

Evonik Corporation Plexiglas® 99560 Superclear Extruded PMMA Sheet

Category : Polymer , Thermoplastic , Acrylic (PMMA) , Acrylic, Extruded

Material Notes:

Description: PLEXIGLAS® Superclear 99560 is an extruded PMMA product that has been developed for applications with highest demands on optical and surface quality. It has no observable haze, a very smooth surface and no light absorption. The material is best suited for hard coating. Information provided by degussa.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Evonik-Corporation-Plexiglas-99560-Superclear-Extruded-PMMA-Sheet.php

Physical Properties	Metric	English	Comments
Density	1.19 g/cc	0.0430 lb/in ³	ISO 1183
Water Absorption at Saturation	2.1 %	2.1 %	Max. Weight Gain During Immersion; ISO 62, Method 1
Moisture Vapor Transmission	56.0 cc-mm/m ² -24hr-atm	142 cc-mil/100 in ² -24hr-atm	

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	175 MPa	25400 psi	H _{961/30} ; ISO 2039-1
Tensile Strength at Break	72.0 MPa	10400 psi	ISO 527-2/1B/5
	100 MPa	14500 psi	ISO 527-2/1B/5
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Tensile Strength, Ultimate	35.0 MPa	5080 psi	ISO 527-2/1B/5
	@Temperature 70.0 °C	@Temperature 158 °F	
Elongation at Break	4.5 %	4.5 %	ISO 527-2/1B/5
Modulus of Elasticity	3.30 GPa	479 ksi	Short Term Value; ISO 527-2/1B/1
Flexural Strength	105 MPa	15200 psi	80x10x4 mm; ISO 178
Compressive Yield Strength	103 MPa	14900 psi	ISO 604
Izod Impact, Notched (ISO)	1.60 kJ/m ²	0.761 ft-lb/in ²	ISO 180/1A
Charpy Impact Unnotched	1.50 J/cm ²	7.14 ft-lb/in ²	ISO 179/1fU
Coefficient of Friction	0.45	0.45	steel/plastic
	0.50	0.50	plastic/steel
	0.80	0.80	plastic/plastic
			% Haze, Abrasion resistance in Taber

Abrasion Mechanical Properties	20 - 30 Metric	20 - 30 English	abrader test (100 rev.;5.4 N; CS-10F); Comments
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Thermal Properties	Metric	English	Comments
CTE, linear	70.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$	38.9 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$	DIN 53752A
	@Temperature 0.000 - 50.0 $^{\circ}\text{C}$	@Temperature 32.0 - 122 $^{\circ}\text{F}$	
Specific Heat Capacity	1.47 J/g- $^{\circ}\text{C}$	0.351 BTU/lb- $^{\circ}\text{F}$	
Thermal Conductivity	0.190 W/m-K	1.32 BTU-in/hr-ft 2 - $^{\circ}\text{F}$	DIN 52612
Maximum Service Temperature, Air	70.0 $^{\circ}\text{C}$	158 $^{\circ}\text{F}$	Permanent
	180 $^{\circ}\text{C}$	356 $^{\circ}\text{F}$	IR Radiator
Deflection Temperature at 0.46 MPa (66 psi)	95.0 $^{\circ}\text{C}$	203 $^{\circ}\text{F}$	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	90.0 $^{\circ}\text{C}$	194 $^{\circ}\text{F}$	ISO 75
Vicat Softening Point	102 $^{\circ}\text{C}$	216 $^{\circ}\text{F}$	ISO 306, Method B 50
Flammability, UL94	HB	HB	
	@Thickness 1.60 mm	@Thickness 0.0630 in	
Flash Point	430 $^{\circ}\text{C}$	806 $^{\circ}\text{F}$	Ignition Temperature; DIN 51794

Optical Properties	Metric	English	Comments
Refractive Index	1.491	1.491	ISO 483
Haze	$\leq 0.20\%$	$\leq 0.20\%$	ASTM D1003
Transmission, Visible	92 %	92 %	DIN 5036, Part 3
UV Transmittance	$\leq 1.0\%$	$\leq 1.0\%$	
Reflection Coefficient, Visible (0-1)	0.040	0.040	Reflection loss in the visible range (for each surface)

Electrical Properties	Metric	English	Comments
Volume Resistivity	$\geq 1.00\text{e}+15$ ohm-cm	$\geq 1.00\text{e}+15$ ohm-cm	DIN VDE 0303/3
Surface Resistance	$5.00\text{e}+13$ ohm	$5.00\text{e}+13$ ohm	DIN VDE 0303/3
Dielectric Constant	2.8	2.8	DIN VDE 0303, Part 4
	@Frequency 100000 Hz	@Frequency 100000 Hz	
	3.7	3.7	

Electrical Properties	Metric @Frequency 50 Hz	English @Frequency 50 Hz	DIN VDE 0303, Part 4 Comments
Dielectric Strength	30.0 kV/mm	762 kV/in	DIN VDE 0303, Part 2
Dissipation Factor	0.030 @Frequency 100000 Hz	0.030 @Frequency 100000 Hz	DIN VDE 0303, Part 4
	0.060 @Frequency 50 Hz	0.060 @Frequency 50 Hz	DIN VDE 0303, Part 4
Comparative Tracking Index	600 V	600 V	DIN VDE 0303

Processing Properties	Metric	English	Comments
Processing Temperature	150 - 160 °C	302 - 320 °F	Forming Temperature

Descriptive Properties	Value	Comments
Absorption in the Visible Range	Max 0.05%	
Number of Inclusions (0.1 mm to 0.25 mm)	Max 30 per m ²	Magnification Lens
Number of Inclusions (0.25 mm to 0.65 mm)	Max 7 per m ²	Magnification Lens
Number of Inclusions (0.65 mm to 1.65 mm)	Max 1 per m ²	Magnification Lens
Pencil Hardness	3H	ASTM D3363, ISO 15184
Permeability to Air	8.3x10 ⁻¹⁵ g cm/cm ² h Pa	
Permeability to CO2	1.1x10 ⁻¹³ g cm/cm ² h Pa	
Permeability to N2	4.5x10 ⁻¹⁵ g cm/cm ² h Pa	
Permeability to O2	2x10 ⁻¹⁴ g cm/cm ² h Pa	
Sound Velocity	2700-2800 m/s	at room temperature
Total Energy Transmittance	85%	DIN EN 410
U Value for 10mm	4.4 W/m ² K	DIN 4701
U Value for 1mm	5.8 W/m ² K	DIN 4701
U Value for 3mm	5.6 W/m ² K	DIN 4701
U Value for 5mm	5.3 W/m ² K	DIN 4701

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