

# VICTREX FG™ POLYMER 121

## General Information

### Product Description

High performance Food Grade thermoplastic material, glass fiber reinforced 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)	1.52	g/cm <sup>3</sup>	ISO 1183
Spiral Flow <sup>1</sup>	16.0	cm	Internal Method
Molding Shrinkage <sup>2</sup>			ISO 294-4
Across Flow	0.90	%	
Flow	0.30	%	
Water Absorption (Saturation, 23°C)	0.30	%	ISO 62
Water Absorption Saturation (100°C)	0.45	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress			ISO 527-2
Break, 23°C	180	MPa	
Break, 125°C	120	MPa	
Break, 175°C	70.0	MPa	
Break, 225°C	60.0	MPa	
Break, 275°C	40.0	MPa	
Tensile Strain (Break, 23°C)	1.9	%	ISO 527-2
Tensile Creep @ 1000 hr, 60 MPa			
23°C	0.09	%	
120°C	0.21	%	
Flexural Modulus (23°C)	11000	MPa	ISO 178
Flexural Stress			ISO 178
23°C	275	MPa	
125°C	210	MPa	
175°C	115	MPa	
275°C	75.0	MPa	
Compressive Stress			ISO 604
23°C	250	MPa	
120°C	160	MPa	
200°C	55.0	MPa	
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact Strength (23°C)	7.0	kJ/m <sup>2</sup>	ISO 180/A
Unnotched Izod Impact Strength (23°C)	40.0	kJ/m <sup>2</sup>	ISO 180
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 23°C)	87.0		ISO 868

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Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	335	°C	ISO 75-2/Af
Glass Transition Temperature (Onset)	143	°C	ISO 11357-2
Melting Temperature	343	°C	ISO 11357-3
CLTE - Flow			ISO 11359-2
< 143°C	20	ppm/K	
> 143°C	20	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	45	ppm/K	
> 143°C	110	ppm/K	
Thermal Conductivity <sup>3</sup> (23°C)	0.30	W/m/K	ISO 22007-4
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Dielectric Strength (2.00 mm)	21.5	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	355	°C
Middle Temperature	360	°C
Front Temperature	365	°C
Nozzle Temperature	370	°C
Mould Temperature	170 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: >2mm 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](http://www.victrex.com) or upon request.

### Notes

<sup>1</sup> Mould Temperature: 180°C, Melt Temperature: 370°C, 1.00 mm

<sup>2</sup> 370°C nozzle, 180°C tool

<sup>3</sup> Average

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**Revision Date: March 2026**

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