

Technical Information



PLEXIGLAS® DR™

Overview

Plexiglas® DR® is an impact modified thermoplastic acrylic resin formulated for injection molding and extrusion applications. It is a heat resistant resin with minimal edge color and provides 10 times the impact resistance of standard acrylics. It is an all-acrylic resin that combines the toughness associated with other impact plastics and the outstanding transparency and UV resistance of conventional acrylic materials. Moldflow simulation data is available.

Automotive Specifications

- CHRYSLER MS-DB-16 CPN3467
- CHRYSLER MS-DB-75 CPN4235
- FORD ESB-M4D9-A11
- GM GMP.PMMA.001
- GM GMW16335P-PMMA-T5
- SAE J576 Color: Various Colors

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density			
--	1.15 g/cm³	1.15 g/cm³	ASTM D792
--	1.16 g/cm³	1.16 g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)			
230°C/3.8 kg	1.0 g/10 min	1.0 g/10 min	ASTM D1238
230°C/3.8 kg	1.1 g/10 min	1.1 g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR) (230°C/3.8 kg)	1.0 cm³/10min	1.0 cm³/10min	ISO 1133
Molding Shrinkage			
Flow	3.0E-3 to 8.0E-3 in/in	0.30 to 0.80 %	ASTM D955
--	3.0E-3 to 8.0E-3 in/in	0.30 to 0.80 %	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			
--	270000 psi	1860 MPa	ASTM D638
--	261000 psi	1800 MPa	ISO 527-1/1A/1
Tensile Stress			
Yield	6530 psi	45.0 MPa	ISO 527-2/1A/5
Break	5500 psi	37.9 MPa	ASTM D638
Break	5800 psi	40.0 MPa	ISO 527-2/1A/5
Tensile Strain			
Yield	5.0 %	5.0 %	ISO 527-2/1A/5
Break	50 %	50 %	ASTM D638
Break	45 %	45 %	ISO 527-2/1A/5
Flexural Modulus			
--	270000 psi	1860 MPa	ASTM D790
--	261000 psi	1800 MPa	ISO 178
Flexural Stress			
-- 1	7250 psi	50.0 MPa	ISO 178
Yield	10300 psi	71.0 MPa	ASTM D790

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength	2.9 ft-lb/in ²	6.0 kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength	31 ft-lb/in ²	65 kJ/m ²	ISO 179/1eU
Notched Izod Impact			
73°F (23°C)	1.1 ft-lb/in	59 J/m	ASTM D256
--	2.9 ft-lb/in ²	6.0 kJ/m ²	ISO 180/A
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness (M-Scale)	45	45	ASTM D785 ISO 2039-2
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Annealed ²	192 °F	88.9 °C	ASTM D648
66 psi (0.45 MPa), Annealed	183 °F	84.0 °C	ISO 75-2/B
264 psi (1.8 MPa), Annealed ²	175 °F	79.4 °C	ASTM D648
264 psi (1.8 MPa), Annealed	172 °F	78.0 °C	ISO 75-2/A
Vicat Softening Temperature			
--	208 °F	97.8 °C	ASTM D1525 ³ ISO 306/A50 ³
--	187 °F	86.1 °C	ASTM D1525 ⁴
--	190 °F	88.0 °C	ISO 306/B50
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 ⁵	1.490	1.490	ASTM D542 ISO 489
Light Transmittance (125.0 mil (3175 µm))	90.0 %	90.0 %	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 0231V1	PMMA 0231V1	ASTM D788

Notes

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

¹ Conventional Deflection

² Annealing cycle: 4hrs @ 176°F

³ Rate A (50°C/h), Loading 1 (10 N)

⁴ Rate A (50°C/h), Loading 2 (50 N)

⁵ ND @ 72°F

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