

Polyimide (PI)

Unfilled

KEY FEATURES

- Superior High Temperature Characteristics
- High Strength and Stiffness Properties
- Excellent Long-Term Thermal Stability
- High Purity Characteristics
- Outstanding Bearing and Wear Properties
- Good Chemical Resistance
- Excellent Creep Resistance

DESCRIPTION

Polyimide (PI) provides a superior combination of high temperature, bearing and wear properties that make it an ideal choice for the most demanding applications. Unfilled PI is very pure and exhibits low outgassing. It is also characterized by its long term thermal stability, outstanding wear resistance, high creep resistance, and strength up to its continuous use temperature of 536° F.

TYPICAL PROPERTY VALUES

Physical	Properties	Condition	Units	Value	ASTM Test
	Chemical Designation			PI	
	Density		g/cm ³	1.38	D792
	Filler				

Mechanical	Properties	Condition	Units	Value	ASTM Test
	Tensile Modulus	@ 73 °F	PSI	600,000	D638
	Tensile Strength	@ 73 °F	PSI	12,500	D638
	Shear Strength	@ 73 °F	PSI	13,000	D732
	Elongation @ Yld	@ 73 °F	%		
	Elongation @ Brk	@ 73 °F	%	4.4	D638
	Compressive Strength	@ 73 °F, 10% strain	PSI	19,300	D695
	Flexural Modulus	@ 73 °F	PSI	450,000	D790
	Flexural Strength	@ 73 °F	PSI	16,000	D790
	Compressive Modulus	@ 73 °F	PSI	350,000	D695
	Izod (Charpy) Impact Strength	@ 73 °F	ft-lbs/in	41.8	D256
	Rockwell Hardness	@ 73 °F	M (R) Scale		
	Coefficient of Friction	Static			
	Wear (K) Factor	Dynamic, 40PSI	in ³ -min/ft-lbs-hr		
Limiting PV		psi-fpm			

Thermal	Properties	Condition	Units	Value	ASTM Test
	Heat Deflection Temperature	@ 66 PSI	°F		
	Service Temperature	Long Term	°F	536	
	Heat Deflection Temperature	@ 264 PSI	°F	>600	D648
	Service Temperature	Intermittent	°F	626	
	Thermal Expansion (CLTE)		in/in/°F	3.0*10 ⁻⁵	D696
	Specific Heat		BTU/lb-°F	0.221	
Thermal Conductivity		BTU-in/hr-ft ² -°F	1.53		

Electrical	Properties	Condition	Units	Value	ASTM Test
	Surface Resistivity		ohms/square	5.0*10 ¹⁶	D257
	Volume Resistivity		ohm-cm	8.0*10 ¹⁵	D257
	Dielectric Strength		V/mil	544	D149
	Dielectric Constant	@ 60 Hz, 73 °F			D150
	Dissipation Factor	@ 60 Hz, 73 °F		0.003	D150

Other	Properties	Condition	Units	Value	ASTM Test
	Moisture Absorption	@ 24 hrs, 73 °F	%	0.24	D570
	Moisture Absorption	@ Saturation, 73 °F	%		
	Flammability	UL 94		V-0	
	Food Grade			N	
	Relative Cost			\$\$\$ \$ \$ \$	

• The data stated above are typical values intended for reference and comparison purposes only.
• The data should not be used as a basis for design specifications or quality control.

• The information is provided as a guide to the best of our knowledge and given without obligation or liability.
• Testing under individual application circumstances is recommended