

Technical Information


TRINSEO™

PLEXIGLAS® VM

Overview

Plexiglas® VM is a thermoplastic acrylic resin formulated for injection molding applications. It is characterized by its very high melt flow and chemical resistance. Plexiglas® VM has excellent weatherability and optical properties allowing it to excel in applications requiring outdoor stability, high quality surface appearance and/or precision optics. Plexiglas® VM is easy to process due to its exceptional thermal stability, and excellent tool surface reproduction and release properties. Moldflow simulation data is available. It has excellent resistance to many chemicals including solutions of inorganic acids, alkalis and aliphatic hydrocarbons such as heptane. Additionally, it is virtually unaffected by a wide range of commercial products including many beverages, foodstuffs, detergent solutions and cleaners.

Automotive Specifications

- FORD ESB-M4D9-A2

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.18 g/cm³	1.18 g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/3.8 kg)	15 g/10 min	15 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	440000 psi	3030 MPa	ASTM D638
Tensile Strength (Break)	9600 psi	66.2 MPa	ASTM D638
Tensile Elongation (Break)	4.0 %	4.0 %	ASTM D638
Flexural Modulus	435000 psi	3000 MPa	ASTM D790
Flexural Strength (Break)	14000 psi	96.5 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact (73°F (23°C))	0.30 ft-lb/in	16 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	182 °F	83.3 °C	
264 psi (1.8 MPa), Annealed	171 °F	77.2 °C	
Vicat Softening Temperature			
--	191 °F	88.3 °C	ASTM D1525 ²
--	180 °F	82.2 °C	ASTM D1525 ³
Thermal Conductivity	1.3 Btu·in/hr/ft²/°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))	92.0 %	92.0 %	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 0111V5	PMMA 0111V5	ASTM D788
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	165 to 185 °F	74 to 85 °C	
Drying Time	4.0 hr	4.0 hr	

Injection	Nominal Value (English)	Nominal Value (SI)
Suggested Max Moisture	< 0.10 %	< 0.10 %
Suggested Shot Size	50 %	50 %
Suggested Max Regrind	20 %	20 %
Rear Temperature	380 °F	193 °C
Middle Temperature	390 °F	199 °C
Front Temperature	400 °F	204 °C
Nozzle Temperature	390 °F	199 °C
Processing (Melt) Temp	< 520 °F	< 271 °C
Mold Temperature	130 to 160 °F	54 to 71 °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 @ 158°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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