

# Material Properties

## Unfilled Polyimide

### Material code: 6001

It offers outstanding wear resistance, long-term high temperature stability, and excellent mechanical strength and creep resistance at elevated temperatures. PI possesses the best electrical and thermal insulation values. PI is one of the highest temperature resistant plastics in the market and it is very well suited for high pressure, high velocity applications. PI is routinely used in high temperature bushings and bearings, starter bushings, spacers, valve seats, gaskets, insulators, and fuel pump bearings, seals, and valves. Since imide moiety of PI is hydrophilic, it is not suitable for steam service.

Physical Properties	ASTM Method	Typical Values
Specific Gravity	D792	1.34 gr/cm <sup>3</sup>
Water Absorption (24 hrs. @ 74°F)	D570	0.62 %
Color	N/A	Tan
<b>Mechanical Properties</b>		
Tensile Strength	D1708	11,500 psi
Elongation	D1708	
• At Break		7.5%
Flexural Strength	D790	12,000 psi
Flexural Modulus	D790	360,000 psi
Compressive Strength	D695	16,000 psi
Compressive Modulus	D695	350,000 psi
Impact Strength (Izod, notched)	D256	0.8 ft-lb/in
Hardness	Shore D	82
<b>Tribological Properties</b>		
Coefficient of friction	D3702	
• Static		0.38
• Dynamic		0.29
Wear rate (PV: 20,000 psi-fpm)	D3702	3.0 uin/min
<b>Thermal Properties</b>		
Coefficient of Linear Thermal Expansion (78-400°F)	D696	30 10 <sup>-6</sup> °F
Heat Deflection Temperature (F/C @ 264 psi)	D648	680°F
Glass Transition Temperature (T <sub>g</sub> )	D3418	625°F
Melting Point		N/A
Continuous Service Temperature (Max @ no load)		600°F
<b>Electrical Properties</b>		
Volume Resistivity (ohm-cm) @ 50% RH	D257	10 <sup>15</sup> ohm-cm
Dielectric Strength	D149	KV/mm
Dielectric Constant	D150	Hz, 200°F

**Note:** Property values should be interpreted as typical rather than minimum value. All technical information and recommendations are presented in good faith, and based upon laboratory and real-world tests believed to be reliable and practical. However, K.C. Seals, Inc. cannot guarantee the accuracy or completeness of this information, and it is the customers' responsibility to determine product suitability to any given application.

