

VICTREX HT™ POLYMER G45

General Information

Product Description

High performance thermoplastic material, unreinforced PolyEtherKetone (PEK), semi crystalline, depth filtered granules for injection moulding, low flow, colour natural/beige.

Applications for high strength and stiffness as well as good ductility at higher temperatures. Chemically resistant to aggressive environments, suitable for sterilisation for medical and food contact applications.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm ³	ISO 1183
Spiral Flow ¹	19.0	cm	Internal Method
Molding Shrinkage ²			ISO 294-4
Across Flow	1.2	%	
Flow	1.0	%	
Water Absorption (Saturation, 23°C)	0.60	%	ISO 62
Water Absorption Saturation (100°C)	0.75	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	4200	MPa	ISO 527-1
Tensile Stress (Yield, 23°C)	110	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	20	%	ISO 527-2
Flexural Modulus (23°C)	4200	MPa	ISO 178
Flexural Stress			ISO 178
3.5% Strain, 23°C	130	MPa	
23°C ³	180	MPa	
125°C	105	MPa	
175°C	32.0	MPa	
275°C	16.0	MPa	
Compressive Stress			ISO 604
23°C	140	MPa	
120°C	90.0	MPa	
200°C	30.0	MPa	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact Strength (23°C)	6.0	kJ/m ²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	No Break		ISO 180
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 23°C)	85.5		ISO 868
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	163	°C	
Glass Transition Temperature			ISO 11357-2
Onset	152	°C	
Midpoint	160	°C	
Melting Temperature	373	°C	ISO 11357-3

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Thermal	Nominal Value	Unit	Test Method
CLTE - Flow			ISO 11359-2
< 152°C	45	ppm/K	
> 152°C	75	ppm/K	
CLTE - Average			ISO 11359-2
< 152°C	55	ppm/K	
> 152°C	130	ppm/K	
Specific Heat (23°C)	2200	J/kg/°C	DSC
Thermal Conductivity			ISO 22007-4
23°C ⁴	0.29	W/m/K	
23°C ⁵	0.32	W/m/K	
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 (2.00 mm)	23.0	kV/mm	IEC 60243-1
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

Typical Processing Information

Injection	Nominal Value	Unit
Drying Temperature	120 to 150	°C
Drying Time	3.0 to 5.0	hr
Suggested Max Moisture	0.020	%
Hopper Temperature	< 100	°C
Rear Temperature	390	°C
Middle Temperature	395 to 405	°C
Front Temperature	410	°C
Nozzle Temperature	415	°C
Mould Temperature	200 to 220	°C

Injection Notes

Drying Temperature / Time: 150°C / 3h or 120°C / 5h (residual moisture <0.02%)

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.

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Notes

¹ Mould Temperature: 220°C, Melt Temperature: 415°C, 1.00 mm
² 415°C nozzle, 220°C tool
³ At yield
⁴ Average
⁵ Along flow

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