



VICTREX™ PEEK POLYMER 90HMF40

General Information

Product Description

High performance thermoplastic material, 40% carbon fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding, easy flow, colour black.

Complex geometries with thinner cross sections or longer flow length where superior strength in a static or dynamic system is required. Excellent wear resistance, low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.45	g/cm ³	ISO 1183
Spiral Flow ¹	10.0	cm	Internal Method
Molding Shrinkage ²			ISO 294-4
Across Flow	0.40	%	
Flow	0.0	%	
Water Absorption (Saturation, 23°C)	0.30	%	ISO 62
Water Absorption - Saturation (100°C)	0.40	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus (23°C)	43000	MPa	ISO 527-1
Tensile Stress			ISO 527-2
Break, 23°C	330	MPa	
Break, 120°C	220	MPa	
Break, 180°C	145	MPa	
Break, 275°C	85.0	MPa	
Tensile Strain (Break, 23°C)	1.2	%	ISO 527-2
Flexural Modulus (23°C)	37000	MPa	ISO 178
Flexural Stress			ISO 178
23°C	475	MPa	
120°C	350	MPa	
180°C	220	MPa	
275°C	120	MPa	
Compressive Stress			ISO 604
23°C	310	MPa	
120°C	250	MPa	
200°C	120	MPa	
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	8.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	60.0	kJ/m ²	ISO 179/1U
Notched Izod Impact Strength (23°C)	10.5	kJ/m ²	ISO 180/A
Unnotched Izod Impact Strength (23°C)	60.0	kJ/m ²	ISO 180
Hardness	Nominal Value	Unit	Test Method
Shore Hardness (Shore D, 23°C)	88.5		ISO 868

VICTREX™ PEEK POLYMER 90HMF40

Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 1.8 MPa, Unannealed	349	°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	1	ppm/K	
< 143°C	3	ppm/K	
CLTE - Average			ISO 11359-2
< 143°C	35	ppm/K	
> 143°C	80	ppm/K	
Thermal Conductivity			ISO 22007-4
23°C ³	2.0	W/m/K	
23°C ⁴	4.3	W/m/K	

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ⁵ (23°C)	1.0E+5	ohms-cm	ASTM D4496

Fill Analysis	Nominal Value	Unit	Test Method
Melt Viscosity (400°C)	300	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
Hopper Temperature	< 100	°C
Rear Temperature	365	°C
Middle Temperature	370 to 375	°C
Front Temperature	380	°C
Nozzle Temperature	385	°C
Mold Temperature	190 to 200	°C

Injection Notes

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 or upon request.

VICTREX™ PEEK POLYMER 90HMF40

Notes

¹ Mold Temperature: 190°C, Melt Temperature: 380°C, 1.00 mm

² 380°C nozzle, 190°C tool

³ Average

⁴ Along flow

⁵ 1V

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.