

TECAPEEK ELS nano black - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEEK (Polyetheretherketone)

Colour

black opaque

Density

1.36 g/cm³

Fillers

CNT

Main features

- high dimensional stability
- continuous service temperature up to 260 °C
- high strength
- very good chemical resistance
- electrically conductive
- high thermal and mechanical capacity
- good machinability
- high toughness

Target Industries

- aircraft and aerospace technology
- electronics
- mechanical engineering
- semiconductor technology
- computer technology

Mechanical properties	parameter	value	unit	norm	comment
Tensile strength	50mm/min	106	MPa	DIN EN ISO 527-2	(1) For tensile test: specimen type 1b
Modulus of elasticity (tensile test)	1mm/min	4800	MPa	DIN EN ISO 527-2	1) (2) For flexural test: support span 64mm, norm specimen.
Tensile strength at yield	50mm/min	106	MPa	DIN EN ISO 527-2	(3) Specimen 10x10x10mm
Elongation at yield	50mm/min	4	%	DIN EN ISO 527-2	(4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression.
Elongation at break	50mm/min	4	%	DIN EN ISO 527-2	(5) For Charpy test: support span 64mm, norm specimen.
Flexural strength	2mm/min, 10 N	178	MPa	DIN EN ISO 178	2) (6) Specimen in 4mm thickness
Modulus of elasticity (flexural test)	2mm/min, 10 N	4700	MPa	DIN EN ISO 178	
Compression strength	1% / 2% / 5% 5mm/min, 10 N	27/47/106	MPa	EN ISO 604	3)
Compression modulus	5mm/min, 10 N	3600	MPa	EN ISO 604	4)
Impact strength (Charpy)	max. 7,5J	58	kJ/m ²	DIN EN ISO 179-1eU	5)
Ball indentation hardness		253	MPa	ISO 2039-1	6)
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		147	°C	DIN EN ISO 11357	1) (1) Found in public sources.
Melting temperature		341	°C	DIN EN ISO 11357	2) Found in public sources.
Service temperature	short term	300	°C		2) 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.	7	10 ⁻⁵ K ⁻¹	DIN EN ISO 11359-1;2	
Specific heat		1.1	J/(g*K)	ISO 22007-4:2008	
Thermal conductivity		0.46	W/(K*m)	ISO 22007-4:2008	
Electrical properties	parameter	value	unit	norm	comment
surface resistivity	Conductive rubber, 23°C, 12% r.h.	10 ² - 10 ⁴	Ω	DIN EN 61340-2-3	1) (1) Specimen in 20mm thickness
volume resistivity	Conductive rubber, 23°C, 12% r.h.	10 ³ - 10 ⁵	Ω*cm	DIN EN 61340-2-3	
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 (2) + good resistance (3) (+) limited resistance (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.
Resistance to hot water/ bases		+		-	2)
Resistance to weathering		(+)		-	3)
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	4)

→ TECAPEEK products are based on Victrex® PEEK polymer.

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