VICTREX® PEEK 450GL20

Product Description:

High performance thermoplastic material, 20% glass fibre reinforced **P**oly**E**ther**E**ther**K**etone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, FDA food contact compliant, colour natural/beige.

Typical Application Areas:

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

Material Properties

	CONDITIONS	TEST METHOD	UNITS	TYPICAL VALUE
Mechanical Data				
Tensile Strength	Break, 23°C	ISO 527	MPa	160
Tensile Elongation	Break, 23°C	ISO 527	%	3.4
Tensile Modulus	23°C	ISO 527	GPa	8.8
Flexural Strength	23°C	ISO 178	MPa	250
Flexural Modulus	23°C	ISO 178	GPa	8.3
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m^{-2}	10
	Unnotched, 23°C	ISO 180/U		65
Thermal Data				
Melting Point		ISO 11357	°C	343
Glass Transition (Tg)	Onset	ISO 11357	°C	143
	Midpoint			150
Coefficient of Thermal Expansion	Along flow below Tg	ISO 11359	ppm K^{-1}	20
	Average below Tg			45
	Along flow above Tg			22
	Average above Tg			120
Heat Deflection Temperature	1.8 MPa	ISO 75-f	°C	315
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m^{-1} K^{-1}	0.35
	Average, 23°C			0.30
Flow				
Melt Viscosity	400°C	ISO 11443	Pa.s	475
Miscellaneous				
Density	Crystalline	ISO 1183	g cm^{-3}	1.43
Shore D hardness	23°C	ISO 868		85.5
Water Absorption by immersion	Saturation, 23°C	ISO 62-1	%	0.4
	Saturation, 100°C			0.45
Electrical Properties				
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm^{-1}	24
Comparative Tracking Index		IEC 60112	V	150
Loss Tangent	23°C, 1 MHz	IEC 60250	n/a	0.005
Dielectric Constant	23°C, 1 kHz	IEC 60250	n/a	3.1
Volume Resistivity		IEC 60093	Ω cm	10^{16}

Typical Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h
Temperature settings	360 / 365 / 370 / 375 / 380°C (Nozzle)
Hopper Temperature	Not greater than 100°C
Mould Temperature	170°C - 200°C (max 250°C)
Runner	Die / nozzle >3mm, manifold >3.5mm
Gate	>2mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	380°C nozzle, 190°C tool	1mm thick section	Victrex	mm	100*
Mould Shrinkage	380°C nozzle, 190°C tool	Along flow	ISO 294-4	%	0.3
		Across flow			0.9

* Result based on similar products

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

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