

Polyamide-Imide (PAI)

Bearing Grade

KEY FEATURES

- Excellent Weather and Gamma Radiation Resistance
- Outstanding Bearing and Wear Properties
- High Strength and Stiffness Properties
- Excellent Electrical Values
- Good Chemical Resistance
- Maintains a High Proportion of Mechanical Properties Over a Broad Temperature Spectrum (Cryogenic to 500°F)

DESCRIPTION

High performance melt processable polyamide-imide (PAI), that maintains its excellent mechanical and wear properties in temperature environments exceeding 500°F. Bearing Grade PAI offers high PV capabilities in bearing applications, primarily at high loads and low speeds.

TYPICAL PROPERTY VALUES

Physical	Properties	Condition	Units	Value	ASTM Test
	Density		g/cm ³	1.46	D792
	Chemical Designation			PAI	
	Filler			Lubricated	

Mechanical	Properties	Condition	Units	Value	ASTM Test
	Tensile Modulus	@ 73 °F	PSI	900,000	D638
	Tensile Strength	@ 73 °F	PSI	15,000	D638
	Shear Strength	@ 73 °F	PSI		
	Elongation @ Yld	@ 73 °F	%		
	Elongation @ Brk	@ 73 °F	%	10	D638
	Flexural Modulus	@ 73 °F	PSI	870,000	D790
	Flexural Strength	@ 73 °F	PSI	23,000	D790
	Compressive Modulus	@ 73 °F	PSI		
	Compressive Strength	@ 73 °F, 10% strain	PSI	30,000	D695
	Izod (Charpy) Impact Strength	@ 73 °F	ft-lbs/in	2	D256
	Rockwell Hardness	@ 73 °F	M (R) Scale	106	D785
	Coefficient of Friction	Static			
	Coefficient of Friction	Dynamic, 40PSI, 50 FPM		0.2	
	Wear (K) Factor		in ³ -min/ft-lbs-hr	10	
Limiting PV		psi-fpm	22,500		

Thermal	Properties	Condition	Units	Value	ASTM Test
	Heat Deflection Temperature	@ 66 PSI	°F		
	Service Temperature	Long Term	°F	500	
	Heat Deflection Temperature	@ 264 PSI	°F	534	D648
	Service Temperature	Intermittent	°F		
	Thermal Expansion (CLTE)		in/in/°F		
	Specific Heat		BTU/lb-°F		
Thermal Conductivity		BTU-in/hr-ft ² -°F			

Electrical	Properties	Condition	Units	Value	ASTM Test
	Surface Resistivity		ohms/square		
	Volume Resistivity		ohm-cm	>10 ⁻¹³	ANSI/ESD STM 11.11
	Dielectric Strength		V/mil		
	Dielectric Constant	@ 60 Hz, 73 °F 50% RH			
Dissipation Factor	@ 60 Hz, 73 °F				

Other	Properties	Condition	Units	Value	ASTM Test
	Moisture Absorption	@ 24 hrs, 73 °F	%	3	D570
	Moisture Absorption	@ Saturation, 73 °F	%	1.5	D570
	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