VICTREX™ PEEK POLYMER 450GL15

General Information

Product Description

High performance thermoplastic material, 15% glass fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, colour natural/beige.

Applications for higher strength in a static system. Low coefficient of thermal expansion. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.38	g/cm³	ISO 1183
Spiral Flow [1]	10.0	cm	Internal Method
Molding Shrinkage [2]			ISO 294-4
Across Flow	0.90	%	
Flow	0.50	%	
Water Absorption (Saturation, 23°C)	0.40	%	ISO 62
Water AbsorptionSaturation (100°C)	0.50	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus (23°C)	7500	MPa	ISO 527-1
Tensile Stress			ISO 527-2
Break, 23°C	145	MPa	
Break, 125°C	80.0	MPa	
Break, 175°C	45.0	MPa	
Break, 275°C	25.0	MPa	
Tensile Strain (Break, 23°C)	4.0	%	ISO 527-2
Flexural Modulus (23°C)	7200	MPa	ISO 178
Flexural Stress (23°C)	240	MPa	ISO 178
Compressive Stress			ISO 604
23°C	200	MPa	
120°C	130	MPa	
200°C	40.0	MPa	
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength (23°C)	5.5	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	60.0	kJ/m²	ISO 179/1U
Notched Izod Impact Strength (23°C)	7.0	kJ/m²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	60.0	kJ/m²	ISO 180
Hardness	**Nominal Value**	**Unit**	**Test Method**
Shore Hardness (Shore D, 23°C)	86.0		ISO 868
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	298	°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	25	ppm/K	
> 143°C	30	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	50	ppm/K	
> 143°C	130	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C [3]	0.30	W/m/K	
23°C [4]	0.35	W/m/K	

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Dielectric Strength (2.00 mm)	24.0	kV/mm	IEC 60243-1
Dielectric Constant (23°C, 1 kHz)	3.10		IEC 60250
Dissipation Factor (23°C, 1 MHz)	5.0E-3		IEC 60250
Comparative Tracking Index	150	V	IEC 60112

Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (400°C)	450	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
Hopper Temperature	< 100	°C
Rear Temperature	360	°C
Middle Temperature	365 to 370	°C
Front Temperature	375	°C
Nozzle Temperature	380	°C
Mould Temperature	170 to 200	°C

Injection Notes

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

Gate: >2mm 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: 180°C, Melt Temperature: 380°C, 1.00 mm

[2] 380°C nozzle, 180°C tool

[3] Average

[4] Along flow

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