



DRAKE® 4645 PAI

Bearing and Wear Grade for Lubricated Service

DESCRIPTION

DRAKE 4645 PAI¹ is formulated with PTFE and carbon fiber to provide outstanding wear resistance in lubricated wear applications. Its wear rate and limiting PV are best among the Torlon grades.

TYPICAL APPLICATIONS:

- Thrust washers
- Transmission seal rings
- Sliding vanes
- Engine bushings

Material Notes: 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 surfaces.

EXTRUDED SHAPES PROPERTIES

| PHYSICAL PROPERTIES | METRIC | IMPERIAL | METHODS |
|---|--|--|-------------------------------|
| Specific Gravity | 1.56 g/cc | 0.056 lb/in ³ | ASTM D792 |
| Water Absorption | 0.2% | 0.2% | Immersion, 24hr; ASTM D570(2) |
| Water Absorption at Saturation | 1.5% | 1.5% | Immersion; ASTM D570(2) |
| MECHANICAL PROPERTIES ² | | | |
| Hardness, Rockwell M | | M106 | ASTM D785 |
| Hardness, Rockwell | | E62 | ASTM D785 |
| Hardness, Shore D | | 84 | ASTM D2240 |
| Tensile Strength, Ultimate | 83 MPa | 17,000 PSI | ASTM D638 |
| Elongation at Break | 2% | 2% | ASTM D638 |
| Tensile Modulus | 5520 MPa | 1,200,000 PSI | ASTM D638 |
| Flexural Modulus | 5520 MPa | 1,100,00 PSI | ASTM D790 |
| Flexural Yield Strength | 105 MPa | 15,000 PSI | ASTM D790 |
| Compressive Strength | 125 MPa | 21,000 PSI | 10% Def.; ASTM D695 |
| Compressive Modulus | 5172 MPa | 750,000 PSI | ASTM D695 |
| Izod Impact (notched) | 38 J/m | 0.7 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 | 1.4 x 10 ⁻⁵ C ⁻¹ | 0.8 x 10 ⁻⁵ F ⁻¹ | E831 TMA |

¹ Drake compounds Drake 4645 PAI resin for extrusion and injection molding using genuine Torlon PAI. The technology was developed in collaboration with Syensqo, the Torlon resin producer, to maintain supply of specialty PAI grades.

² 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.