



# TECAPEEK™

(polyetheretherketone)

TECAPEEK™, is a unique semi-crystalline, high temperature engineering thermoplastic, is an excellent material for a wide spectrum of applications where thermal, chemical, and combus-

tion properties are critical to performance. Especially significant, in this regard, is TECAPEEK™'s ability to retain its flexural and tensile properties at very high temperatures—in excess of

250°C (482°F). The addition of glass fiber or carbon fiber reinforcements enhances the mechanical and thermal properties of the basic TECAPEEK™ material.

- **Excellent flexural, impact, and tensile characteristics**
- **Very high continuous working temperature**
- **Very high heat distortion temperature**  
For unreinforced TECAPEEK™, the HDT is 160°C (320°F). The addition of 30% reinforcement results in a dramatic increase to 315°C (599°F).
- **Exceptional chemical resistance**  
TECAPEEK™ is insoluble in all common solvents.
- **A superior dielectric at high temperatures and frequencies**
- **Good radiation resistance**  
TECAPEEK™ exhibits superior resistance to high doses of gamma radiation.
- **Outstanding wear and abrasion resistance**
- **Low smoke and toxic gas emissions**
- **Excellent hydrolysis resistance**  
TECAPEEK™ has an excellent resistance to hydrolysis in boiling water and superheated steam (sterilization/auto clavability) at temperatures in excess of 250°C (482°F).

*TECAPEEK™'s exceptional property profile enables it to be utilized in many of the most critical areas in general industry, as well as in the automotive, marine, nuclear, oil well, electronics, medical and aerospace fields.*

# TYPICAL PROPERTY VALUES

PROPERTIES	ASTM Test Method	Units	TECAPEEK™	TECAPEEK™ GF30 30% Glass Reinforced	TECAPEEK™ CF30 30% Carbon Reinforced	TECAPEEK™ PVX	
<b>PHYSICAL</b>	Density	D792	lbs/in <sup>3</sup>	0.0477	0.0538	0.0520	-
	Specific Gravity (gm/cm <sup>3</sup> )	D792		-	-	-	1.48
	Water Absorption, @24 hours, 73°F	D570	%	0.5	0.11	0.06	-
	@Equilibrium, 73°F	-	-	0.5	-	-	-
<b>MECHANICAL</b>	Tensile Strength @ Yield, 73°F	D638	psi	14,000	22,800	30,200	17,300
	Tensile Modulus, 1% Sec, 73°F	D638	psi	522,100	1,406,800	1,885,400	-
	Elongation, Yield, 73°F	D638	%	4.9	-	-	-
	Elongation, Ultimate, 73°F	D638	%	50.0	2.2	1.3	2.5
	Flexural Strength, 73°F	D790	psi	27,700	33,800	46,100	30,000
	Flexural Modulus, Tangent, 73°F	D790	psi	530,000	1,495,200	1,885,400	1,400,000
	Compressive Strength, 73°F	D695	psi	17,100	31,200	34,800	22,000
	Shear Strength, Ultimate, 73°F	D3846	psi	7,600	14,100	14,100	-
	Izod Impact, Notched, 73°F	D256	ft-lbs/in	1.55	1.8	1.6	3.25
	Rockwell Hardness	D785	-	M99	M103	M107	-
	Limiting PV @ 68°F 1200 in/min	-	(psi) (ft/min)	170,000	-	385,000	-
	Coefficient of Friction, @ 68°F	-	-	-	-	-	-
	1200 in/min, 155 lbs Load	D1894-95	μ	0.18	-	0.22	.19-.21
	<b>THERMAL</b>	Deflection Temperature @ 264 psi, 1/4" Maximum Continuous	D648	°F	285	600	600
Use Temperature		-	°F	482	482	482	500
Melting Point		-	°F	633	633	633	633
Coefficient of Thermal Expansion		D696	in/in-°F	2.6 x 10 <sup>-5</sup>	1.2 x 10 <sup>-5</sup>	0.8 x 10 <sup>-5</sup>	3.11 x 10 <sup>-6</sup>
Thermal Conductivity		C177	Btu-in/hr-ft <sup>2</sup> -°F	1.7	3.0	6.37	-
Flammability		UL94	-	V-O	V-O	V-O	-
<b>ELECTRICAL</b>	Volume Resistivity, 73°F	D149	V/mil	500	-	-	-
	Dielectric Strength	D257	ohm-cm	4.9 x 10 <sup>16</sup>	-	1.4 x 10 <sup>5</sup>	1.4 x 10 <sup>5</sup>

This information is only to assist and advise you on current technical knowledge and is given without obligation or liability. All trade and patent rights should be observed. All rights reserved. Data obtained from extruded shapes material. TECAPEEK™ - Ensinger Ind.

## MATERIAL AVAILABILITY

**Rods:** Diameters: 3/16" to 4-3/4" diameter, 10' Length  
5" and greater diameter, 5' Length

**Plates:** 1/4" to 4" thickness inclusive are 2' x 4'

## Primary Specification (Resin) (Typical)

**TECAPEEK®:** MIL-P-46183, Type I

**TECAPEEK® GF30:** MIL-P-46183, Type II Class 3 (Except Elong.)

## Shapes Specification (Typical)

ASTM-D-6262 S-PAEK0111

ASTM-D-6262 S-PAEK0122

**Profiles, tubes, and special sizes are custom-produced on request.**



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**HEADQUARTERS**  
365 Meadowlands Boulevard  
Washington, Pennsylvania 15301

**Telephone:** 800-243-3221 *Sales*  
800-869-4029 *Technical*  
**Fax:** 724-746-9209

e-mail: sales@ensinger-ind.com

**CANADA**  
Ensinger-Plastifab  
8115 Lafrenais Street  
Montreal, Quebec H1P 2B1

**Telephone:** 514-325-9840  
**Fax:** 514-325-5222

Web site: www.plastifab.ca  
E-mail: infoprod@plastifab.ca

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