

# POLYETHERETHERKETONE (PEEK)

## KEY FEATURES

- Excellent Flexural, Impact and Tensile Characteristics
- Very High Continuous Working Temperature
- Very High Heat Deflection Temperature
- Exceptional Chemical Resistance
- Good Radiation Resistance
- A Superior Dielectric at High Temperatures and Frequencies
- Outstanding Wear and Abrasion Resistance
- Low Smoke and Toxic Gas Emissions
- Excellent Hydrolysis Resistance

## DESCRIPTION

Well known for its high temperature resistance, PEEK is a unique semicrystalline, engineering thermoplastic that also offers excellent chemical compatibility. Parts manufactured from PEEK can operate at temperatures up to 260°C (480°F) and has a melting point around 341°C (646°F). PEEK is often used in hot water or steam environments while maintaining physical properties such as flexural and tensile strength on a high level.

## TYPICAL PROPERTY VALUES

	Properties	Condition	Units	Value	ASTM Test
Physical	Chemical Designation			PEEK	
	Filler				
	Density		g/cm <sup>3</sup>	1.31	D792
Mechanical	Tensile Modulus	@ 73 °F	PSI	650,000	D638
	Tensile Strength @ Yld	@ 73 °F	PSI	16,000	D638
	Tensile Strength @ Brk	@ 73 °F	PSI	16,000	D638
	Shear Strength	@ 73 °F	PSI		
	Elongation @ Yld	@ 73 °F	%	4.9	D638
	Elongation @ Brk	@ 73 °F	%	40	D638
	Flexural Modulus	@ 73 °F	PSI	600,000	D790
	Flexural Strength	@ 73 °F	PSI	26,000	D790
	Compressive Modulus	@ 73 °F	PSI	493,000	D695
	Compressive Strength	@ 73 °F, 10% strain	PSI	17,500	D695
	Izod (charpy) Impact Strength	@ 73 °F	ft-lbs/in	0.95	D256
	Rockwell Hardness	@ 73 °F	M (R) Scale	99	D785
	Coefficient of Friction	Static			
	Coefficient of Friction	Dynamic, 40PSI, 50 FPM		0.2	D3702
	Wear (K) Factor		in <sup>3</sup> -min/ft-lbs-hr	200*10 <sup>-10</sup>	D3702
	Limiting PV		psi-fpm	69,000	D3702

### TYPICAL PROPERTY VALUES

	Properties	Condition	Units	Value	Value
<b>Thermal</b>	Vicat Softening Point		°F		
	Melting Temperature		°F	633	
	Heat Deflection Temperature	@ 66	°F		
	Heat Deflection Temperature	@ 264	°F	320	D648
	Service Temperature	Intermittent	°F	572	
	Service Temperature	Long Term	°F	480	
	Thermal Expansion (CLTE)		in/in/°F	2.5*10 <sup>-5</sup>	D696
	Specific Heat		BTU/lb-°F		
	Thermal Conductivity		BTU-in/hr-ft <sup>2</sup> -°F	2.01	
<b>Electrical</b>	Surface Resistivity		ohms/square	1.0*10 <sup>16</sup>	D257
	Volume Resistivity		ohm-cm	1.0*10 <sup>14</sup>	D149
	Dielectric Strength		V/mil	630	D257
	Dielectric Constant	@ 60 Hz, 73 °F 50% RH		2.8	D150
	Dissipation Factor	@ 60 Hz, 73 °F		0.003	D150
	<b>Other</b>	Moisture Absorption	@ 24 hrs, 73 °F	%	0.02
Moisture Absorption		@ Saturation, 73 °F	%	0.45	D570
Flammability		UL 94		V-0	
Food Grade				Y	
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.