

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

Chemical Designation

PEEK (Polyetheretherketone)

Colour

beige opaque

Density

1.31 g/cm³

Main features

- 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	unit	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	9000	psi	ASTM D 638	(3) injection molded specimen, data obtained from public source
Elongation at yield (tensile test)	@ 73 °F	4.9	%	ASTM D 638	
Elongation at break (tensile test)	@ 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	0.90	ft-lbs/in	ASTM D 256	
Rockwell hardness	M Scale	100		ASTM D 785	
Rockwell hardness	R scale	125		ASTM D 785	
Shore hardness	D scale	88		ASTM D 2240	
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 ⁻⁷	in ³ -min/ft-lbs-hr	ASTM D 3702	
Thermal properties	condition	value	unit	test method	comment
Melting temperature		633	°F	-	(1) Injection molded specimen
Deflection temperature	@264 psi	320	°F	ASTM D 648	(2) Injection molded specimen
Service temperature	Long Term	480	°F	-	(3) Data obtained from public source
Service temperature	short term	572	°F	-	(4) Injection molded specimen from public source
Thermal expansion (CLTE)	73 F to 140 F	2.7	*10 ⁻⁵ in/in/°F	ASTM E 831	
Thermal expansion (CLTE)	73 F to 212 F	2.82	*10 ⁻⁵ in/in/°F	ASTM E 831	
Thermal expansion (CLTE)	212 F to 302 F	3.35	*10 ⁻⁵ in/in/°F	ASTM E 831	
Thermal conductivity		2.01	BTU-in/hr-ft ² -°F	ISO 22007-4:2008	4)
Electrical properties	condition	value	unit	test method	comment
surface resistivity		1.0*10 ¹⁶	Ω/square	ASTM D 257	1) (1) Injection molded specimen
volume resistance	@ 73 °F	4.9*10 ¹⁶	Ω*cm	ASTM D 149	2) (2) Injection molded specimen
Dielectric strength	0.1" thick IEC 60243-1	630	V/mil	-	3) (3) Injection molded specimen
Dissipation factor	@ 73 °F, 1 MHz	0.003		DIN IEC 60250	4) (4) Injection molded specimen from public source
Dielectric constant	@ 73 °F, 1 kHz	2.8		DIN IEC 60250	5) (5) injection molded data from public source
Other properties	condition	value	unit	test method	comment
Limiting PV		69000	psi-fpm	ASTM D 3702	1) (1) publicly sourced data
Moisture absorption	@ saturation, 73 °F	0.45	%	DIN EN ISO 62	2) (2) injection molded data, publicly sourced data
Moisture absorption	@ 24 hrs, 73 °F	0.03	%	ASTM D 570	3) (3) Injection molded specimen 3.0mm
Flammability (UL94)		V0		-	3) (4) 3 mm test specimen
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 may be based on Victrex® PEEK or Solvay KetaSpire® 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

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