

Technical Information



PLEXIGLAS® V045i

Overview

Plexiglas® V045i is a lightly impact modified thermoplastic acrylic resin formulated for extrusion applications. It is characterized by its chemical and heat resistance as well a high melt flow. It is a tougher resin than Plexiglas® V045 allowing improved fabrication. 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.

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.19 g/cm ³	1.19 g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	2.1 g/10 min	2.1 g/10 min	ASTM D1238
Molding Shrinkage - Flow	2.0E-3 to 6.0E-3 in/in	0.20 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	430000 psi	2960 MPa	ASTM D638
Tensile Strength (Break)	9800 psi	67.6 MPa	ASTM D638
Tensile Elongation (Break)	15 %	15 %	ASTM D638
Flexural Modulus	425000 psi	2930 MPa	ASTM D790
Flexural Strength (Break)	14300 psi	98.6 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact (73°F (23°C))	0.40 ft-lb/in	21 J/m	ASTM D256
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	89	89	ASTM D785
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load ¹			ASTM D648
66 psi (0.45 MPa), Annealed	198 °F	92.2 °C	
264 psi (1.8 MPa), Annealed	195 °F	90.6 °C	
Vicat Softening Temperature			
--	213 °F	101 °C	ASTM D1525 ²
--	198 °F	92.2 °C	ASTM D1525 ³
Thermal Conductivity	1.3 Btu-in/hr/ft ² /°F	0.19 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))	< 1.00 %	< 1.00 %	ASTM D1003
Additional Information	Nominal Value (English)	Nominal Value (SI)	Test Method
ASTM Classification	PMMA 0241V2	PMMA 0241V2	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	420 °F	216 °C	
Middle Temperature	430 °F	221 °C	

Injection	Nominal Value (English)	Nominal Value (SI)
Front Temperature	440 °F	227 °C
Nozzle Temperature	430 °F	221 °C
Processing (Melt) Temp	< 520 °F	< 271 °C
Mold Temperature	150 to 190 °F	66 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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