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
- high continuous use temperature
- 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	condition	value	unit	test method		comment
Tensile strength	2 in/min	15400	psi	DIN EN ISO 527-2		(1) For tensile test: specimen type 1b (2) For flexural test: support span 2.52", norm specimen. (3) Specimen 0.39" 0.39" x 0.39" (4) Specimen 0.39" x 0.39" x 0.39" (5) Specimen 0.39" x 0.39" x0.39" (6) Specimen 0.39" x 0.39" x 1.97", modulus range between 0.5 and 1% compression. (7) For Charpy test: support span 2.52", norm specimen. (8) Specimen in 0.157" thickness
Modulus of elasticity (tensile test)	0.039 in/min	696000	psi	DIN EN ISO 527-2	1)	
Tensile strength at yield	2 in/min	15400	psi	DIN EN ISO 527-2		
Elongation at yield (tensile test)	2 in/min	4	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	2 in/min	4	%	DIN EN ISO 527-2		
Flexural strength	0.078 in/min, 2.25 lbf	25800	psi	DIN EN ISO 178	2)	
Modulus of elasticity (flexural test)	0.078 in/min, 2.25 lbf	682000	psi	DIN EN ISO 178		
Compression strength	5% strain 0.197 in/min, 2.25 lbf	15400	psi	EN ISO 604	3)	
Compression strength	2% strain 0.197 in/min, 2.25 lbf	6820	psi	EN ISO 604	4)	
Compression strength	1% strain 0.197 in/min, 2.25 lbf	3920	psi	EN ISO 604	5)	
Compression modulus	0.197 in/min, 2.25 lbf	522000	MPa	EN ISO 604	6)	
Impact strength (Charpy)	ft-lbs/in^2	27.6		DIN EN ISO 179-1eU	7)	
Ball indentation hardness		36700	psi	ISO 2039-1	8)	

Thermal properties	condition	value	unit	test method		comment
Glass transition temperature		297	°F	DIN EN ISO 11357	1)	(1) Found in public sources. (2) Found in public sources. Individual testing regarding application conditions is mandatory.
Melting temperature		646	°F	DIN EN ISO 11357		
Service temperature	short term	572	°F	-	2)	
Service temperature	long term	500	°F	-		
Thermal expansion (CLTE)	73 - 140°F, long.	2.78	*10^{-5} in/in/°F	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	73 - 212°F, long.	2.78	*10^{-5} in/in/°F	DIN EN ISO 11359-1;2		
Thermal expansion (CLTE)	212 - 300°F, long.	3.89	*10^{-5} in/in/°F	DIN EN ISO 11359-1;2		
Specific heat		0.00026	BTU/lb-F°	ISO 22007-4:2008		
Thermal conductivity		3.19	BTU-in/hr-ft^2-°F	ISO 22007-4:2008		

Electrical properties	condition	value	unit	test method		comment
surface resistivity	Conductive rubber, 73°F, 12% r.h.	10^2 - 10^4	Ω	DIN EN 61340-2-3	1)	(1) Specimen in 0.787" thickness
volume resistivity	Conductive rubber, 73°F, 12% r.h.	10^3 - 10^5	Ω*cm	DIN EN 61340-2-3		

Other properties	condition	value	unit	test method		comment
Water absorption	24h / 96h (73°F)	0.02 / 0.03	%	DIN EN ISO 62	1)	(1) Ø ca. 1.57", h=0.512" (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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