

## TECAPEEK® natural polyetheretherketone - Stock Shapes (rods, plates, tubes)

### 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
- food 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
Tensile strength at yield	@ 73 °F	16000 psi	ASTM D 638	(2) Injection molded specimen data obtained from public source
Tensile strength at break	@ 73 °F	8900 psi	ASTM D 638	(3) injection molded specimen, data obtained from public source
Elongation at yield	@ 73 °F	4.9 %	ASTM D 638	
Elongation at break	@ 73 °F	30 %	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	20,000 psi	ASTM D 695	
Compression strength	@ 73 °F 5% strain	16,000 psi	ASTM D 695	
Compression strength	@ 73 °F 1% strain	3,400 psi	ASTM D 695	
Compression modulus	@ 73 °F	493,000 psi	ASTM D 695	1)
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 Static, 40 psi	0.20	ASTM D 3702	2)
Coefficient of friction	@ 68 °F, Dynamic 40 psi 50 fpm	.25	ASTM D 3702	3)
Wear (K) factor	40 psi, 50 fpm	200x 10 <sup>-7</sup>	in <sup>3</sup> -min/ft-lbs-hr ASTM D 3702	

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)
Service temperature	short term	572 °F	-	2)
Service temperature	Long Term	480 °F	-	3)
Thermal expansion (CLTE)	< Tg, along flow	2.5	*10 <sup>-5</sup> in/in/°F DIN EN ISO 11359-1;2	4)
Thermal conductivity		2.01	BTU-in/hr-ft <sup>2</sup> -°F ISO 22007-4:2008	5)

Electrical properties	condition	value	test method	comment
surface resistivity		1.0*10 <sup>16</sup>	Ω/square ASTM D 257	1)
Volume resistivity	@ 73 °F	4.9*10 <sup>16</sup>	Ω*cm ASTM D 149	2)
Dielectric strength	0.1" thick IEC 60243-1	630	V/mil -	3)
Dissipation factor	@ 73 °F, 1 MHz	0.003	DIN IEC 60250	4)
Dielectric constant	@ 73 °F, 1 kHz	2.8	DIN IEC 60250	5)

Other properties	condition	value	test method	comment
Limiting PV		69000	psi-fpm ASTM D 3702	1)
Moisture absorption	@ saturation, 73 °F	0.45	% DIN EN ISO 62	2)
Moisture absorption	@ 24 hrs, 73 °F	0.02	% ASTM D 570	3)
Flammability (UL94)		V0	-	3)
Flammability	3 mm	pass	FAR 25.853	4)

→ 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.

This information reflects the current state of our knowledge and is intended only to assist and advise. It is given without obligation or liability. It does not assure or guarantee chemical resistance, quality of products or their suitability in any legally binding way. Values are not minimum or maximum values, but guidelines that can be used for comparative purposes in material selection. They are within the normal range of product properties and do not represent guaranteed property values. Testing under individual application circumstances is always recommended. Data is obtained from extruded shapes material unless otherwise noted. References to FDA compliance refer to the resins from which the products were made unless otherwise noted. All trade and patent rights should be observed. All rights reserved. Data sheet values are subject to periodic review, the most recent update can be found at [www.ensingerplastics.com](http://www.ensingerplastics.com).

---

**Ensinger Inc. Headquarters**  
365 Meadowlands Boulevard  
Washington, PA 15301, USA

Phone 800-243-3221 Sales  
Phone 800-869-4029 Technical  
Fax 724-746-9209  
[sales@ensinger-ind.com](mailto:sales@ensinger-ind.com)

Date: 2020/09/11

**Version: A3**