

TECAPEEK natural - Stock Shapes

Chemical Designation

PEEK (Polyetheretherketone)

Colour

beige opaque

Density

1.31 g/cm³

Main features

- good heat deflection temperature
- good machinability
- inherent flame retardant
- resistance against high energy radiation
- good slide and wear properties
- very good chemical resistance
- high creep resistance
- hydrolysis and superheated steam resistant

Target Industries

- chemical technology
- mechanical engineering
- food technology
- electronics
- energy industry
- oil and gas industry
- aircraft and aerospace technology
- automotive industry
- semiconductor technology
- vacuum technology

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	4200	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	116	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	116	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	5	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	15	%	DIN EN ISO 527-2	
Flexural strength	2mm/min, 10 N	175	MPa	DIN EN ISO 178	2)
Modulus of elasticity (flexural test)	2mm/min, 10 N	4200	MPa	DIN EN ISO 178	
Compression strength	1% / 2% 5mm/min, 10 N	23/43/102	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	3400	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7,5J	n.b.	kJ/m ²	DIN EN ISO 179-1eU	5)
Notched impact strength (Charpy)	max. 7,5J	4	kJ/m ²	DIN EN ISO 179-1eA	
Ball indentation hardness		253	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		150	°C	DIN 53765	1)
Melting temperature		341	°C	DIN 53765	
Heat distortion temperature	HDT, Method A	162	°C	ISO-R 75 Method A	
Service temperature	short term	300	°C		2)
Service temperature	long term	260	°C		
Thermal expansion (CLTE)	23-60°C, long.	5	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	5	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	100-150°C, long.	7	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Specific heat		1.1	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.27	W/(K*m)	ISO 22007-4:2008	
Electrical properties	parameter	value	unit	norm	comment
Specific surface resistance	Silver electrode, 23°C, 12% r.h.	10 ¹⁵	Ω	DIN IEC 60093	1)
Specific volume resistance	Silver electrode, 23°C, 12% r.h.	10 ¹⁵	Ω*cm	DIN IEC 60093	2)
Dielectric strength	23°C, 50% r.h.	73	kV/mm	ISO 60243-1	2)
Resistance to tracking (CTI)	Platin electrode, 23°C, 50% r.h., solvent A	125	V	DIN EN 60112	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		+	-	-	2)
Resistance to weathering		-	-	-	3)
Flammability (UL94)	listed (value at 1.5mm)	V0		DIN IEC 60695-11-10;	

→ TECAPEEK products are based on Victrex® PEEK polymer.

Our information and statements reflect the current state of our knowledge and shall inform about our products and their applications. They do not assure or guarantee chemical resistance, quality of products and their merchantability in a legally binding way. Our products are not defined for use in medical or dental implants. Existing commercial patents have to be observed. The corresponding values and information are no minimum or maximum values, but guideline values that can be used primarily for comparison purposes for material selection. These values are within the normal tolerance range of product properties and do not represent guaranteed property values. Therefore they shall not be used for specification purposes. Unless otherwise noted, these values were determined by tests at reference dimensions (typically rods with diameter 40-60 mm according to DIN EN 15860) on extruded and machined specimen. As the properties depend on the dimensions of the semi-finished products and the orientation in the component (esp. in reinforced grades), the material may not be used without a separate testing under individual circumstances. The customer is solely responsible for the quality and suitability of products for the application and has to test usage and processing prior to use. Data sheet values are subject to periodic review, the most recent update can be found at www.ensinger-online.com. Technical changes reserved.

