

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	(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 (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	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)
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)
Shore hardness	D	90		DIN EN ISO 868	
Thermal properties	parameter	value	unit	norm	comment
Glass transition temperature		147	°C	DIN EN ISO 11357	1)
Melting temperature		341	°C	DIN EN ISO 11357	2)
Service temperature	short term	300	°C		2)
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
Resistance to hot water/ bases		+	-	-	2) (2) + good resistance
Resistance to weathering		(+)	-	-	3) (3) (+) limited resistance
Flammability (UL94)	corresponding to	V0		DIN IEC 60695-11-10;	4) (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.

→ TECAPEEK products are based on Victrex® PEEK polymer.

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