

Ixef® 2011

polyarylamide

Ixef® 2011 is a general purpose, 42% mineral reinforced polyarylamide which exhibits high strength and stiffness, low warpage, and outstanding surface gloss.

- Natural: Ixef® 2011/0000
- Black: Ixef® 2011/9000
- Custom Colorable

General

| | | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material Status | <ul style="list-style-type: none"> • Limited Distribution | |
| Availability | <ul style="list-style-type: none"> • Africa & Middle East • Asia Pacific • Europe | <ul style="list-style-type: none"> • Latin America • North America |
| Filler / Reinforcement | <ul style="list-style-type: none"> • Mineral, 42% Filler by Weight | |
| Features | <ul style="list-style-type: none"> • Chemical Resistant • Creep Resistant • Good Dimensional Stability • High Flow • High Stiffness | <ul style="list-style-type: none"> • High Strength • Low Moisture Absorption • Low Warpage • Outstanding Surface Finish |
| Uses | <ul style="list-style-type: none"> • Appliance Components • Appliances • Automotive Applications • Automotive Electronics • Automotive Interior Parts • Automotive Under the Hood • Bushings • Business Equipment | <ul style="list-style-type: none"> • Camera Applications • Furniture • Gears • Industrial Applications • Lawn and Garden Equipment • Machine/Mechanical Parts • Metal Replacement • Power/Other Tools |
| RoHS Compliance | <ul style="list-style-type: none"> • RoHS Compliant | |
| Appearance | <ul style="list-style-type: none"> • Black | <ul style="list-style-type: none"> • Colors Available |
| Forms | <ul style="list-style-type: none"> • Pellets | |
| Processing Method | <ul style="list-style-type: none"> • Injection Molding | |

| Physical | Typical Value | Unit | Test method |
|-------------------------------------|---------------|-------------------|-----------------|
| Density | 1.58 | g/cm ³ | ISO 1183 |
| Molding Shrinkage - Flow | 0.15 to 0.35 | % | Internal Method |
| Water Absorption (24 hr, 23°C) | 0.30 | % | ISO 62 |
| Moisture Absorption - Equil, 65% RH | 2.0 | % | Internal Method |

| Mechanical | Typical Value | Unit | Test method |
|------------------------|---------------|------|-------------|
| Tensile Modulus | 15300 | MPa | ISO 527-2 |
| Tensile Stress (Break) | 130 | MPa | ISO 527-2 |
| Tensile Strain (Break) | 1.3 | % | ISO 527-2 |
| Flexural Modulus | 14200 | MPa | ISO 178 |
| Flexural Stress | 180 | MPa | ISO 178 |

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| Impact | Typical Value | Unit | Test method |
|----------------------------------|---------------|-------------------|-------------|
| Charpy Notched Impact Strength | 2.1 | kJ/m ² | ISO 179 |
| Charpy Unnotched Impact Strength | 29 | kJ/m ² | ISO 179 |
| Notched Izod Impact Strength | 2.2 | kJ/m ² | ISO 180 |
| Unnotched Izod Impact Strength | 24 | kJ/m ² | ISO 180 |

| Thermal | Typical Value | Unit | Test method |
|----------------------------------------------------|---------------|----------|-------------|
| Heat Deflection Temperature 1.8 MPa, Unannealed | 165 | °C | ISO 75-2/A |
| Melting Temperature | 235 | °C | ISO 11357-3 |
| CLTE - Flow | 1.8E-5 | cm/cm/°C | ISO 11359-2 |

| Electrical | Typical Value | Unit | Test method |
|------------------------------|---------------|---------|-------------|
| Surface Resistivity | 1.0E+10 | ohms | IEC 60093 |
| Volume Resistivity | 1.0E+13 | ohms-cm | IEC 60093 |
| Electric Strength | 24 | kV/mm | IEC 60243-1 |
| Dielectric Constant (110 Hz) | 4.30 | | IEC 60250 |
| Dissipation Factor (110 Hz) | 9.0E-3 | | IEC 60250 |
| Comparative Tracking Index | 520 | V | IEC 60112 |

| Flammability | Typical Value | Unit | Test method |
|---------------------------|---------------|------|-------------|
| Flame Rating ¹ | HB | | UL 94 |
| Oxygen Index | 29 | % | 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 |
| Screw L/D Ratio | 15.0:1.0 to 20.0:1.0 | |

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Injection Notes

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

Injection Pressure: rapid

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

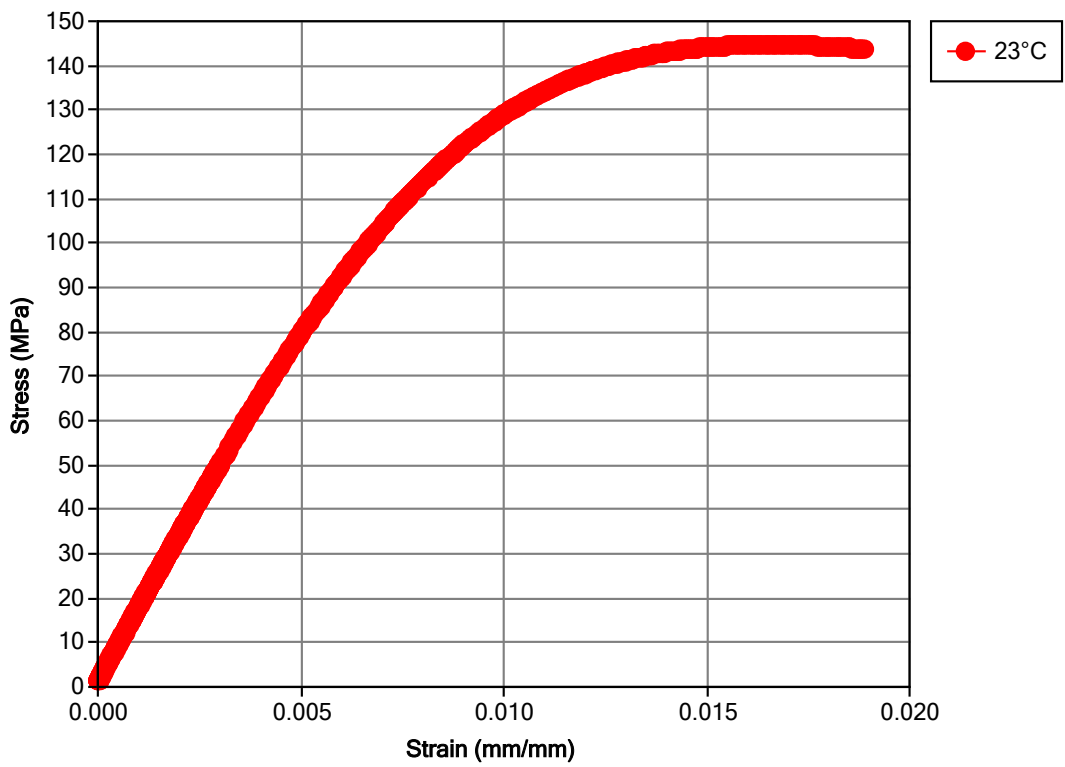
The material as supplied is ready for molding without drying. However, if the bags have been open for longer than 24 hours, the material needs to be dried. When using a desiccant air dryer with dew point of -28°C (-18°F) or lower, these guidelines can be followed: 0.5-1.5 hour at 120°C (248°F), 1-3 hours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

Injection Molding

IXEF 2011 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 to 260°C (482 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%).



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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