



TORLON® 4301 PAI

Bearing & Wear Grade

DESCRIPTION

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

TYPICAL APPLICATIONS:

- Highly loaded bearings and bushings
- Thrust washers and piston rings
- Ball bearing retainers/spacers
- 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.

EXTRUDED SHAPES PROPERTIES

| PHYSICAL PROPERTIES | METRIC | IMPERIAL | METHODS |
|---|--|--|-------------------------------|
| Specific Gravity | 1.45 g/cc | 0.053 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 | 6552 MPa | 950,000 PSI | ASTM D695 |
| Izod Impact (notched) | 42 J/m | 0.8 ft-lbs/in. | ASTM D256 Type A |
| THERMAL PROPERTIES | | | |
| Glass Transition Temp./T _g | 275° C | 527° F | ASTM D3418 |
| Heat Deflection Temperature (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 from test specimens injection molded under optimum conditions. Drake's extruded shape values are generated using specimens machined from actual shapes and may reflect surface imperfections from machining, enhanced crystallinity as a result of 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.