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.

Black: Ixef® 3012 BK 001

General		
Material Status	• Commercial: Active	
Availability	• Africa & Middle East • Asia Pacific • Europe	• Latin America • North America
Filler / Reinforcement	• Glass Fiber\Carbon Fiber, 55% Filler by Weight	
Features	• Chemical Resistant • Creep Resistant • 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 & 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
Density / Specific Gravity[1]	1.57	--		ISO 1183
Molding Shrinkage				ASTM D955
Flow	3.0E-3	--	%	
Across Flow	0.13	--	%	
Water Absorption (24 hr)	0.24	--	%	ASTM D570

Mechanical	Dry	Conditioned	Unit	Test method
Tensile Modulus	38500	36500	MPa	ISO 527-1
Tensile Stress	290	235	MPa	ISO 527-2
Tensile Strain (Break)	1.1	0.90	%	ISO 527-2
Flexural Modulus	36000	35000	MPa	ISO 178
Flexural Stress	440	365	MPa	ISO 178

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Impact	Dry	Conditioned	Unit	Test method
Charpy Notched Impact Strength				ISO 179
-40°C, Complete Break	6.4	6.0	kJ/m²	
-30°C, Complete Break	6.4	--	kJ/m²	
23°C, Complete Break	6.7	6.3	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179
-40°C, Complete Break	50	30	kJ/m²	
-30°C, Complete Break	50	--	kJ/m²	
23°C, Complete Break	60	35	kJ/m²	
Notched Izod Impact Strength	7.5	--	kJ/m²	ISO 180
Unnotched Izod Impact Strength	45	--	kJ/m²	ISO 180

Thermal	Dry	Conditioned	Unit	Test method
Deflection Temperature Under Load				ISO 75-2/A
1.8 MPa, Unannealed	230	--	°C	
CLTE				ISO 11359-2
Flow : 0 to 80°C	4.0E-6	--	cm/cm/°C	
Flow : 130 to 200°C	2.2E-6	--	cm/cm/°C	
Transverse : 0 to 50°C	4.3E-5	--	cm/cm/°C	
Transverse : 100 to 150°C	9.0E-5	--	cm/cm/°C	
Transverse : 150 to 200°C	1.0E-4	--	cm/cm/°C	

Electrical	Dry	Conditioned	Unit	Test method
Surface Resistivity	2.9E+3	--	ohms	ASTM D4496
Volume Resistivity	8.1E+4	--	ohms·cm	ASTM D4496

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	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 160	°C

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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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