

Eastman Spectar® 14471 Copolyester

Category : Polymer , Thermoplastic , Polyester, TP

Material Notes:

Spectar copolyester extrudes into plastic sheet that is sparkling clear, tough, chemically resistant, odor-free, versatile, easy to work with and affordable. Its toughness allows fabricators to use thinner-gauge sheet than with other common materials, resulting in lower material costs. Yet it can be extruded into sheets as thick as 12 mm (1/2 in.). It extrudes at a low temperature and will not crystallize or develop a crystalline haze. Cleaning solutions will not turn Spectar copolyester white. It is easy to fabricate, allowing greater design freedom. It can be laser cut, routed, welded, drilled, die-punched, bent hot or cold, or joined by screws, rivets, or bolts. It can also be cut on conventional table, band, or radial-arm saws with blades commonly used for plastic. Spectar copolyester can be vacuum-formed at lower temperatures than other plastics without predrying the sheet. Spectar copolyester can be finished easily. Its edges can be polished by using commercial edge-finishing equipment, sanding, solvents, flame-polishing or buffing. It forms clear, strong bonds with commercially available cements and solvents. It accepts screen-printing, painting, and hot-stamping easily. Surface scratches or scuff marks can be removed using a common heat gun. Applications/Uses Furniture/Furniture trimPoint of purchase displaysSignsKey Attributes Good chemical resistance Easy to print and decorate Odorless Outstanding toughness allows downgauging Versatile - easy to fabricate Excellent clarity Excellent thermoforming characteristics Outstanding impact resistance Resists chipping and cracking

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http://www.lookpolymers.com/polymer_Eastman-Spectar-14471-Copolyester.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.27 g/cc	1.27 g/cc	ASTM D1505
Density	1.27 g/cc	0.0459 lb/in ³	ISO 1183
Water Absorption	0.20 %	0.20 %	24h Immersion; ISO 62
	0.20 %	0.20 %	24h Immersion; ASTM D570
Thickness	3000 microns	118 mil	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	115	115	ASTM D785
Tensile Strength at Break	26.0 MPa	3770 psi	ISO 527
	26.0 MPa	3770 psi	ASTM D638
Tensile Strength, Yield	53.0 MPa	7690 psi	ASTM D638
	53.0 MPa	7690 psi	ISO 527
Elongation at Break	40 %	40 %	ISO 527
	50 %	50 %	ASTM D638
Elongation at Yield			ISO 527

Mechanical Properties	Metric	English	Comments
	4.8 %	4.8 %	ASTM D638
Tensile Modulus	2.20 GPa	319 ksi	ISO 527
	2.20 GPa	319 ksi	ASTM D638
Flexural Strength	69.0 MPa	10000 psi	ISO 178
	77.0 MPa	11200 psi	ASTM D790
Flexural Modulus	2.10 GPa	305 ksi	ISO 178
	2.10 GPa	305 ksi	ASTM D790
Izod Impact, Notched	0.390 J/cm @Temperature -30.0 °C	0.731 ft-lb/in @Temperature -22.0 °F	ASTM D256
	0.880 J/cm @Temperature 23.0 °C	1.65 ft-lb/in @Temperature 73.4 °F	ASTM D256
Izod Impact, Unnotched	NB	NB	ASTM D4812
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	ASTM D4812
Izod Impact, Notched (ISO)	4.40 kJ/m ² @Temperature -30.0 °C	2.09 ft-lb/in ² @Temperature -22.0 °F	ISO 180
	11.5 kJ/m ² @Temperature 23.0 °C	5.47 ft-lb/in ² @Temperature 73.4 °F	ISO 180
Charpy Impact Unnotched	NB @Temperature -40.0 °C	NB @Temperature -40.0 °F	ISO 179
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	ISO 179
	NB @Temperature 0.000 °C	NB @Temperature 32.0 °F	ISO 179
Charpy Impact, Notched	0.440 J/cm ² @Temperature -30.0 °C	2.09 ft-lb/in ² @Temperature -22.0 °F	ISO 179
	0.610 J/cm ² @Temperature 0.000 °C	2.90 ft-lb/in ² @Temperature 32.0 °F	ISO 179
	1.15 J/cm ²	5.47 ft-lb/in ²	

Mechanical Properties	@Temperature 23.0 °C Metric	@Temperature 73.4 °F English	ISO 179 Comments
Puncture Energy	33.0 J	24.3 ft-lb	Puncture Resistance @Max Load, 23°C; ASTM D3763
	40.0 J	29.5 ft-lb	Puncture Resistance @Max Load, 0°C; ASTM D3763
	47.0 J	34.7 ft-lb	Puncture Resistance @Max Load, -30°C; ASTM D3763
	59.0 J	43.5 ft-lb	Puncture Resistance @ max load, 23°C; ISO 6603-2
	61.0 J	45.0 ft-lb	Puncture Resistance @ max load, 0°C; ISO 6603-2
	70.0 J	51.6 ft-lb	Puncture Resistance @ max load, -10°C; ISO 6603-2
	74.0 J	54.6 ft-lb	Puncture Resistance @ max load, -30°C; ISO 6603-2

Thermal Properties	Metric	English	Comments
CTE, linear	70.0 µm/m-°C	38.9 µin/in-°F	ASTM D696
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Deflection Temperature at 0.46 MPa (66 psi)	72.0 °C	162 °F	ISO 75
	74.0 °C	165 °F	ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	68.0 °C	154 °F	ISO 75
	70.0 °C	158 °F	ASTM D648
Vicat Softening Point	78.0 °C	172 °F	5kg load; ISO 306
	83.0 °C	181 °F	1kg load; ISO 306
	83.0 °C	181 °F	1kg load; ASTM D1525
Flammability, UL94	V-2	V-2	
Oxygen Index	26 %	26 %	ASTM D2863

Optical Properties	Metric	English	Comments
Refractive Index	1.57	1.57	n _D ; ASTM D542
Haze	≤ 1.0 %	≤ 1.0 %	ASTM D1003
Gloss	159 %	159 %	at 60°; ASTM D2457
Yellow Index	≤ 1.5 %	≤ 1.5 %	ASTM D1925

Optical Properties Transmission, Visible	Metric 99 %	English 99 %	Comments Regular Transmittance; ASTM D1003
	91 %	91 %	Total Transmittance; ASTM D1003

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	ASTM D257
Surface Resistivity per Square	1.00e+16 ohm	1.00e+16 ohm	ASTM D257
Dielectric Constant	2.4	2.4	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Dielectric Constant	2.6	2.6	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	16.1 kV/mm	409 kV/in	Short Time, 500V/sec; ASTM D149
Dissipation Factor	0.0050	0.0050	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dissipation Factor	0.020	0.020	ASTM D150
	@Frequency 1e+6 Hz	@Frequency 1e+6 Hz	
Arc Resistance	158 sec	158 sec	ASTM D495

Descriptive Properties	Value	Comments
Color, CIE b*	<1	

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