240	20 to 92
		Peel Strength	ISO 8510-2	2 N to 147 N
		Analysis of polymers	ASTM E 1252 (By infrared spectroscopy)	Qualitative
2.	Plastic (Components / Assemblies)	Resistance to Environmental Cycling	GMW14650	Qualitative
II.	<b>RUBBER AND RUBBER PRODUCTS</b>			
1.	Rubber	Density/Specific Gravity	ASTM D-797 ISO 1183-1	0.5 g/cm <sup>3</sup> to 2 g/cm <sup>3</sup>
		Hardness Shore A	ASTM D-2240	20 to 92
		Heat Aging (Change in Tensile, Elongation & Hardness)	IS 3400 (Part 4), ISO 188	2 MPa to 20 MPa 1 % to 85 % Upto 50
		Ash content	ASTM D-297, Section No. 35 IS 3400 (Part 22) Sect.A-8	0.1 % to 95 %
		Tensile Strength Elongation	IS 3400 (Part 1) ASTM D-412 (Method A), ISO 37	2 MPa to 20.0 MPa 1 % to 850 %
		Tear Strength	IS 3400 (Part 17) ASTM D-624	9.80 N/mm to 490 N/mm
		Analysis of polymers	ASTM E 1252 (By infrared spectroscopy)	Qualitative
2.	Foam	Tensile Strength Elongation	ASTM D-3574 Test E, ISO 1798 IS7888	1MPa to 20.0MPa 1% to 10%
		Tear Strength	ASTM D-3574 Test F, ASTM D-624 Die C, JIS K 6301	9.81 N/mm to 98.06 N/mm

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		Density	ASTM D-3574 Test A IS7888	5 kg/m <sup>3</sup> to 95 kg/m <sup>3</sup>
		Heat Aging	ASTM D-3574 (Method K), IS 7888	Qualitative
		Indentation load	ASTM D-3574 (Method B1 ,B2,C) IS 7888	9.8 N to 686 N
		Compression set	ASTM D-3574 (Method D), ISO 1856 IS 7888	Recovery 0.1 % to 100 %
<b>III.</b>	<b>TEXTILE MATERIALS</b>			
<b>1.</b>	<b>Coated Fabrics</b>	Tensile Strength Elongation	IS 7016 (Part 2) JIS K 6772	5 kN/m to 95 kN/m 5 % to 400 %
		Tear Strength	IS 7016 (Part 3) (Method A2) JISK 6772	5 N to 150 N
		Peel /Adhesion Strength	IS 7016 (Part 5) ISO 2411 JIS K 6772	5 N to 250 N
		Mass per Square meter(GSM)	IS 7016 (Part 1) Sr.No:04	200 GSM to 1200 GSM
		Thickness	IS 7016 (Part 1): Sr.No:05, JIS K 6772 IS-8698 Annex A.	0.1 mm to 5mm
		Resistance to heat (Without removing coating)	IS 1259 Appendix B	Qualitative
		Colour Shade	IS 1259	Qualitative
		Appearance	IS 1259 IS 8698	Qualitative

Prachi Kukreti  
Convenor

N. Venkateswaran  
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		Color, -L value 60 deg Gloss	ASTM D-2244 ASTM D-523	1 to 95 $\Delta$ E 1 GU to 100 GU
		Width of Roll	IS 7016 (Part 1) Clause 3	30 mm to 2000 mm
		Gelling	IS8698:1984 Clause 4.7	Qualitative
		Analysis of polymers	ASTM E 1252 (By infrared spectroscopy)	Qualitative
IV.	<b>MECHANICAL PROPERTIES OF METALS</b>			
1.	<b>Metals, Coated, Plated, Painted Parts</b>	Resistance to corrosion	ISO 9227 IS 9844 JIS 2371	Qualitative
IV.	<b>AUTOMOTIVE COMPONENTS</b>			
1.	<b>Automotive Materials</b>	Density/Specific Gravity	ASTM D-792 ISO 1183 (1)	0.80 g/cc to 20 g/cc
		Flammability/Burning Behavior (Horizontal burning)	FMVSS302 IS15061 Annex A.	Qualitative