VICTREX® PEEK 381G

Product Description:

High performance thermoplastic material, unreinforced **P**oly**E**ther**E**ther**K**etone (PEEK), semi crystalline, depth filtered granules for specialty extrusion processes, standard flow, FDA food contact compliant, colour natural/beige.

Typical Application Areas:

Wire coating, extrusion of filaments, minitubes, films. 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	Yield, 23°C	ISO 527	MPa	98
Tensile Elongation	Break, 23°C	ISO 527	%	45
Tensile Modulus	23°C	ISO 527	GPa	4.0
Flexural Strength	At 3.5% strain, 23°C	ISO 178	MPa	125
	At yield, 23°C			165
	125°C			85 *
	175°C			19 *
	275°C			12.5 *
Flexural Modulus	23°C	ISO 178	GPa	3.8
Compressive Strength	23°C	ISO 604	MPa	125 *
	120°C			70 *
Charpy Impact Strength	Notched, 23°C	ISO 179/1eA	kJ m^{-2}	6.0
	Unnotched, 23°C	ISO 179/U		n/b
Izod Impact Strength	Notched, 23°C	ISO 180/A	kJ m^{-2}	7.0
	Unnotched, 23°C	ISO 180/U		n/b
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}	45
	Average below Tg			55
	Along flow above Tg			120
	Average above Tg			140
Heat Deflection Temperature	As moulded, 1.8 MPa	ISO 75-f	°C	152
	Annealed 200°C / 4h, 1.8MPa			160
Thermal Conductivity	Along flow, 23°C	ISO 22007-4	W m^{-1} K^{-1}	0.32
	Average, 23°C			0.29
Relative Thermal Index	Electrical	UL 746B	°C	260
	Mechanical w/o impact			240
	Mechanical w/impact			180
Flow				
Melt Viscosity	400°C	ISO 11443	Pa.s	300
Miscellaneous				
Density	Crystalline	ISO 1183	g cm^{-3}	1.30
Shore D hardness	23°C	ISO 868		84.5
Water Absorption by immersion	Saturation, 23°C	ISO 62-1	%	0.45
	Saturation, 100°C			0.55

Electrical Properties				
Dielectric Strength	2mm thickness	IEC 60243-1	kV mm^{-1}	23
Dielectric Strength	50µm thickness		kV mm^{-1}	190
Comparative Tracking Index		IEC 60112	V	150
Loss Tangent	23°C, 1MHz	IEC 60250	n/a	0.003
Dielectric Constant	23°C, 50Hz	IEC 60250	n/a	3.2
	200°C, 50Hz			4.5
Volume Resistivity	23°C	IEC 60093	Ω cm	10^{16} *
	125°C			10^{15} *
	275°C			10^{9} *

Fire Smoke Toxicity				
Glow Wire Test	2mm thickness	IEC 60695-2-12	°C	960 *
Limiting Oxygen Index	0.4mm thickness	ISO 4589	% O_2	24 *
	3.2mm thickness			35 *
Toxicity Index	CO content	NES 713	n/a	0.074 *
	CO_2 content			0.15 *
	Total gases			0.22 *

* Result based on similar products

(1) annealed 4h at 200°C

Typical Processing Conditions	
Drying Temperature / Time	150°C / 3h or 120°C / 5h
Temperature settings	350 / 355 / 360 / 365 / 370°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	>1mm or 0.5 x part thickness

Mould Shrinkage and Spiral Flow					
Spiral Flow	370°C nozzle, 170°C tool	1mm thick section	Victrex	mm	120
Mould Shrinkage	370°C nozzle, 170°C tool	Along flow	ISO 294-4	%	1.0
		Across flow			1.3

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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