

Ixef® 1027

polyarylamide

Ixef® 1027 is a 50% glass-fiber reinforced, heat stabilized polyarylamide, which exhibits very high strength and rigidity, outstanding surface gloss, and excellent creep resistance.

- Black: Ixef® 1027/9000

General

| | | |
|---------------------------|---|--|
| Material Status | • Commercial: Active | |
| Availability | • Africa & Middle East • Asia Pacific • Europe | • Latin America • North America |
| Filler / Reinforcement | • Glass Fiber, 50% Filler by Weight | |
| Additive | • Heat Stabilizer | |
| Features | • Chemical Resistant • Creep Resistant • Good Dimensional Stability • Heat Stabilized • High Flow | • High Strength • Low Moisture Absorption • Outstanding Surface Finish • Ultra High Stiffness |
| Uses | • Appliance Components • Appliances • Automotive Applications • Business Equipment • Furniture • Gears | • Industrial Applications • Lawn and Garden Equipment • Machine/Mechanical Parts • Metal Replacement • Power/Other Tools |
| RoHS Compliance | • RoHS Compliant | |
| Automotive Specifications | • GM GM7001M PAMXD6 (A4,A22,A42,A64,BA651,G30,MS1650,NS335) Color: 9000 Black | |
| Appearance | • Black | |
| Forms | • Pellets | |
| Processing Method | • Injection Molding | |

| Physical | Typical Value | Unit | Test method |
|-------------------------------------|---------------|-------------------|-----------------|
| Density | 1.64 | g/cm ³ | ISO 1183 |
| Molding Shrinkage | 0.10 to 0.30 | % | Internal Method |
| Water Absorption (24 hr, 23°C) | 0.16 | % | ISO 62 |
| Moisture Absorption - Equil, 65% RH | 1.5 | % | Internal Method |

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| Mechanical | Typical Value | Unit | Test method |
|------------------------------|---------------|------|-------------|
| Tensile Modulus | 20000 | MPa | ISO 527-1 |
| Tensile Stress (Break, 23°C) | 235 | MPa | ISO 527-2 |
| Tensile Strain (Break) | 1.8 | % | ISO 527-2 |
| Flexural Modulus | 18500 | MPa | ISO 178 |
| Flexural Stress (23°C) | 360 | MPa | ISO 178 |

| Impact | Typical Value | Unit | Test method |
|-----------------------|---------------|------|-------------|
| Notched Izod Impact | 90 | J/m | ASTM D256 |
| Unnotched Izod Impact | 720 | J/m | ASTM D4812 |

| Thermal | Typical Value | Unit | Test method |
|--|---------------|----------|-------------|
| Deflection Temperature Under Load 1.8 MPa, Annealed | 220 | °C | ISO 75-2/A |
| CLTE - Flow | 1.7E-5 | cm/cm/°C | ISO 11359-2 |

| Electrical | Typical Value | Unit | Test method |
|------------------------------|---------------|---------|-------------|
| Volume Resistivity | 1.0E+13 | ohms·cm | IEC 60093 |
| Electric Strength | 28 | kV/mm | IEC 60243-1 |
| Dielectric Constant (110 Hz) | 4.60 | | IEC 60250 |
| Comparative Tracking Index | 600 | V | IEC 60112 |

| Flammability | Typical Value | Unit | Test method |
|---------------------------|---------------|------|-------------|
| Flame Rating ¹ | HB | | UL 94 |
| Oxygen Index | 25 | % | ISO 4589-2 |

| Injection | Typical Value | Unit |
|------------------------|---------------|------|
| Drying Temperature | 120 | °C |
| Drying Time | 0.50 to 1.5 | hr |
| Rear Temperature | 250 to 260 | °C |
| Front Temperature | 260 to 290 | °C |
| Processing (Melt) Temp | 280 | °C |
| Mold Temperature | 120 to 140 | °C |
| Injection Rate | Fast | |

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Injection Notes

Hot Runners: 250°C to 260°C (482°F to 500°F)

Storage

Ixef® compounds are shipped in moisture-resistant packages at moisture levels according to specifications. Sealed, undamaged bags should be preferably stored in a dry room at a maximum temperature of 50°C (122°F) and should be protected from possible damage. If only a portion of a package is used, the remaining material should be transferred into a sealable container. It is recommended that Ixef® resins be dried prior to molding following the recommendations found in this datasheet and/or in the Ixef® processing guide.

Drying

The material as supplied is ready for molding without drying. However, if the bags have been open for longer than 24 hours, the material needs to be dried. When using a desiccant air dryer with dew point of -28°C (-18°F) or lower, these guidelines can be followed: 0.5-1.5 hour at 120°C (248°F), 1-3 hours at 100°C (212°F), or 1-7 hours at 80°C (176°F).

