

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

## Chemical Designation

PEEK (Polyetheretherketone)

## Colour

black 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	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	16,000	psi	ASTM D 638	(2) Injection molded specimen data obtained from public source
Tensile strength at break	@ 73 °F	7,800	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	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 <sup>-10</sup> in <sup>3</sup> -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)
Melting temperature		633	°F	-	(2) Injection molded specimen
Deflection temperature	@264 psi	320	°F	ASTM D 648	(3) Injection molded specimen
Service temperature	Long Term	480	°F	-	(4) Data obtained from public source
Service temperature	short term	572	°F	-	(5) Injection molded specimen from public source
Thermal expansion (CLTE)	< Tg, along flow	2.5	*10 <sup>-5</sup> in/in/°F	DIN EN ISO 11359-1;2	(6) Injection molded specimen from public source
Thermal conductivity		2.01	BTU-in/hr-ft <sup>2</sup> -°F	ISO 22007-4:2008	
Electrical properties	condition	value	unit	test method	comment
surface resistivity		1.0*10 <sup>16</sup>	Ω/square	ASTM D 257	1)
volume resistance	@ 73 °F	4.9*10 <sup>16</sup>	Ω*cm	ASTM D 149	(2) Injection molded specimen
Dielectric strength	0.1" thick IEC 60243-1	630	V/mil	-	(3) Injection molded specimen from public source
Dissipation factor	@ 73 °F, 1 MHz	0.003		DIN IEC 60250	(4) Injection molded data from public source
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)
Moisture absorption	@ saturation, 73 °F	0.45	%	DIN EN ISO 62	(2) injection molded data, publicly sourced data
Moisture absorption	@ 24 hrs, 73 °F	0.02	%	ASTM D 570	(3) Injection molded specimen 3.0mm
Flammability (UL94)		V0		-	(4) Storage temperature range
HZ Technical guidelines	Storage Temperature	50 - 100	°F	-	

→ Resin specification:  
ASTM D4000-13 PEEK & ASTM D8033-16 PEEK0121  
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 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).