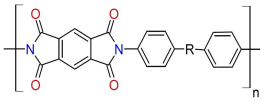
Polyimide (PI)



Description

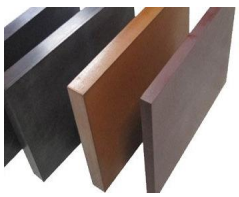
Polyimide (PI) materials are characterized by a ring-shaped molecular structure containing nitrogen and because of it's high-performance polyimide offers a broad combination of temperature resistance, chemical resistance, mechanical toughness, natural lubricity, wear-resistance & insulation properties. PI is one of the highest performing engineering plastics currently available. Polyimide (PI) will not melt and can operate continuously from cryogenic temperatures to 550°F (288°C), with excursions to 900°F (482°C).Polyimide (PI) consistently exhibit superior performance in a variety of applications requiring low wear and long life in hostile environments.

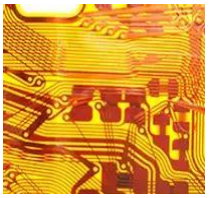
Typical properties

Mechanical Property	Temperature	ASTM	Units	Typical Values
Tensile Strength	23 °C 260 °C	D-1708	MPa (kpsi)	90 42
Strain at Break	23 °C 260 °C	D-1708	%	8 7.5
Flexural Strength	23 °C 260 °C	D-790	MPa (kpsi)	110 60
Flexural Modulus	23 °C 260 °C	D-790	MPa (kpsi)	3100 1700
Shear Strength	23 °C	D-732	MPa (kpsi)	90
Izod Unotched Impact Strength	23 °C	D-256	J /m	120
Poisson's Ratio	23 °C	–	–	0.4
Surface resistivity	23 °C	D257	Ω·m	–
Coefficient of thermal expansion	23 °C	D696	μm/m/°C	50
Friction coefficient	–	–	–	0.29
Water Absorption	23 °C (24h)	D570	%	–
Density	g/Cm3	D792		1.34

Application

Aerospace: Bushings, seals, thrust washers, vacuum-environment structural parts;
Automotive & E-mobility: E-axle bearing insulation, transmission seal rings, turbocharger components, shift-fork pads, hydrogen-valve seats & packings;
Semiconductor: Low-outgassing vacuum components, insulators;
Energy & Fluid handling: Compressor rider bands, pump piston rings, high-temperature sealing elements;
Industrial equipment: High-temperature bearings, wear rings, non-abrasive sliding parts against aluminium alloy;





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