

Ixef® 3012

polyarylamide

Ixef® 3012 is a carbon-fiber and glass fiber reinforced polyarylamide compound which exhibits extremely high strength and stiffness, good surface gloss, excellent creep resistance, and lower density than glass-fiber reinforced engineering resins. Ixef® 3012 is also electrically

conductive. Testing was conducted on samples dry as molded and samples conditioned to 50% relative humidity in accordance with ISO 1110-1995 E Method 4.1.

Black: Ixef® 3012 BK 001

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Filler / Reinforcement	• Glass\Carbon Fiber, 55% Filler by Weight		
Features	• Good Chemical Resistance • Good Creep Resistance • Good Dimensional Stability	• High Flow • High Strength • Low Moisture Absorption	• Outstanding Surface Finish • Ultra High Stiffness
Uses	• Appliance Components • Appliances • Automotive Applications • Automotive Electronics • Automotive Under the Hood • Bushings	• Camera Applications • Cams • Cell Phones • Electrical/Electronic Applications • Furniture • Gears	• Industrial Applications • Lawn and Garden Equipment • Machine/Mechanical Parts • Metal Replacement • Power/Other Tools
RoHS Compliance	• Contact Manufacturer		
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	Dry	Conditioned	Unit	Test method
Specific Gravity ¹	1.57	--		ISO 1183
Water Absorption (24 hr)	0.24	--	%	ASTM D570

Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus	5.58E+6	5.29E+6	psi	ISO 527-2
Tensile Stress	42100	34100	psi	ISO 527-2
Tensile Strain (Break)	1.1	0.90	%	ISO 527-2
Flexural Modulus	5.22E+6	5.08E+6	psi	ISO 178
Flexural Stress	63800	52900	psi	ISO 178

Impact	Dry	Conditioned	Unit	Test method
Charpy Notched Impact Strength				ISO 179
-40°F, Complete Break	3.0	2.9	ft·lb/in ²	
-22°F, Complete Break	3.0	--	ft·lb/in ²	
73°F, Complete Break	3.2	3.0	ft·lb/in ²	

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Impact	Dry	Conditioned Unit	Test method
Charpy Unnotched Impact Strength			ISO 179
-40°F, Complete Break	24	14 ft·lb/in ²	
-22°F, Complete Break	24	-- ft·lb/in ²	
73°F, Complete Break	29	17 ft·lb/in ²	
Notched Izod Impact Strength	3.6	-- ft·lb/in ²	ISO 180
Unnotched Izod Impact Strength	21	-- ft·lb/in ²	ISO 180

Thermal	Dry	Conditioned Unit	Test method
Heat Deflection Temperature			ISO 75-2/A
264 psi, Unannealed	446	-- °F	
CLTE			ISO 11359-2
Flow : 32 to 176°F	2.2E-6	-- in/in/°F	
Flow : 266 to 392°F	1.2E-6	-- in/in/°F	
Transverse : 32 to 122°F	2.4E-5	-- in/in/°F	
Transverse : 212 to 302°F	5.0E-5	-- in/in/°F	
Transverse : 302 to 392°F	5.8E-5	-- in/in/°F	

Flammability	Dry	Conditioned Unit	Test method
Flame Rating ²	HB	--	UL 94

Additional Information	Dry	Conditioned Unit
Moisture Content - Saturation 50% RH	--	1.1 %

Conditioned Conditioned to 50% RH in accordance with ISO 1110-1995 E Method 4.1

Injection	Dry Unit
Drying Temperature	248 °F
Drying Time	0.50 to 1.5 hr
Rear Temperature	482 to 500 °F
Front Temperature	500 to 554 °F
Processing (Melt) Temp	536 °F
Mold Temperature	248 to 320 °F

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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® compounds 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 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%).

Notes

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

¹ Method A

² These flammability ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

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