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

Chemical Designation
PEEK (Polyetheretherketone)

Colour
black 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
- 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 (2) Injection molded specimen data obtained from public source (3) 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	7,800	psi	ASTM D 638		
Elongation at yield (tensile test)	@ 73 °F	4.9	%	ASTM D 638		
Elongation at break (tensile test)	@ 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	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	0.25		ASTM D 3702	3)	
Wear (K) factor	40 psi, 50 fpm	200	*10^{-10} in^3 -min/ft-lb-hr	ASTM D 3702		

Thermal properties	condition	value	unit	test method		comment
Glass transition temperature	midpoint	302	°F	DIN EN ISO 11357	1)	(1) Data obtained from public source (2) Injection molded specimen (3) Injection molded specimen (4) Data obtained from public source (5) Injection molded specimen from public source (6) Injection molded specimen from public source
Melting temperature		633	°F	-		
Deflection temperature	@264 psi	320	°F	ASTM D 648	2)	
Service temperature	Long Term	480	°F	-	3)	
Service temperature	short term	572	°F	-	4)	
Thermal expansion (CLTE)	< Tg, along fllow	2.5	*10^{-5} in/in/°F	DIN EN ISO 11359-1;2	5)	
Thermal conductivity		2.01	BTU-in/hr-ft^2-°F	ISO 22007-4:2008	6)	

Electrical properties	condition	value	unit	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 resistance	@ 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	unit	test method		comment
Limiting PV		69000	psi-fpm	ASTM D 3702	1)	(1) publicly sourced data (2) injection molded data, publicly sourced data (3) Injection molded specimen 3.0mm (4) Storage temperature range
Moisture absorption	@ saturation, 73 °F	0.45	%	DIN EN ISO 62	2)	
Moisture absorption	@ 24 hrs, 73 °F	0.02	%	ASTM D 570		
Flammability (UL94)		V0		-	3)	
HZ Technical guidelines	Storage Temperature	50 - 100	°F	-	4)	

- Resin specification:
  ASTM D4000-23 PEEK & ASTM D8033-22 PEEK0121
  Shapes specification:
  ASTM D6262-23 S-PAEK0111

- TECAPEEK products may be based on Victrex® PEEK or Syensqo KetaSpire® polymer

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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@ensingerusa.com
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