



## Material data sheet PEEK natural

Chemical Designation: Polyetheretherketone  
 DIN-abbreviation: PEEK  
 Colour / Fillers: beige opaque  
 Density: 1,31 g/cm<sup>3</sup>

### Main features

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

### Target Industries

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

### Characteristics

mechanical properties	parameter	value	unit	norm	comment
Modulus of elasticity (tensile test)	1 mm / min	4200	MPa	DIN EN ISO 527-2 1)	1) For tensile test: specimen type 1b 2) For flexural test: support span 64 mm, norm specimen. 3) Specimen 10 x 10 x 10 mm 4) Specimen 10 x 10 x 50 mm, modulus range between 0,5 and 1% compression. 5) For Charpy test: support span 64 mm, norm specimen. n. b. = not broken
Tensile strength	50 mm / min	116	MPa	DIN EN ISO 527-2	
Tensile strength at yield	50 mm / min	116	MPa	DIN EN ISO 527-2	
Elongation at yield	50 mm / min	5	%	DIN EN ISO 527-2	
Elongation at break	50 mm / min	15	%	DIN EN ISO 527-2	
Flexural strength	2 mm / min, 10 N	175	MPa	DIN EN ISO 178 2)	
Modulus of elasticity (flexural test)	2 mm / min, 10 N	4200	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5 mm / min, 10 N	23/43/102	MPa	EN ISO 604 3)	
Compression modulus	5 mm / min, 10 N	3400	MPa	EN ISO 604 4)	
Impact strength (Charpy)	max. 7,5 J	n. b.	kJ/m <sup>2</sup>	DIN EN ISO 179-1eU 5)	
Notched impact strength (Charpy)	max. 7,5 J	4	kJ/m <sup>2</sup>	DIN EN ISO 179-1eA	
Shore hardness	D	89		DIN EN ISO 868	





## Material data sheet PEEK natural

thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		150	°C	DIN 53765	1) Found in public sources. 2) Found in public sources. Individual testing regarding application conditions is mandatory.
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		
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) Specimen in 20 mm thickness 2) Specimen in 1 mm thickness
volume resistivity	Silver electrode, 23 °C, 12% r.h.	10 <sup>15</sup>	Ω*cm	DIN IEC 60093	
Dielectric strength	23 °C, 50% r.h.	73	kV/mm	ISO 60243-1	
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	24 h / 96 h (23 °C)	0.2 / 0.3	%	DIN EN ISO 62	1) Ø ca. 50 mm, h = 13 mm 2) (+) good resistance 3) – poor resistance
Resistance to hot water/bases		(+)		-	
Resistance to weathering		-		-	
Flammability (UL94)	Listed (value at 1,5 mm)	VO		DIN IEC 60695-11-10	

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. Technical changes reserved.

Date: 2023/07/19

