

TECAPEEK CMF grey - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEEK (Polyetheretherketone)

Colour

grey opaque

Density

1.65 g/cm³

Fillers

ceramic

Main features

- good machinability
- high strength
- high stiffness
- low thermal expansion
- low burring
- good heat deflection temperature
- very good thermal stability

Target Industries

- semiconductor technology
- electronics
- mechanical engineering
- vacuum technology

<i>Mechanical properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>	<i>comment</i>
Tensile strength	50mm/min	105	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	5500	MPa	DIN EN ISO 527-2	(2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	102	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield (tensile test)	50mm/min	4	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break (tensile test)	50mm/min	5	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	170	MPa	DIN EN ISO 178	(6) Specimen in 4mm thickness
Modulus of elasticity (flexural test)	2mm/min, 10 N	5500	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	25/46/105	MPa	EN ISO 604	(3)
Compression modulus	5mm/min, 10 N	4300	MPa	EN ISO 604	(4)
Impact strength (Charpy)	max. 7,5J	35	kJ/m ²	DIN EN ISO 179-1eU	(5)
Ball indentation hardness		286	MPa	ISO 2039-1	(6)
<i>Thermal properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>	<i>comment</i>
Glass transition temperature		151	°C	DIN EN ISO 11357	(1) Found in public sources.
Melting temperature		339	°C	DIN EN ISO 11357	(2) Found in public sources.
Service temperature	short term	300	°C		Individual testing regarding application conditions is mandatory.
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.	6	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Specific heat		1.0	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.38	W/(K*m)	ISO 22007-4:2008	
<i>Electrical properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>	<i>comment</i>
surface resistivity		10 ¹⁴	Ω	-	
volume resistivity		10 ¹⁴	Ω*cm	-	
<i>Other properties</i>	<i>parameter</i>	<i>value</i>	<i>unit</i>	<i>norm</i>	<i>comment</i>
Water absorption	24h / 96h (23°C)	0.02 / 0.03	%	DIN EN ISO 62	(1) Ø ca. 50mm, h=13mm
Resistance to hot water/ bases		+	-		(2) + good resistance
Resistance to weathering		-	-		(3) - poor resistance
Flammability (UL94)	corresponding to	V0	-	DIN IEC 60695-11-10;	(4) Corresponding means no listing at UL (yellow card). The information might be taken from resin, stock shape or estimation. Individual testing regarding application conditions is mandatory.