

Evonik Corporation Plexiglas® 100 Resist® Extruded Acrylic

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

Material Notes:

Description: PLEXIGLAS® XT extruded acrylic has the following properties:absolutely colorless and clearbreak-resistant to impact-resistant (PLEXIGLAS RESIST®)unequalled resistance to weathering and ageingvery good surface; brilliant, textured or satin (PLEXIGLAS SATINICE®)sheets, tubes, round rods, multi-skin sheets, corrugated sheets, mirror sheets1.5 to 25 mm solid sheet thickness, multi-skin sheets 16 mm and 32 mm thickstandard size up to 4050 x 2050 mm (+ extra lengths)more than 25 standard colorsgood resistance to dilute acidslimited resistance to organic solventsgood resistance to alkaliseasy to work, similar to hardwoodeasy to thermoform under optimal constant conditionseasily bonded also with solvent adhesives (e.g. ACRIFIX® 116, 117)burns more or less like hardwood; very little smoke generationmax. service temperature approx. 70 °CSpecific Notes for this Material: Standard grades for solid sheets with higher, graded impact strength and reduced rigidity, UV absorbing.Information provided by degussa.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Evonik-Corporation-Plexiglas-100-Resist-Extruded-Acrylic.php

Physical Properties	Metric	English	Comments
Density	1.19 g/cc	0.0430 lb/in ³	ISO 1183
Water Absorption	0.572 %	0.572 %	24 hrs, 23°C from dry state; ISO 62, Method 1
Water Absorption at Saturation	2.1 %	2.1 %	Max. Weight Gain During Immersion; ISO 62, Method 1
Moisture Expansion	0.80 %	0.80 %	Possible Expansion due to heat and moisture

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	100 MPa	14500 psi	H_{961/30}; ISO 2039-1
Tensile Strength at Break	40.0 MPa	5800 psi	ISO 527-2/1B/5
Elongation at Break	25 %	25 %	Nominal; ISO 527-2 1B/50
Modulus of Elasticity	1.80 GPa	261 ksi	Short Time Value; ISO 527-2/1B/1
Flexural Strength	69.0 MPa	10000 psi	5 mm/min (80x10x4 mm); ISO 178
Poissons Ratio	0.43 @Temperature 23.0 °C	0.43 @Temperature 73.4 °F	dilation speed of 5% per min; up to 2% dilation; ISO 527-1
Shear Modulus	0.629 GPa	91.2 ksi	Calculated
Izod Impact, Notched (ISO)	6.50 kJ/m ²	3.09 ft-lb/in ²	ISO 180/1A
Charpy Impact Unnotched	NB	NB	ISO 179/1fU
Charpy Impact, Notched	0.800 J/cm ²	3.81 ft-lb/in ²	ISO 179/1eA

Mechanical Properties	Metric	English	Comments
Impact	6.0	6.0	Min. resistance to puck impact from thickness, Test Certificate No. From FMPA Stuttgart - 46/901 870/Sm/C; Similar to DIN 18032, part 3
Abrasion	30 - 40	30 - 40	% Haze, Abrasion resistance in Taber abrader test (100 rev.;5.4 N; CS-10F); ISO 9352

Thermal Properties	Metric	English	Comments
CTE, linear	110 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature 0.000 - 50.0 $^{\circ}\text{C}$	61.1 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature 32.0 - 122 $^{\circ}\text{F}$	DIN 53752A
Specific Heat Capacity	1.47 J/g- $^{\circ}\text{C}$	0.351 BTU/lb- $^{\circ}\text{F}$	
Maximum Service Temperature, Air	65.0 $^{\circ}\text{C}$	149 $^{\circ}\text{F}$	Permanent
Deflection Temperature at 0.46 MPa (66 psi)	93.0 $^{\circ}\text{C}$	199 $^{\circ}\text{F}$	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	90.0 $^{\circ}\text{C}$	194 $^{\circ}\text{F}$	ISO 75
Vicat Softening Point	97.0 $^{\circ}\text{C}$	207 $^{\circ}\text{F}$	ISO 306, Method B 50

Optical Properties	Metric	English	Comments
Refractive Index	1.491 @Thickness 3.00 mm	1.491 @Thickness 0.118 in	clear grade; ISO 489
Transmission, Visible	91 % @Thickness 3.00 mm	91 % @Thickness 0.118 in	clear grade; DIN 5036, Part 3
UV Transmittance	0.00 % @Thickness 3.00 mm	0.00 % @Thickness 0.118 in	clear grade
Reflection Coefficient, Visible (0-1)	0.040 @Thickness 3.00 mm	0.040 @Thickness 0.118 in	clear grade, Reflection loss in the visible range (for each surface)

Electrical Properties	Metric	English	Comments
Volume Resistivity	$\geq 1.00\text{e}+14$ ohm-cm	$\geq 1.00\text{e}+14$ ohm-cm	DIN VDE 0303, Part 3
Surface Resistance	$\geq 1.00\text{e}+14$ ohm	$\geq 1.00\text{e}+14$ ohm	DIN VDE 0303, Part 3

Processing Properties	Metric	English	Comments
Processing Temperature	≥ 70.0 $^{\circ}\text{C}$	≥ 158 $^{\circ}\text{F}$	Reverse Forming Temperature

Processing Properties	140 - 150 °C Metric	284 - 302 °F English	Forming Temperature Comments
Descriptive Properties	Value		Comments
Adsorption in the Visible Range	Max 0.05%		clear grade, 3 mm
Fire Rating	B 2, Normally Flammable		DIN 4102
Min Cold Bending Radius	150 x thickness		
Total Energy Transmittance g	85%		clear grade, 3 mm, 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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