

VICTREX™ PEEK POLYMER 450G™

General Information

Product Description

High performance thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, colour natural/beige.

Applications for higher strength and stiffness as well as high ductility. Chemically resistant to aggressive environments. Suitable for steam sterilisation. Further information is available on request.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm ³	ISO 1183
Spiral Flow ¹	11.0	cm	Internal Method
Molding Shrinkage ²			ISO 294-4
Across Flow	1.3	%	
Flow	0.90	%	
Water Absorption (Saturation, 23°C)	0.45	%	ISO 62
Water Absorption Saturation (100°C)	0.55	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	4000	MPa	ISO 527-1
Tensile Stress (Yield, 23°C)	98.0	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	25	%	ISO 527-2
Flexural Modulus (23°C)	3800	MPa	ISO 178
Flexural Stress			ISO 178
3.5% Strain, 23°C	125	MPa	
23°C ³	165	MPa	
125°C	85.0	MPa	
175°C	19.0	MPa	
275°C	12.5	MPa	
Compressive Stress			ISO 604
23°C	125	MPa	
120°C	70.0	MPa	
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	7.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179/1U
Notched Izod Impact Strength (23°C)	6.0	kJ/m ²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	No Break		ISO 180/1U
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 23°C)	84.5		ISO 868
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	152	°C	
Glass Transition Temperature			ISO 11357-2
Onset	143	°C	
Midpoint	150	°C	
Melting Temperature	343	°C	ISO 11357-3

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Thermal	Nominal Value	Unit	Test Method
CLTE - Flow			ISO 11359-2
< 143°C	45	ppm/K	
> 143°C	120	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	55	ppm/K	
> 143°C	140	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C ⁴	0.29	W/m/K	
23°C ⁵	0.32	W/m/K	
RTI Elec	260	°C	UL 746B
RTI Imp	180	°C	UL 746B
RTI Str	240	°C	UL 746B
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity			IEC 60093
23°C	1.0E+16	ohms·cm	
125°C	1.0E+15	ohms·cm	
275°C	1.0E+9	ohms·cm	
Dielectric Strength			IEC 60243-1
0.0500 mm	200.0	kV/mm	
2.00 mm	23.0	kV/mm	
Dielectric Constant			IEC 60250
23°C, 50 Hz	3.00		
23°C, 1 kHz	3.10		
200°C, 50 Hz	4.50		
Dissipation Factor (23°C, 1 MHz)	4.0E-3		IEC 60250
Comparative Tracking Index	150	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Glow Wire Flammability Index (2.0 mm)	960	°C	IEC 60695-2-12
Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (400°C)	350	Pa·s	ISO 11443

Typical Processing Information

Injection	Nominal Value	Unit
Drying Temperature	120 to 150	°C
Drying Time	3.0 to 5.0	hr
Suggested Max Moisture	0.020	%
Hopper Temperature	< 100	°C
Rear Temperature	355	°C
Middle Temperature	360 to 365	°C
Front Temperature	370	°C
Nozzle Temperature	375	°C
Mould Temperature	170 to 200	°C

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Injection Notes

Drying Temperature / Time: 150°C / 3h or 120°C / 5h (residual moisture <0.02%)

Runner: Die / nozzle >3mm, manifold >3.5mm

Gate: >1mm or 0.5 x part thickness

Important Notes:

1) Processing conditions quoted in our datasheets are typical of those used in our processing laboratories

- Data for mould shrinkage should be used for material comparison. Actual mould shrinkage values are highly dependent on part geometry, mould configuration, and processing conditions.
- Mould shrinkage differs for along flow and across flow directions. "Along flow" direction is taken as the direction the molten material is travelling when it exits the gate and enters the mould.
- Mould shrinkage is expressed as a percent change in dimension of a specimen in relation to mould dimensions.

2) Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison.

Actual property values are highly dependent on part geometry, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions.

Detailed data available on our website www.victrex.com or upon request.

Notes

¹ Mould Temperature: 190°C, Melt Temperature: 375°C, 1.00 mm

² 375°C nozzle, 190°C tool

³ At yield

⁴ Average

⁵ Along flow

Revision Date: March 2026

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