

## TECAPEEK natural - Stock Shapes (rods, plates, tubes)

### Chemical Designation

PEEK (Polyetheretherketone)

### Colour

beige opaque

### Density

1.31 g/cm<sup>3</sup>

### 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
Tensile strength	50mm/min	116	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	4200	MPa	DIN EN ISO 527-2	(1) (2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	116	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield (tensile test)	50mm/min	5	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break (tensile test)	50mm/min	15	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	175	MPa	DIN EN ISO 178	(2) n.b. = not broken
Modulus of elasticity (flexural test)	2mm/min, 10 N	4200	MPa	DIN EN ISO 178	(6) Specimen in 4mm thickness
Compression strength	1% / 2% / 5% 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 <sup>2</sup>	DIN EN ISO 179-1eU	(5)
Notched impact strength (Charpy)	max. 7,5J	4	kJ/m <sup>2</sup>	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 EN ISO 11357	(1)
Melting temperature		341	°C	DIN EN ISO 11357	(2) Found in public sources.
Heat distortion temperature	HDT, Method A	162	°C	ISO-R 75 Method A	Individual testing regarding application conditions is mandatory.
Service temperature	short term	300	°C	-	(2)
Service temperature	long term	260	°C	-	
Thermal expansion (CLTE)	23-60°C, long.	5	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	23-100°C, long.	5	10 <sup>-5</sup> K <sup>-1</sup>	DIN EN ISO 11359-1;2	
Thermal expansion (CLTE)	100-150°C, long.	7	10 <sup>-5</sup> K <sup>-1</sup>	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
surface resistivity	Silver electrode, 23°C, 12% r.h.	10 <sup>15</sup>	Ω	DIN IEC 60093	(1) (1) Specimen in 20mm thickness
volume resistivity	Silver electrode, 23°C, 12% r.h.	10 <sup>15</sup>	Ω*cm	DIN IEC 60093	(2) Specimen in 1mm thickness
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) (1) Ø ca. 50mm, h=13mm
Resistance to hot water/ bases		+	-	-	(2) (2) + good resistance
Resistance to weathering		-	-	-	(3) (3) - poor resistance
Flammability (UL94)	listed (value at 1.5mm)	V0		DIN IEC 60695-11-10;	

→ TECAPEEK products may be based on Victrex® PEEK or Solvay KetaSpire® polymer

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