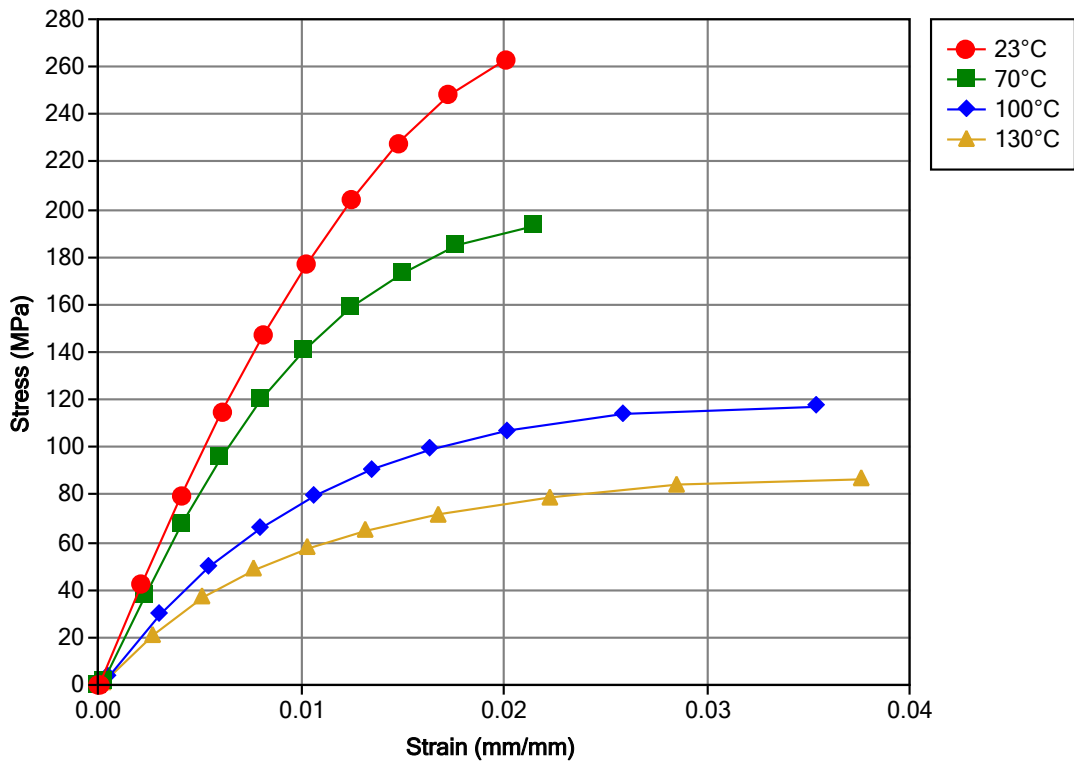
Injection Molding

IXEF 1027 compound can be readily injection molded in most screw injection molding machines. A general purpose screw is recommended, with minimum back pressure.

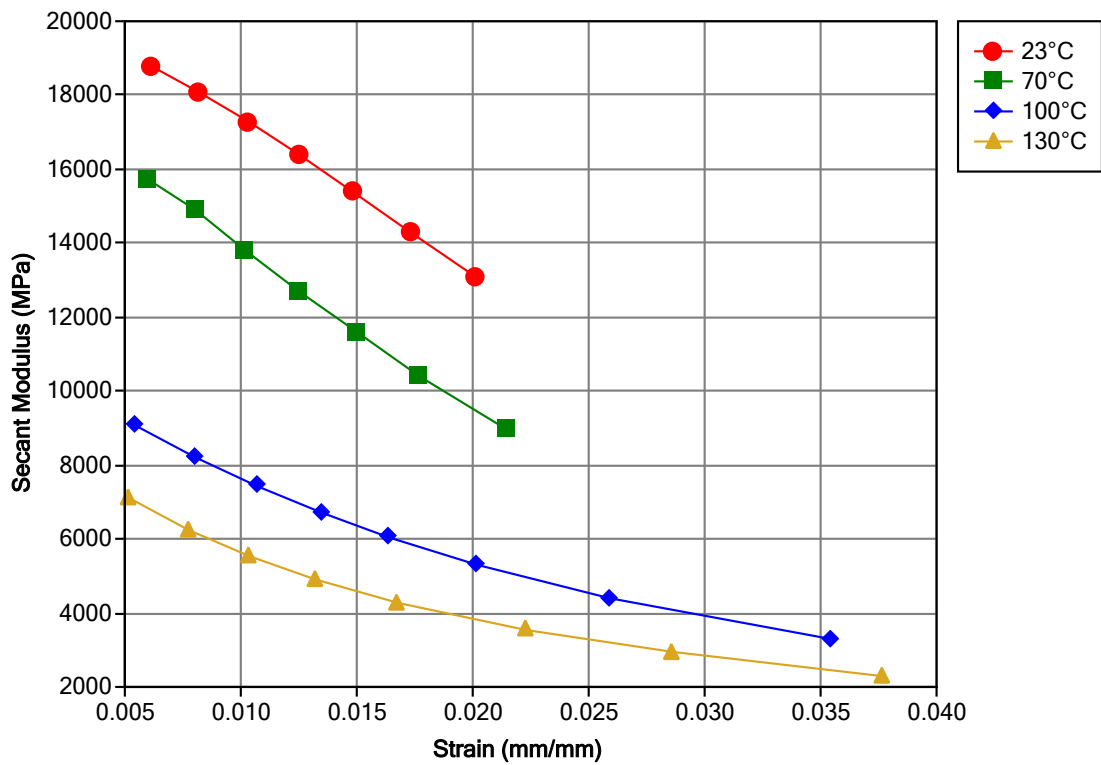
The measured melt temperature should be about 280°C (536°F), and the barrel temperatures should be around 250°C to 260°C (482°F to 500°F) in the rear zone, gradually increasing to 260°C to 290°C (500°F to 554°F) in the front zone. If hot runners are used, they should be set to 250°C to 260°C (482°F to 500°F).

To maximize crystallinity, the temperature of the mold cavity surface must be held between 120°C and 140°C (248°F and 284°F). Molding at lower temperatures will produce articles that may warp, have poor surface appearance, and have a greater tendency to creep. Set injection pressure to give rapid injection. Adjust holding pressure and hold time to maximize part weight. Transfer from injection to hold pressure at the screw position just before the part is completely filled (95%-99%).

Isothermal Stress vs. Strain (ISO 11403)



Secant Modulus vs. Strain (ISO 11403)



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Notes

Typical properties: these are not to be construed as specifications.

¹ These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

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