

# VICTREX FG™ POLYMER 140

## General Information

### Product Description

High performance Food Grade thermoplastic material, carbon 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)	1.40	g/cm <sup>3</sup>	ISO 1183
Spiral Flow <sup>1</sup>	14.0	cm	Internal Method
Molding Shrinkage <sup>2</sup>			ISO 294-4
Across Flow	0.50	%	
Flow	0.10	%	
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	270	MPa	
Break, 125°C	170	MPa	
Break, 175°C	105	MPa	
Break, 275°C	60.0	MPa	
Tensile Strain (Break, 23°C)	1.5	%	ISO 527-2
Tensile Creep - @ 1000 hr, 80 MPa			
23°C	0.07	%	
120°C	0.12	%	
Flexural Modulus (23°C)	24000	MPa	ISO 178
Flexural Stress			ISO 178
23°C	380	MPa	
125°C	275	MPa	
175°C	130	MPa	
275°C	80.0	MPa	
Compressive Stress			ISO 604
23°C	300	MPa	
120°C	200	MPa	
200°C	70.0	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)	87.5		ISO 868

# VICTREX FG™ POLYMER 140

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	339	°C	ISO 75-2/Af
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	5	ppm/K	
> 143°C	6	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	40	ppm/K	
> 143°C	100	ppm/K	
Thermal Conductivity <sup>3</sup> (23°C)	0.95	W/m/K	ISO 22007-4
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+5	ohms-cm	IEC 60093

## 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	365	°C
Middle Temperature	370 to 375	°C
Front Temperature	380	°C
Nozzle Temperature	385	°C
Mould Temperature	180 to 210	°C

### Injection Notes

Runner: Die / nozzle >3mm, manifold >3.5mm  
Gate: >2mm or 0.5 x part thickness

Important notes:

- 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.
- 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: 200°C, Melt Temperature: 385°C, 1.00 mm

<sup>2</sup> 385°C nozzle, 200°C tool

<sup>3</sup> Average

# VICTREX FG™ POLYMER 140

**Revision Date: December 2023**

This information is provided "as is". It is not intended to amount to advice. Use of the product is at the customer's/user's risk. It is the customer's/user's responsibility to thoroughly test the product in each specific application to determine its performance, efficacy and safety for each end-use product, device or other application and compliance with applicable laws, regulations and standards. Mention of a product is no guarantee of availability. Victrex reserves the right to modify products, data sheets, specifications and packaging. **Victrex makes no warranties, express or implied (including, without limitation, any warranty of fitness for a particular purpose or of intellectual property non-infringement) and will not be liable for any loss or damage of any nature (however arising) in connection with customer's/user's use or reliance on this information, except for any liability which cannot be excluded or limited by law.** This document may be modified or retracted at any time without notice to the customer/user.

Victrex Manufacturing Limited (or another member of the Victrex group) is the owner or the licensee of all intellectual property rights in and to this document including the following trademarks, VICTREX, INVIBIO, JUVORA, APTIV, 450G, PEEK-OPTIMA, SHAPING FUTURE PERFORMANCE, LMPAEK, TRIANGLE (Device). All rights are protected by intellectual property rights including copyright under relevant national and international intellectual property laws and treaties. All rights reserved. Copyright © Victrex Manufacturing Limited 2023.