

VICTREX FG™ POLYMER 101

General Information

Product Description

High performance Food Grade thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding, colour black.

The VICTREX FG™ 100 family of materials is intended for applications needing mechanical properties at ambient and elevated temperatures along with long-term creep resistance, point and edge retention and low coefficient of thermal expansion for metal replacement. Chemically resistant to aggressive environments, suitable for sterilisation.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm ³	ISO 1183
Spiral Flow ¹	22.0	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 Stress (Yield, 23°C)	105	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	15	%	ISO 527-2
Flexural Modulus (23°C)	3900	MPa	ISO 178
Flexural Stress			ISO 178
Yield, 23°C	175	MPa	
3.5% Strain, 23°C	130	MPa	
Compressive Stress (23°C)	130	MPa	ISO 604
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact Strength (23°C)	4.0	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)	85.0		ISO 868
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ISO 75-2/Af
1.8 MPa, Unannealed	156	°C	
Glass Transition Temperature			ISO 11357-2
Onset	143	°C	
Midpoint	147	°C	
Melting Temperature	343	°C	ISO 11357-3
CLTE - Flow			ISO 11359-2
< 143°C	50	ppm/K	
> 143°C	120	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	55	ppm/K	
> 143°C	140	ppm/K	
Thermal Conductivity ³ (23°C)	0.29	W/m/K	ISO 22007-4

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Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Dielectric Strength (2.00 mm)	23.0	kV/mm	IEC 60243-1

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	350	°C
Middle Temperature	355	°C
Front Temperature	360	°C
Nozzle Temperature	365	°C
Mould Temperature	160 to 200	°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.

Notes

¹ Mould Temperature: 160°C, Melt Temperature: 365°C, 1.00 mm

² 365°C nozzle, 160°C tool

³ Average

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