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

Chemical Designation
PEEK (Polyetheretherketone)

Colour
beige opaque

Density
1.31 g/cm^3

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 (2) Data obtained from public source (3) injection molded specimen, data obtained from public source (4) Injection molded specimen data obtained from public source
Tensile strength at yield	@ 73 °F	16,000	psi	ASTM D 638		
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	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 1% strain	3,400	psi	-		
Compression strength	@ 73 °F 10% strain	20,000	psi	ASTM D 695		
Compression strength	@ 73 °F 5% strain	16,000	psi	-		
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, Dynamic 40 psi 50 fpm	.25		ASTM D 3702	3)	
Coefficient of friction	@ 68 °F Static , 40 psi	0.20		ASTM D 3702	4)	
Wear (K) factor	40 psi, 50 fpm	200	*10^{-10} in^3 -min/ft-lb-hr	ASTM D 3702		

Thermal properties	condition	value		test method		comment
Melting temperature		633	°F	-		(1) Injection molded specimen (2) Data obtained from public source (3) Injection molded specimen (4) Injection molded specimen from public source (5) Injection molded specimen from public source
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 fllow	2.5	*10^{-5} in/in/°F	DIN EN ISO 11359-1;2	4)	
Thermal conductivity		2.01	BTU-in/hr-ft^2-°F	ISO 22007-4:2008	5)	

Electrical properties	condition	value		test method		comment
surface resistivity		1.0*10^{16}	Ω/square	ASTM D 257	1)	(1) Injection molded specimen (2) Injection molded specimen (3) Injection molded specimen (4) Injection molded specimen from public source (5) injection molded data from public source
Volume resistivity	@ 73 °F	4.9*10^{16}	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)	(1) publicly sourced data (2) injection molded data, publicly sourced data (3) 3 mm test specimen (4) Injection molded specimen 3.0mm
Moisture absorption	@ saturation, 73 °F	0.45	%	DIN EN ISO 62	2)	
Moisture absorption	@ 24 hrs, 73 °F	0.02	%	ASTM D 570		
Flammability	3 mm	pass		FAR 25.853	3)	

Flammability (UL94)	V0	-	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.

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