Ixef® 1521

polyarylamide

Ixef® 1521 is a 50% glass-fiber reinforced, flame retardant polyarylamide which exhibits high strength and stiffness, outstanding surface gloss, and excellent creep resistance.

- Custom Colorable

- Natural: Ixef® 1521/0008
- Black: Ixef® 1521/9008

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	• Flame Retardant		
Features	• Flame Retardant • Good Chemical Resistance • Good Creep Resistance	• Good Dimensional Stability • High Flow • High Strength	• Low Moisture Absorption • Outstanding Surface Finish • Ultra High Stiffness
Uses	• Aircraft Applications • Appliance Components • Appliances • Automotive Applications • Automotive Electronics • Automotive Under the Hood	• Bushings • Business Equipment • Camera Applications • Furniture • Gears • Industrial Applications	• Lawn and Garden Equipment • Machine/Mechanical Parts • Metal Replacement • Power/Other Tools
Agency Ratings	• FAA FAR 25.853a		
RoHS Compliance	• RoHS Compliant		
Appearance	• Black	• Colors Available	• Natural Color
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	Typical Value	Unit	Test method
Density	1.75	g/cm³	ISO 1183
Molding Shrinkage	0.10 to 0.30	%	Internal Method
Water Absorption (23°C, 24 hr)	0.15	%	ISO 62
Moisture Absorption - Equil, 65% RH	1.3	%	Internal Method

Mechanical	Typical Value	Unit	Test method
Tensile Modulus	20000	MPa	ISO 527-2
Tensile Stress (Break)	230	MPa	ISO 527-2
Tensile Strain (Break)	1.9	%	ISO 527-2
Flexural Modulus	20000	MPa	ISO 178
Flexural Stress (23°C)	340	MPa	ISO 178

Impact	Typical Value	Unit	Test method
Notched Izod Impact	95	J/m	ASTM D256

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Impact	Typical Value	Unit	Test method
Unnotched Izod Impact	700	J/m	ASTM D256

Thermal	Typical Value	Unit	Test method
Heat Deflection Temperature			ISO 75-2/A
1.8 MPa, Unannealed	230	°C	
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	29	kV/mm	IEC 60243-1
Dielectric Constant (110 Hz)	4.10		IEC 60250
Dissipation Factor (110 Hz)	0.012		IEC 60250
Comparative Tracking Index	400	V	IEC 60112

Flammability	Typical Value	Unit	Test method
Flame Rating			UL 94
0.750 mm, Black [1]	V-0		
1.50 mm, ALL	V-0		
1.50 mm, Black	5VA		
Glow Wire Flammability Index			IEC 60695-2-12
0.800 mm	960	°C	
1.50 mm	960	°C	
3.00 mm	960	°C	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.800 mm	900	°C	
1.50 mm	930	°C	
3.00 mm	900	°C	
Oxygen Index	32	%	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	270	°C
Mold Temperature	120 to 140	°C
Injection Rate	Fast	

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).

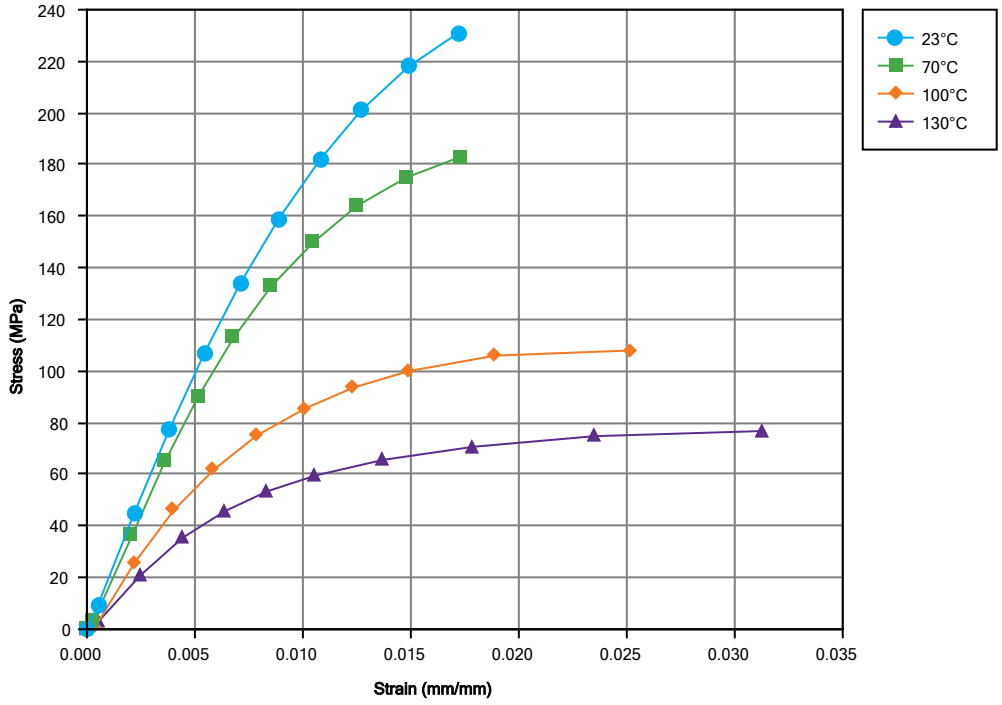
Injection Molding

IXEF 1521 compound can be readily injection molded in most screw injection molding machines. A general purpose screw is recommended, with minimum back pressure.

