

PLEXIGLAS® MI7G

Overview

Plexiglas® MI7G is an impact modified thermoplastic acrylic resin formulated for injection molding and extrusion applications. This grade is formulated for approved medical applications and has improved gamma resistance compared to MI7. It is heat resistant, has high melt flow and provides 7 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 | 1.17 g/cm ³ | 1.17 g/cm ³ | ASTM D792 |
| Melt Mass-Flow Rate (MFR) (230°C/3.8 kg) | 3.2 g/10 min | 3.2 g/10 min | ASTM D1238 |
| Molding Shrinkage - Flow | 3.0E-3 to 6.0E-3 in/in | 0.30 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 | 365000 psi | 2520 MPa | ASTM D638 |
| Tensile Strength (Break) | 7000 psi | 48.3 MPa | ASTM D638 |
| Tensile Elongation (Break) | 35 % | 35 % | ASTM D638 |
| Flexural Modulus | 345000 psi | 2380 MPa | ASTM D790 |
| Flexural Strength (Break) | 11200 psi | 77.2 MPa | ASTM D790 |
| Impact | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Notched Izod Impact (73°F (23°C)) | 0.60 ft-lb/in | 32 J/m | ASTM D256 |
| Hardness | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Rockwell Hardness (M-Scale) | 68 | 68 | ASTM D785 |
| Thermal | Nominal Value (English) | Nominal Value (SI) | Test Method |
| Deflection Temperature Under Load ¹ | | | ASTM D648 |
| 66 psi (0.45 MPa), Annealed | 196 °F | 91.1 °C | |
| 264 psi (1.8 MPa), Annealed | 185 °F | 85.0 °C | |
| Vicat Softening Temperature | | | |
| -- | 210 °F | 98.9 °C | ASTM D1525 ² |
| -- | 194 °F | 90.0 °C | ASTM D1525 ³ |
| Thermal Conductivity | 1.4 Btu-in/hr/ft ² /°F | 0.20 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)) | < 2.00 % | < 2.00 % | ASTM D1003 |
| Additional Information | Nominal Value (English) | Nominal Value (SI) | Test Method |
| ASTM Classification | PMMA 0221V3 | PMMA 0221V3 | ASTM D788 |
| Injection | Nominal Value (English) | Nominal Value (SI) | |
| Drying Temperature | 185 °F | 85 °C | |
| Drying Time | 4.0 hr | 4.0 hr | |
| Suggested Max Moisture | 0.30 % | 0.30 % | |
| Suggested Max Regrind | 25 % | 25 % | |
| Rear Temperature | 420 to 460 °F | 216 to 238 °C | |
| Middle Temperature | 420 to 460 °F | 216 to 238 °C | |



| Injection | Nominal Value (English) | Nominal Value (SI) |
|-------------------------|-------------------------|--------------------|
| Front Temperature | 420 to 460 °F | 216 to 238 °C |
| Nozzle Temperature | 420 to 460 °F | 216 to 238 °C |
| Processing (Melt) Temp | 460 °F | 238 °C |
| Mold Temperature | 100 to 190 °F | 38 to 88 °C |
| Back Pressure | 50.0 to 100 psi | 0.345 to 0.689 MPa |
| Screw Speed | 50 to 100 rpm | 50 to 100 rpm |
| Screw L/D Ratio | 16.0:1.0 | 16.0:1.0 |
| Screw Compression Ratio | 2.0:1.0 to 3.0:1.0 | 2.0:1.0 to 3.0:1.0 |

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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