

Technical Information



PLEXIGLAS® HFI7G

Overview

Plexiglas® HFI7G is an impact modified thermoplastic acrylic resin formulated for injection molding and extrusion applications. This grade is formulated for approved medical applications and has improved gamma resistance compared to HFI7. It is heat resistant, has high melt flow and provides 7 times the impact resistance of standard acrylics while maintaining excellent optical properties. It offers an excellent balance between melt flow and increased resistance to breakage, while providing weatherability superior to that provided by other high-impact plastics. Supplemental moldflow simulation data is available.

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.17 g/cm ³	1.17 g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	10 g/10 min	10 g/10 min	ASTM D1238
Molding Shrinkage - Flow	3.0E-3 to 6.0E-3 in/in	0.30 to 0.60 %	ASTM D955
Water Absorption (24 hr)	0.30 %	0.30 %	ASTM D570
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	355000 psi	2450 MPa	ASTM D638
Tensile Strength (Break)	6800 psi	46.9 MPa	ASTM D638
Tensile Elongation (Break)	35 %	35 %	ASTM D638
Flexural Modulus	355000 psi	2450 MPa	ASTM D790
Flexural Strength (Break)	12400 psi	85.5 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact (73°F (23°C))	0.60 ft-lb/in	32 J/m	ASTM D256
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	65	65	ASTM D785
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load ¹			ASTM D648
66 psi (0.45 MPa), Annealed	191 °F	88.3 °C	
264 psi (1.8 MPa), Annealed	179 °F	81.7 °C	
Vicat Softening Temperature			
--	203 °F	95.0 °C	ASTM D1525 ²
--	184 °F	84.4 °C	ASTM D1525 ³
Thermal Conductivity	1.4 Btu-in/hr/ft ² °F	0.20 W/m/K	ASTM C177
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating	HB	HB	UL 94
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index ⁴	1.490	1.490	ASTM D542
Light Transmittance (125.0 mil (3175 µm))	91.0 %	91.0 %	ASTM D1003
Haze (125.0 mil (3175 µm))	< 2.00 %	< 2.00 %	ASTM D1003
Additional Information	Nominal Value (English)	Nominal Value (SI)	Test Method
ASTM Classification	PMMA 0221V4	PMMA 0221V4	ASTM D788
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	180 to 190 °F	82 to 88 °C	
Drying Time	4.0 hr	4.0 hr	
Suggested Max Moisture	< 0.10 %	< 0.10 %	
Suggested Shot Size	50 %	50 %	
Suggested Max Re grind	20 %	20 %	
Rear Temperature	420 °F	216 °C	

Injection	Nominal Value (English)	Nominal Value (SI)
Middle Temperature	430 °F	221 °C
Front Temperature	440 °F	227 °C
Nozzle Temperature	430 °F	221 °C
Processing (Melt) Temp	< 520 °F	< 271 °C
Mold Temperature	100 to 190 °F	38 to 88 °C
Injection Rate	Moderate	Moderate
Back Pressure	100 psi	0.689 MPa
Screw Speed	50 to 100 rpm	50 to 100 rpm
Screw L/D Ratio	15.0:1.0 to 20.0:1.0	15.0:1.0 to 20.0:1.0
Screw Compression Ratio	2.0:1.0 to 2.5:1.0	2.0:1.0 to 2.5:1.0
Vent Depth	2.0E-3 in	0.051 mm

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ Annealing cycle: 4hrs @ 176°F

² Rate A (50°C/h), Loading 1 (10 N)

³ Rate A (50°C/h), Loading 2 (50 N)

⁴ ND @ 72°F

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