



Product Datasheet

Torlon® 4301 PAI

Bearing and Wear Grade, Extruded



Torlon 4301 is a general purpose bearing grade polyamide-imide containing 12% graphite and 3% PTFE powder for reduced friction and a low wear rate. It is the toughest and most commonly specified of the Torlon wear grades. It is ideal for:

- Highly loaded bearings and bushings
- Ball bearing retainers/spacers
- Thrust washers and piston rings
- Wear pads and sliding surfaces

Material Notes: *Torlon 4301 contains 12 % graphite powder and 3% PTFE. The wear rate and limiting PV for machined parts can be improved by post curing parts after machining to achieve optimum wear resistance on the part's outer surface.*

Physical Properties	Metric	English	Methods
Specific Gravity	1.45 g/cc	.053 lb/in ³	ASTM D792
Water Absorption	0.4%	0.4 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	1.5%	1.5 %	Immersion; ASTM D570(2)

Mechanical Properties*

Hardness, Rockwell M		M106	ASTM D785
Hardness, Rockwell		E70	ASTM D785
Hardness, Shore D		90	ASTM D2240
Tensile Strength, Ultimate	138 MPa	15,000 psi	ASTM D638
Elongation at Break	5 %	5 %	ASTM D638
Tensile Modulus	6200 MPa	900,000 psi	ASTM D638
Flexural Modulus	5520 MPa	800,000 psi	ASTM D790
Flexural Yield Strength	159 MPa	23,000 psi	ASTM D790
Compressive Strength	152 MPa	22,000 psi	10% Def.; ASTM D695
Compressive Modulus	6,552 MPa	950,000 psi	ASTM D695
Izod Impact (notched)	42 J/M	0.8	ASTM D256 Type A

Thermal Properties

Melt Point/T _g	275 °C	527°F	ASTM D3418
Heat Deflection Temp (264 psi)	278°C	532°F	ASTM TMA
Coefficient of Linear Thermal Expansion	2.5 x 10 ⁻⁵ C ⁻¹	1.4 x 10 ⁻⁵ F ⁻¹	E831 TMA

*The mechanical properties of extruded shapes may differ from the values published by resin producers. Published resin data is always generated off injection molded test specimens run under near perfect conditions. Drake's extruded shape values are generated using specimens machined from actual shapes and may reflect surface imperfections from machining, enhanced crystallinity resulting from processing and fiber alignment inherent in all reinforced plastic shapes, regardless of process. For additional information on the effects of fiber alignment see Drake Fiber Orientation Diagram available on the Resource page of our website.