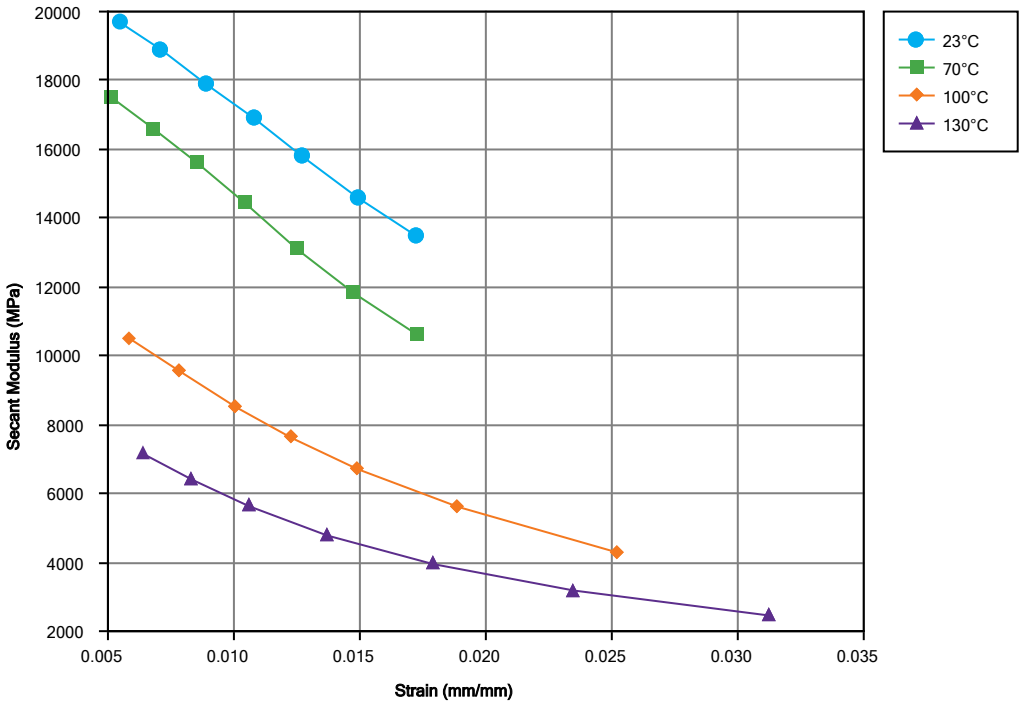
The measured melt temperature should be about 270°C (518°F), and the barrel temperatures should be around 250°C to 260°C (482°F to 500°F) in the rear zone, gradually increasing to 260°C to 280°C (500°F to 536°F) in the front zone. If hot runners are used, they should be set to 250°C to 260°C (482°F to 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%).

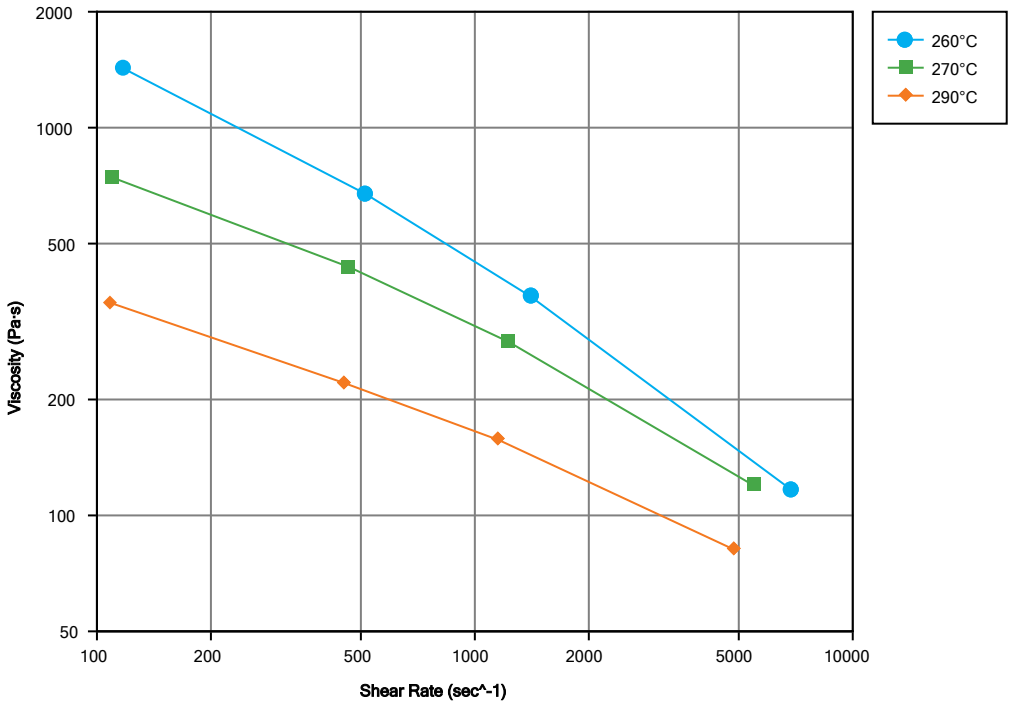
Isothermal Stress vs. Strain (ISO 11403-1)



Secant Modulus vs. Strain (ISO 11403-1)



Viscosity vs. Shear Rate (ISO 11403-2)



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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