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

Chemical Designation
PEEK (Polyetheretherketone)

Colour
black opaque

Density
1.36 g/cm^3

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 (2) For flexural test: support span 64mm, norm specimen. (3) Specimen 10x10x10mm (4) Specimen 10x10x50mm, modulus range between 0.5 and 1% compression. (5) For Charpy test: support span 64mm, norm specimen.
Modulus of elasticity (tensile test)	1mm/min	4800	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	106	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	4	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	4	%	DIN EN ISO 527-2		
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)	(1) Found in public sources. (2) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		341	°C	DIN EN ISO 11357		
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 (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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