VICTREX™ PEEK POLYMER 381G

General Information

Product Description

High performance thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, depth filtered granules for specialty extrusion processes, standard flow, colour natural/beige.

Wire coating, extrusion of filaments, minitubes, films. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm³	ISO 1183
Spiral Flow [1]	12.0	cm	Internal Method
Molding Shrinkage [2]			ISO 294-4
Across Flow	1.3	%	
Flow	1.0	%	
Water Absorption (Saturation, 23°C)	0.45	%	ISO 62
Water AbsorptionSaturation (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)	45	%	ISO 527-2
Flexural Modulus (23°C)	3800	MPa	ISO 178
Flexural Stress			ISO 178
23°C [3]	165	MPa	
3.5% Strain, 23°C	125	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)	6.0	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179/1U
Notched Izod Impact Strength (23°C)	7.0	kJ/m²	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			
1.8 MPa, Unannealed	152	°C	ISO 75-2/Af
1.8 MPa, Annealed [4]	160	°C	ISO 75-2/A
Glass Transition Temperature			ISO 11357-2
Onset	143	°C	
Midpoint	150	°C	

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Thermal	Nominal Value	Unit	Test Method
Melting Temperature	343	°C	ISO 11357-3
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 [5]	0.29	W/m/K	
23°C [6]	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	190.0	kV/mm	
2.00 mm	23.0	kV/mm	
Dielectric Constant			IEC 60250
23°C, 50 Hz	3.20		
200°C, 50 Hz	4.50		
Dissipation Factor (23°C, 1 MHz)	3.0E-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)	300	Pa·s	ISO 11443

Typical Processing Information

Extrusion	Nominal Value	Unit
Drying Temperature	120 to 150	°C
Drying Time	3.0 to 5.0	hr
Hopper Temperature	< 100	°C
Cylinder Zone 1 Temp.	350	°C
Cylinder Zone 2 Temp.	355	°C
Cylinder Zone 3 Temp.	360	°C
Cylinder Zone 4 Temp.	365	°C
Cylinder Zone 5 Temp.	370	°C

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Extrusion Notes
Mould Temperature: 170°C to 200°C 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: 170°C, Melt Temperature: 370°C, 1.00 mm

[2] 370°C nozzle, 170°C tool

[3] At yield

[4] 200°C/4h

[5] Average

[6] Along flow

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