

TECAPEI - Stock Shapes

Chemical Designation

PEI (Polyetherimide)

Colour

amber transparent

Density

1.28 g/cm³

Main features

- high thermal and mechanical capacity
- resistance against high energy radiation
- high dimensional stability
- inherent flame retardant

Target Industries

- electronics
- semiconductor technology
- aircraft and aerospace technology
- food engineering
- medical technology
- automotive industry
- vacuum technology

Mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1mm/min	3200	MPa	DIN EN ISO 527-2	1)
Tensile strength	50mm/min	127	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50mm/min	127	MPa	DIN EN ISO 527-2	
Elongation at yield	50mm/min	7	%	DIN EN ISO 527-2	
Elongation at break	50mm/min	35	%	DIN EN ISO 527-2	
Flexural strength	2mm/min, 10 N	164	MPa	DIN EN ISO 178	2)
Modulus of elasticity (flexural test)	2mm/min, 10 N	3300	MPa	DIN EN ISO 178	
Compression strength	1% / 2% 5mm/min, 10 N	23 / 41	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	2800	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7,5J	113	kJ/m ²	DIN EN ISO 179-1eU	5)
Ball indentation hardness		225	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		216	°C	DIN 53765	1)
Melting temperature		n.a.	°C	DIN 53765	2)
Service temperature	short term	200	°C		3)
Service temperature	long term	170	°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.	6	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Specific heat		1.2	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.21	W/(K*m)	ISO 22007-4:2008	
Electrical properties	parameter	value	unit	norm	comment
Specific surface resistance		10 ¹⁴	Ω	DIN IEC 60093	
Specific volume resistance		10 ¹⁴	Ω*cm	DIN IEC 60093	
Other properties	parameter	value	unit	norm	comment
Water absorption	24h / 96h (23°C)	0.05 / 0.1	%	DIN EN ISO 62	1)
Resistance to hot water/ bases		+	-	-	2)
Resistance to weathering		-	-	-	3)
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	4)

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.