TECAPEEK MT black - Stock Shapes (rods, plates, tubes)

Chemical Designation
PEEK (Polyetheretherketone)

Colour
black opaque

Density
1.31 g/cm^3

Main features
- very good stress cracking resistance
- hydrolysis and superheated steam resistant
- good machinability
- very good chemical resistance
- high creep resistance
- resistance against high energy radiation
- very good sterilisable

Target Industries
- medical technology
- food technology
- mechanical engineering

Mechanical properties	parameter	value	unit	norm		comment
Tensile strength	50mm/min	114	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. n.b. = not broken
Modulus of elasticity (tensile test)	1mm/min	4200	MPa	DIN EN ISO 527-2	1)	
Tensile strength at yield	50mm/min	114	MPa	DIN EN ISO 527-2		
Elongation at yield (tensile test)	50mm/min	5	%	DIN EN ISO 527-2		
Elongation at break (tensile test)	50mm/min	13	%	DIN EN ISO 527-2		
Flexural strength	2mm/min, 10 N	171	MPa	DIN EN ISO 178	2)	
Modulus of elasticity (flexural test)	2mm/min, 10 N	4100	MPa	DIN EN ISO 178		
Compression strength	1% / 2% / 5% 5mm/min, 10 N	23/44/105	MPa	EN ISO 604	3)	
Compression modulus	5mm/min, 10 N	3400	MPa	EN ISO 604	4)	
Impact strength (Charpy)	max. 7,5J	n.b.	kJ/m^2	DIN EN ISO 179-1eU	5)	
Notched impact strength (Charpy)	max. 7,5J	5	kJ/m^2	DIN EN ISO 179-1eA		
Shore hardness	D	89		DIN EN ISO 868		

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		151	°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		0.3	W/(K*m)	ISO 22007-4:2008		

Electrical properties	parameter	value	unit	norm		comment
surface resistivity		10^{14}	Ω	DIN EN 62631-3-1		(1) Due to the black colourant and moisture uptake of the material the electrical insulation properties cannot be 100% guaranteed, despite single measurements suggesting otherwise.
volume resistivity		10^{14}	Ω*cm	DIN EN 62631-3-1	1)	

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) - poor 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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