VICTREX™ PEEK POLYMERS 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 in several non-implantable medical device and food contact applications. Further information is available on request.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm³	ISO 1183
Spiral Flow [1]	11.0	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 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)	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)	7.0	kJ/m²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179/1U
Notched Izod Impact Strength (23°C)	8.0	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)	85		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			ISO 11359-2
Flow : < 143°C	4.5E-5	cm/cm/°C	
Flow : > 143°C	1.2E-4	cm/cm/°C	
Transverse : < 143°C	5.5E-5	cm/cm/°C	
Transverse : > 143°C	1.4E-4	cm/cm/°C	
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	
Electric Strength			IEC 60243-1
0.0500 mm	200	kV/mm	
2.00 mm	23	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

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	355	°C
Middle Temperature	360 to 365	°C
Front Temperature	370	°C
Nozzle Temperature	375	°C
Mold Temperature	170 to 200	°C

Injection Notes

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

Gate: >1mm or 0.5 x part thickness

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Notes

[1] Mold 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

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