

## Evonik Corporation Plexiglas® GS 0F00 (233) Cast Acrylic

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

### Material Notes:

Description: PLEXIGLAS® GS cast acrylic has the following properties: absolutely colorless and clear; break-resistant; unequalled resistance to weathering and ageing; high-quality surface and planarity; brilliant or satin (PLEXIGLAS SATINICE®) sheets, blocks, tubes, round and square rods; 2 to 160 mm solid sheet / block thickness; standard size up to 3050 x 2030 mm; more than 50 standard colors; good resistance to dilute acids; limited resistance to organic solvents; good resistance to alkalis; very easy to work, similar to hardwood; easy to thermoform over wide range of conditions; easily and firmly bonded, e.g. with reaction adhesives (e.g. ACRIFIX® 190, 192); burns more or less like hardwood; very little smoke generation; max. service temperature approx. 80 °C. Specific Notes for this Material: Solid sheet standard grade from 2 to 25 mm thickness, largely UV-absorbing. Information provided by degussa.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Evonik-Corporation-Plexiglas-GS-0F00-233-Cast-Acrylic.php](http://www.lookpolymers.com/polymer_Evonik-Corporation-Plexiglas-GS-0F00-233-Cast-Acrylic.php)

Physical Properties	Metric	English	Comments
Density	1.19 g/cc	0.0430 lb/in <sup>3</sup>	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 <sup>2</sup> -24hr-atm	140 cc-mil/100 in <sup>2</sup> -24hr-atm	

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	175 MPa	25400 psi	H <sub>961/30</sub> ; 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% dilatation; 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 <sup>2</sup>	0.761 ft-lb/in <sup>2</sup>	ISO 180/1A
Charpy Impact Unnotched	1.50 J/cm <sup>2</sup>	7.14 ft-lb/in <sup>2</sup>	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 <sup>2</sup> -°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 @Thickness 4.00 mm	26 dB @Thickness 0.157 in	Weighted Sound Reduction Index
	30 dB @Thickness 6.00 mm	30 dB @Thickness 0.236 in	Weighted Sound Reduction Index
	32 dB @Thickness 10.0 mm	32 dB @Thickness 0.394 in	Weighted Sound Reduction Index
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

Descriptive Properties	Value	Comments
	TP(b)	BS 2782, Method 508A
Min Cold Bending Radius	330 x thickness	
Permeability to Air	$8.3 \times 10^{-15}$ g cm/cm <sup>2</sup> h Pa	
Permeability to CO2	$1.1 \times 10^{-13}$ g cm/cm <sup>2</sup> h Pa	
Permeability to N2	$4.5 \times 10^{-15}$ g cm/cm <sup>2</sup> h Pa	
Permeability to O2	$2 \times 10^{-14}$ g cm/cm <sup>2</sup> 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 <sup>2</sup> K	DIN 4701
U Value for 1mm	5.8 W/m <sup>2</sup> K	DIN 4701
U Value for 3mm	5.6 W/m <sup>2</sup> K	DIN 4701
U Value for 5mm	5.3 W/m <sup>2</sup> K	DIN 4701

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