

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

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

Injection	Typical Value	Unit
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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For assistance with an emergency involving this product, such as spill, leak, fire or explosion, call day or night:

Emergency Health Information

USA +1.800.621.4590
International +1.770.772.8577

Emergency Spill Information

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+1.703.527.3887 (CHEMTREC)
Europe +44.208.762.8322 (CARECHEM)
China +86.10.5100.3039
All other Asian countries +65.633.44.177

For additional product information, technical assistance and Material Safety Data Sheets (MSDS), call:

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