

Evonik Corporation Plexiglas® GS 0F00 (222) Cast Acrylic

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

Material Notes:

Description: PLEXIGLAS® GS cast acrylic has the following properties:absolutely colorless and clearbreak-resistantunequaled resistance to weathering and ageinghigh-quality surface and planarity; brilliant or satin (PLEXIGLAS SATINICE®)sheets, blocks, tubes, round and square rods2 to 160 mm solid sheet / block thicknessstandard size up to 3050 x 2030 mmmore than 50 standard colorsgood resistance to dilute acidslimited resistance to organic solventsgood resistance to alkalisvery easy to work, similar to hardwoodeasy to thermoform over wide range of conditionseasily and firmly bonded, e.g. with reaction adhesives (e.g. ACRIFIX® 190, 192)burns more or less like hardwood; very little smoke generationmax. service temperature approx. 80 °CSpecific Notes for this Material: Standard grade for blocks 30 to 80 mm thick, largely UV-absorbing.Information provided by degussa.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Evonik-Corporation-Plexiglas-GS-0F00-222-Cast-Acrylic.php

Physical Properties	Metric	English	Comments
Density	1.19 g/cc	0.0430 lb/in ³	ISO 1183
Water Absorption	0.48 %	0.48 %	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	0.50 %	0.50 %	Possible Expansion due to heat and moisture
Moisture Vapor Transmission	55.0 cc-mm/m ² -24hr-atm	140 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	80.0 MPa	11600 psi	ISO 527-2/1B/5
	110 MPa @Temperature -40.0 °C	16000 psi @Temperature -40.0 °F	ISO 527-2/1B/5
Tensile Strength, Ultimate	40.0 MPa @Temperature 70.0 °C	5800 psi @Temperature 158 °F	ISO 527-2/1B/5
Elongation at Break	5.5 %	5.5 %	ISO 527-2 1B/5
Modulus of Elasticity	3.30 GPa	479 ksi	Short Time Value; ISO 527-2/1B/1
Flexural Strength	115 MPa	16700 psi	5 mm/min (80x10x4 mm); ISO 178
Compressive Yield Strength	110 MPa	16000 psi	ISO 604

Mechanical Properties	Metric	English	Comments
	@Temperature 23.0 °C	@Temperature 73.4 °F	Speed of 5% per min; up to 2% dilution; ISO 527-1
Shear Modulus	1.70 GPa	247 ksi	Dynamic Shear Modulus at 10 Hz; ISO 537
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
Abrasion	20 - 30	20 - 30	% Haze, Abrasion resistance in Taber abrader test (100 rev.;5.4 N; CS-10F); ISO 9352

Thermal Properties	Metric	English	Comments
CTE, linear	70.0 µm/m-°C @Temperature 0.000 - 50.0 °C	38.9 µin/in-°F @Temperature 32.0 - 122 °F	DIN 53752A
Specific Heat Capacity	1.47 J/g-°C	0.351 BTU/lb-°F	
Thermal Conductivity	0.190 W/m-K	1.32 BTU-in/hr-ft ² -°F	DIN 52612
Maximum Service Temperature, Air	80.0 °C	176 °F	Permanent
	200 °C	392 °F	IR Radiator
Deflection Temperature at 0.46 MPa (66 psi)	113 °C	235 °F	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	105 °C	221 °F	ISO 75
Vicat Softening Point	115 °C	239 °F	ISO 306, Method B 50
Flash Point	425 °C	797 °F	Ignition Temperature; DIN 51794

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	92 % @Thickness 3.00 mm	92 % @Thickness 0.118 in	clear grade; DIN 5036, Part 3
UV Transmittance	0.00 %	0.00 %	clear grade

Optical Properties	@Thickness 3.00 mm Metric	@Thickness 0.118 in English	Comments
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	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	DIN VDE 0303, Part 3
Surface Resistance	5.00e+13 ohm	5.00e+13 ohm	DIN VDE 0303, Part 3
Shielding Effectiveness	26 dB	26 dB	Weighted Sound Reduction Index at 4 mm
	30 dB	30 dB	Weighted Sound Reduction Index at 6 mm
	32 dB	32 dB	Weighted Sound Reduction Index at 10 mm
Dielectric Constant	2.7 @Frequency 100000 Hz	2.7 @Frequency 100000 Hz	DIN VDE 0303, Part 4
	3.6 @Frequency 50 Hz	3.6 @Frequency 50 Hz	DIN VDE 0303, Part 4
Dielectric Strength	30.0 kV/mm	762 kV/in	DIN VDE 0303, Part 2
Dissipation Factor	0.020 @Frequency 100000 Hz	0.020 @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, Part 1

Processing Properties	Metric	English	Comments
Processing Temperature	>= 80.0 °C	>= 176 °F	Reverse Forming Temperature
	160 - 175 °C	320 - 347 °F	Forming Temperature

Descriptive Properties	Value	Comments
Adsorption in the Visible Range	Max 0.05%	clear grade, 3 mm
Fire Rating	B 2, Normally Flammable	DIN 4102
	Class 3	BS 476 Part 7 + 6
	M 4	NF P 92 501 + 92 505

Descriptive Properties	TP(h) Value	RS 2782 Method 508A Comments
Min Cold Bending Radius	330 x thickness	
Permeability to Air	8.3×10^{-15} g cm/cm ² h Pa	
Permeability to CO2	1.1×10^{-13} g cm/cm ² h Pa	
Permeability to N2	4.5×10^{-15} g cm/cm ² h Pa	
Permeability to O2	2×10^{-14} g cm/cm ² h Pa	
Sound Velocity	2700-2800 m/s	at room temperature
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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