

Torlon® 4601

polyamide-imide

Torlon® 4601 is a specialty wear-resistant grade of polyamide-imide (PAI). Most Torlon® PAI grades cannot be molded successfully in molds with undercuts. Torlon® 4601 has been formulated to be moldable in tools with minor undercuts and give very good performance in lubricated wear applications.

Potential applications for Torlon® 4601 polyamide-imide include ball bearing cages and other molded articles that require undercut tooling.

Torlon® PAI has the highest strength and stiffness of any thermoplastic up to 275°C (525°F). It has outstanding resistance to wear, creep, and chemicals.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • North America	• South America
Features	• Flame Retardant • Good Chemical Resistance	• Good Creep Resistance • Good Wear Resistance	• High Heat Resistance • High Temperature Strength
Uses	• Bearings	• Industrial Applications	
RoHS Compliance	• Contact Manufacturer		
Forms	• Pellets		
Processing Method	• Injection Molding	• Machining	• Profile Extrusion

Physical

	Typical Value	Unit	Test method
Specific Gravity	1.39	g/cm ³	ASTM D792

Mechanical

	Typical Value	Unit	Test method
Tensile Modulus	4210	MPa	ASTM D638
Tensile Strength	121	MPa	ASTM D638
Tensile Elongation (Break)	4.1	%	ASTM D638
Flexural Modulus	4480	MPa	ASTM D790
Flexural Strength	182	MPa	ASTM D790
Shear Strength	108	MPa	ASTM D732

Impact

	Typical Value	Unit	Test method
Notched Izod Impact	230	J/m	ASTM D256
Unnotched Izod Impact	370	J/m	ASTM D256

Thermal

	Typical Value	Unit	Test method
Deflection Temperature Under Load 1.8 MPa, Unannealed	284	°C	ASTM D648

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Injection	Typical Value	Unit
Drying Temperature	177	°C
Drying Time	3.0	hr
Suggested Max Moisture	0.050	%
Rear Temperature	304	°C
Nozzle Temperature	371	°C
Mold Temperature	199 to 216	°C
Back Pressure	6.89	MPa
Screw Speed	50 to 100	rpm
Screw L/D Ratio	18.0:1.0 to 24.0:1.0	

Injection Notes

Minimum drying times are: 3 hours at 350°F, 4 hours at 300°F, or 16 hours at 250°F.

Compression Ratio: 1:1 to 1.5:1

Begin hold pressure at a high setting 6,000-8,000 psi (41.37-55.16 MPa), for several seconds, then drop off to 3,000-5,000 psi (20.69-34.48 MPa), for the duration of the hold pressure sequence.

Molded parts must be cured.

Notes

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

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