

Amodel® PXM-15115

polyphthalamide

Amodel® PXM-15115 is a 40% carbon-fiber-reinforced, heat-stabilized resin designed for high strength and stiffness and to resist abrasive wear. This grade is also electrically conductive. The resin has low moisture absorption and a low coefficient of thermal expansion, which means excellent dimensional stability. Creep resistance is also exceptional.

This material is ideally suited for many mechanical parts in the automotive, marine, industrial, appliance, and consumer

products industries. Potential applications would include moving parts of mechanical devices, transmission components, engine components, hydraulic device components, compressor parts, and electronic parts requiring high mechanical strength and stiffness with some conductivity.

The resin can be processed easily by injection molding using conventional equipment and methods.

General

Material Status	• Limited Distribution		
Availability	• Asia Pacific	• Europe	• North America
Filler / Reinforcement	• Carbon Fiber, 40% Filler by Weight		
Additive	• Heat Stabilizer		
Features	• Electrically Conductive • Good Abrasion Resistance • Good Creep Resistance	• Good Dimensional Stability • Heat Stabilized • High Stiffness	• High Strength • Low Moisture Absorption
Uses	• Appliances • Automotive Applications	• Consumer Applications • Electrical Parts	• Industrial Applications • Marine Applications
RoHS Compliance	• Contact Manufacturer		
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical

	Typical Value	Unit	Test method
Density	1.40	g/cm ³	ISO 1183/A
Molding Shrinkage			ISO 294-4
Across Flow	0.60	%	
Flow	0.10	%	
Water Absorption (23°C, 24 hr)	0.20	%	ISO 62

Mechanical

	Typical Value	Unit	Test method
Tensile Modulus	32000	MPa	ISO 527-2
Tensile Stress (Yield)	280	MPa	ISO 527-2
Tensile Strain (Yield)	1.2	%	ISO 527-2
Flexural Modulus	30000	MPa	ISO 178
Flexural Stress (3.5% Strain)	400	MPa	ISO 178

Impact

	Typical Value	Unit	Test method
Notched Izod Impact Strength			ISO 180
--	6.0	kJ/m ²	
-40°C, Complete Break	5.4	kJ/m ²	

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Impact	Typical Value	Unit	Test method
Unnotched Izod Impact Strength			ISO 180
--	45	kJ/m ²	
-40°C	35	kJ/m ²	

Thermal	Typical Value	Unit	Test method
Heat Deflection Temperature			ISO 75-2/A
1.8 MPa, Unannealed	280	°C	
CLTE			ASTM E831
Flow : 0 to 50°C	3.9E-6	cm/cm/°C	
Flow : 50 to 100°C	2.8E-6	cm/cm/°C	
Flow : 100 to 150°C	3.1E-6	cm/cm/°C	
Transverse : 0 to 50°C	5.8E-5	cm/cm/°C	
Transverse : 50 to 100°C	6.7E-5	cm/cm/°C	
Transverse : 100 to 150°C	9.2E-5	cm/cm/°C	

Electrical	Typical Value	Unit	Test method
Surface Resistivity	4.0E+5	ohms	ASTM D257
Volume Resistivity	2.0E+5	ohms·cm	ASTM D257

Additional Information

Volume Resistance, ESD STM 11.12: 2e4 ohm

Surface Resistance: ESD STM 11.11: 4e4 ohm

Wear Factor, at P=0.345 MPa (50 psi), V=0.25 m/s (50 ft/min): 9e-10 mm-s/MPa-hr (12e-10 in³-min/ft-lb-hr)

Kinetic Coefficient of Friction: 0.20

Injection	Typical Value	Unit
Drying Temperature	120	°C
Drying Time	4.0	hr
Drying Time, Maximum	8.0	hr
Suggested Max Moisture	0.060	%
Rear Temperature	304 to 318	°C
Front Temperature	315 to 329	°C
Processing (Melt) Temp	321 to 343	°C
Mold Temperature	135	°C

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Notes

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

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