TECAPEEK® MT natural - Stock Shapes (rods, plates, tubes)

Chemical Designation
PEEK (Polyetheretherketone)

Colour
beige opaque

Density
1.31 g/cm^3

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

Target Industries
- food technology
- mechanical engineering
- pharmaceutical industry
- medical technology

Mechanical properties	condition	value	unit	test method		comment
Modulus of elasticity (tensile test)	1% Sec, 73 °F	650,000	psi	ASTM D 638		(1) Data obtained from public source (2) Injection molded specimen data obtained from public source (3) injection molded specimen, data obtained from public source
Tensile strength at yield	@ 73 °F	16,000	psi	ASTM D 638		
Tensile strength at break	@ 73 °F	8,900	psi	ASTM D 638		
Elongation at yield (tensile test)	@ 73 °F	4.9	%	ASTM D 638		
Elongation at break (tensile test)	@ 73 °F	30	%	ASTM D 638		
Flexural strength	@ 73 °F	26,000	psi	ASTM D 790		
Modulus of elasticity (flexural test)	@ 73 °F	600,000	psi	ASTM D 790		
Compression strength	@ 73 °F 10% strain	20,000	psi	ASTM D 695		
Compression modulus	@ 73 °F	493,000	psi	ASTM D 695	1)	
Notched impact strength (Izod)	@ 73 °F	0.95	ft-lbs/in	ASTM D 256		
Rockwell hardness	M Scale	99		ASTM D 785		
Coefficient of friction	@ 68 °F Static , 40 psi	0.20		ASTM D 3702	2)	
Coefficient of friction	@ 68 °F, Dynamic 40 psi 50 fpm	0.25		ASTM D 3702	3)	
Wear (K) factor	40 psi, 50 fpm	200	*10^{-10} in^3 -min/ft-lb-hr	ASTM D 3702		

Thermal properties	condition	value	unit	test method		comment
Melting temperature		633	°F	-		(1) Injection molded specimen (2) Injection molded specimen (3) Data obtained from public source (4) Injection molded specimen from public source (5) Injection molded specimen from public source
Deflection temperature	@264 psi	320	°F	ASTM D 648	1)	
Service temperature	Long Term	480	°F	-	2)	
Service temperature	short term	572	°F	-	3)	
Thermal expansion (CLTE)	< Tg, along flow	2.5	*10^{-5} in/in/°F	DIN EN ISO 11359-1;2	4)	
Thermal conductivity		2.01	BTU-in/hr-ft^2-°F	ISO 22007-4:2008	5)	

Electrical properties	condition	value	unit	test method		comment
surface resistivity		1.0*10^{16}	Ω/square	ASTM D 257	1)	(1) Injection molded specimen (2) Injection molded specimen (3) Injection molded specimen (4) Injection molded specimen from public source (5) injection molded data from public source
volume resistance	@ 73 °F	4.9*10^{16}	Ω*cm	ASTM D 149	2)	
Dielectric strength	0.1" thick IEC 60243-1	630	V/mil	-	3)	
Dissipation factor	@ 73 °F, 1 MHz	0.003		DIN IEC 60250	4)	
Dielectric constant	@ 73 °F, 1 kHz	2.8		DIN IEC 60250	5)	

Other properties	condition	value	unit	test method		comment
Limiting PV		69000	psi-fpm	ASTM D 3702	1)	(1) publicly sourced data (2) injection molded data, publicly sourced data (3) Injection molded specimen 3.0mm
Moisture absorption	@ saturation, 73 °F	0.45	%	DIN EN ISO 62	2)	
Moisture absorption	@ 24 hrs, 73 °F	0.02	%	ASTM D 570		
Flammability (UL94)		V0		-	3)	

- Resin specification:
  ASTM D8033-22 PEEK0121,ASTM D4000-13 PEEK; MIL-P-46183 Ty. I
  Shapes specification:
  ASTM D6262-23 S-PAEK0111

- TECAPEEK products may be based on Victrex® PEEK or Syensqo KetaSpire® polymer

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