

Technical Information



PLEXIGLAS® HFI10

Overview

Plexiglas® HFI10 is an impact modified thermoplastic acrylic resin formulated for injection molding. It has high melt flow, enhanced mold release properties and provides 10 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	1.15 g/cm ³	1.15 g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	3.3 g/10 min	3.3 g/10 min	ASTM D1238
Molding Shrinkage - Flow	3.0E-3 to 8.0E-3 in/in	0.30 to 0.80 %	ASTM D955
Water Absorption (24 hr)	0.40 %	0.40 %	ASTM D570
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	270000 psi	1860 MPa	ASTM D638
Tensile Strength (Break)	5500 psi	37.9 MPa	ASTM D638
Tensile Elongation (Break)	50 %	50 %	ASTM D638
Flexural Modulus	270000 psi	1860 MPa	ASTM D790
Flexural Strength (Yield)	10300 psi	71.0 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact (73°F (23°C))	0.90 ft-lb/in	48 J/m	ASTM D256
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	38	38	ASTM D785
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load ¹			ASTM D648
66 psi (0.45 MPa), Annealed	192 °F	88.9 °C	
264 psi (1.8 MPa), Annealed	175 °F	79.4 °C	
Vicat Softening Temperature			
--	201 °F	93.9 °C	ASTM D1525 ²
--	181 °F	82.8 °C	ASTM D1525 ³
Thermal Conductivity	1.5 Btu-in/hr/ft ² /°F	0.22 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))	90.0 %	90.0 %	ASTM D1003
Haze (125.0 mil (3175 µm))	< 1.00 %	< 1.00 %	ASTM D1003
Additional Information	Nominal Value (English)	Nominal Value (SI)	Test Method
ASTM Classification	PMMA 0231V2	PMMA 0231V2	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 Regrind	20 %	20 %	
Rear Temperature	430 °F	221 °C	

Injection	Nominal Value (English)	Nominal Value (SI)
Middle Temperature	440 °F	227 °C
Front Temperature	450 °F	232 °C
Nozzle Temperature	440 °F	227 °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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