

Material data sheet

PEEK natural

Chemical Designation: Polyetheretherketone
 DIN-abbreviation: PEEK
 Colour / Fillers: beige opaque
 Density: 1,31 g/cm³

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 6) Specimen in 4 mm thickness
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 ²	DIN EN ISO 179-1eU 5)	
Notched impact strength (Charpy)	max. 7,5 J	4	kJ/m ²	DIN EN ISO 179-1eA	
Ball indentation hardness		253	MPa	ISO 2039-1 6)	



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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 ⁻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
surface resistivity	Silver electrode, 23 °C, 12% r.h.	10 ¹⁵	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 ¹⁵	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	

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