

Technical Information



PLEXIGLAS® V052i

Overview

Plexiglas® V052i is a lightly impact modified thermoplastic acrylic resin formulated for injection molding. It is characterized by its chemical and heat resistance as well a good melt flow and excellent mold release properties. It is a tougher resin than Plexiglas® V052 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. Moldflow simulation data is available.

Automotive Specifications

- CHRYSLER MS-DB-16 CPN4083
- CHRYSLER MS-DB-75 CPN4237
- FORD ESF-M4D9-A
- FORD WSS-M4D776-B5
- GM GMP.PMMA.006
- GM GMW16335P-PMMA-T3
- SAE J576 Color: Various Colors

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.18 g/cm ³	1.18 g/cm ³	ASTM D792 ISO 1183
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	3.0 g/10 min	3.0 g/10 min	ASTM D1238
230°C/3.8 kg	3.1 g/10 min	3.1 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (230°C/3.8 kg)	2.9 cm ³ /10min	2.9 cm ³ /10min	ISO 1133
Molding Shrinkage			
Flow	2.0E-3 to 6.0E-3 in/in	0.20 to 0.60 %	ASTM D955
--	2.0E-3 to 6.0E-3 in/in	0.20 to 0.60 %	ISO 294-4
Water Absorption			
24 hr	0.40 %	0.40 %	ASTM D570
Equilibrium, 73°F (23°C), 50% RH	0.40 %	0.40 %	ISO 62
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
--	410000 psi	2830 MPa	ASTM D638
--	435000 psi	3000 MPa	ISO 527-1/1A/1
Tensile Stress			
Yield	10200 psi	70.0 MPa	ISO 527-2/1A/5
Break	9200 psi	63.4 MPa	ASTM D638
Break	8700 psi	60.0 MPa	ISO 527-2/1A/5
Tensile Strain			
Yield	5.0 %	5.0 %	ISO 527-2/1A/5
Break	22 %	22 %	ASTM D638
Break	20 %	20 %	ISO 527-2/1A/5
Flexural Modulus			
--	420000 psi	2900 MPa	ASTM D790
--	392000 psi	2700 MPa	ISO 178
Flexural Stress			
-- ²	12300 psi	85.0 MPa	ISO 178
Break	14000 psi	96.5 MPa	ASTM D790

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength	0.95 ft-lb/in ²	2.0 kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength	9.5 ft-lb/in ²	20 kJ/m ²	ISO 179/1eU
Notched Izod Impact			
73°F (23°C)	0.40 ft-lb/in	21 J/m	ASTM D256
--	1.4 ft-lb/in ²	3.0 kJ/m ²	ISO 180/A
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	84	84	ASTM D785 ISO 2039-2
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Annealed ³	217 °F	103 °C	ASTM D648
66 psi (0.45 MPa), Annealed	203 °F	95.0 °C	ISO 75-2/B
264 psi (1.8 MPa), Annealed ³	207 °F	97.2 °C	ASTM D648
264 psi (1.8 MPa), Annealed	196 °F	91.0 °C	ISO 75-2/A
Vicat Softening Temperature			
--	230 °F	110 °C	ASTM D1525 ⁴
--	216 °F	102 °C	ASTM D1525 ⁵
--	212 °F	100 °C	ISO 306/B50
--	226 °F	108 °C	ISO 306/A50
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 ⁶	1.490	1.490	ASTM D542 ISO 489
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 0211V3	PMMA 0211V3	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	
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	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 Trim Only

² Conventional Deflection

³ Annealing cycle: 4hrs @ 176°F

⁴ Rate A (50°C/h), Loading 1 (10 N)

⁵ Rate A (50°C/h), Loading 2 (50 N)

⁶ ND @ 72°F

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