

## TECAPEEK® natural polyetheretherketone - Stock Shapes

### Chemical Designation

PEEK (Polyetheretherketone)

### Colour

beige opaque

### Density

1.31 g/cm<sup>3</sup>

### Main features

- made exclusively from Victrex® resin
- excellent chemical resistance
- high thermal resistance
- good heat deflection temperature
- good machinability
- very good slide and wear properties
- hydrolysis and superheated steam resistant

### Target Industries

- aircraft and aerospace technology
- oil and gas industry
- chemical plant engineering
- semiconductor technology
- food engineering
- medical technology
- automotive industry
- process engineering
- mechanical engineering

Mechanical properties	condition	value	test method	comment
Modulus of elasticity (tensile test)	1% Sec, 73 °F	650,000 psi	ASTM D 638	(1) Data obtained from public source
Wear (K) factor	40 psi, 50 fpm	30 *10 <sup>-10</sup> in <sup>3</sup> -min/ft-lb-hr	ASTM D 3702	(2) Data obtained from public source
Tensile strength at yield	@ 73 °F	16,000 psi	ASTM D 638	(3) Injection molded specimen
Tensile strength at break	@ 73 °F	16,000 psi	ASTM D 638	1)
Elongation at yield	@ 73 °F	4.9 %	ASTM D 638	
Elongation at break	@ 73 °F	40 %	ASTM D 638	
Flexural strength	@ 73 °F	26,000 psi	ASTM D 790	
Modulus of elasticity (flexural test)	@ 73 °F	600,000 psi	ASTM D 790	
Compression strength	@ 73 °F 10% strain	17,500 psi	ASTM D 695	
Compression modulus	@ 73 °F	493,000 psi	ASTM D 695	2)
Notched impact strength (Izod)	@ 73 °F	0.95 ft-lbs/in	ASTM D 256	
Rockwell hardness	M Scale	99	ASTM D 785	
Coefficient of friction	@ 68 °F 1200 in/min, 155 lbs load	0.18	ASTM D 3702	3)

Thermal properties	condition	value	test method	comment
Melting temperature		633 °F	-	(1) Injection molded specimen
Deflection temperature	@264 psi	320 °F	ASTM D 648	1) (2) Injection molded specimen
Service temperature	Long Term	480 °F	-	2) (3) Data obtained from public source
Service temperature	short term	572 °F	-	3) (4) Injection molded specimen
Thermal expansion (CLTE)		2.6*10 <sup>-5</sup> in/in/°F	ASTM D 696	4) (5) Injection molded specimen
Thermal conductivity		1.7 BTU-in/hr-ft <sup>2</sup> -°F	ASTM C 177	5)

Electrical properties	condition	value	test method	comment
Specific surface resistance		1.0*10 <sup>16</sup> Ω/square	ASTM D 257	1) (1) Injection molded specimen
Volume resistivity	@ 73 °F	4.9*10 <sup>16</sup> Ω*cm	ASTM D 149	2) (2) Injection molded specimen
Dielectric strength		190 V/mil	ASTM D 257	3) (3) Injection molded specimen

Other properties	condition	value	test method	comment
Moisture absorption	@ saturation, 73 °F	0.5 %	ASTM D 570	(1) Injection molded specimen 3.0mm
Moisture absorption	@ 24 hrs, 73 °F	0.5 %	ASTM D 570	
Flammability (UL94)		V-0 %	-	1)

→ Resin specification:  
ASTM D4000-11 PEEK; MIL-P-46183 Ty. I  
Shapes specification:  
ASTM D6262-12 S-PAEK0111

→ TECAPEEK products are based on Victrex® PEEK polymer.

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