



VICTREX XPI™ 150 Polymer

General Information

Product Description

VICTREX XPI™ 150 polymer is a high-performance PolyEtherEtherKetone (PEEK), semi crystalline thermoplastic material, in granule feedstock format primarily for wire extrusion processing.

Winding wire insulation for electric motor applications requires good mechanical and electrical performance across a range of temperatures and potentially chemically aggressive environments. VICTREX XPI™ 150 polymer can meet many of these requirements such as (where specific properties are quantified in the below table);

- Long-term thermal stability in high electric field strength rotating machines
- Extruded coating provides superior electrical performance with reduced number of faults per wire length vs. enamelled equivalents
- Good ductility for demanding wire forming & resistance to thermal cycling / conductor expansion
- Excellent wear resistance
- Mechanical strength and dimensional stability
- Excellent chemical resistance to a broad range of ATF, oils and cooling fluids

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (Crystalline)	1.30	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (400°C/2.16 kg)	6.5	g/10 min	ISO 1133
Water Absorption (Saturation, 23°C)	0.45	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Stress (Yield, 23°C)	102	MPa	ISO 527
Flexural Modulus			ISO 178
23°C	4000	MPa	
80°C	3800	MPa	
120°C	3700	MPa	
160°C	1000	MPa	
Flexural Stress			ISO 178
Yield, 23°C	164	MPa	
Yield, 80°C	130	MPa	
Yield, 120°C	102	MPa	
Yield, 160°C	36.0	MPa	
Compressive Stress (23°C)	125	MPa	ISO 604
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temperature (Onset)	143	°C	ISO 11357-2
Melting Temperature	343	°C	ISO 11357-3
Thermal Conductivity			ISO 22007-4
23°C ¹	0.29	W/m/K	
23°C ²	0.32	W/m/K	

VICTREX XPI™ 150 Polymer

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (23°C)	1.0E+16	ohms·cm	IEC 60093
Dielectric Constant (23°C, 1 kHz)	3.20		IEC 60250
Dissipation Factor (23°C, 1 MHz)	3.0E-3		IEC 60250
Breakdown Voltage ³			ASTM D149
2000V/s in air, 6.4mm opposing electrodes : 23°C, 100.0 µm	16.6	kV	
2000V/s in air, 6.4mm opposing electrodes : 23°C, 150.0 µm	21.4	kV	
2000V/s in air, 6.4mm opposing electrodes : 23°C, 200.0 µm	25.4	kV	
500V/s in air, 6.4mm opposing electrodes : 23°C, 100.0 µm	15.7	kV	
500V/s in air, 6.4mm opposing electrodes : 23°C, 150.0 µm	19.9	kV	
500V/s in air, 6.4mm opposing electrodes : 23°C, 200.0 µm	23.0	kV	

Typical Processing Information

Extrusion	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
Melt Temperature	365 to 385	°C
Die Temperature	> 390	°C

Extrusion Notes

- Conductor Preheating: Usually between 100 and 200°C. >200°C also depending on wire requirements
- Melt Temperature in the Extrusion Processing Section refers to the extrusion barrel temperatures
- Melt Temperature Exiting the Die: Nominally 375°C

Important notes:

- 1) Processing conditions quoted in our datasheets are typical of those used in our processing laboratories.
- 2) Unless otherwise stated, mechanical, thermal and electrical properties are from injection moulded test coupons and may have been generated on similar products.
- 3) 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 Average

² Along flow

³ Electrical Properties of Equivalent Thickness (APTIV™) PEEK Films

Revision Date: October 2024

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, 450G, VICTREX AM, VICTREX CT, VICTREX FG, VICTREX HPG, VICTREX HT, VICTREX ST, VICTREX WG, APTIV, LMPAEK, VICOTE, 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 2024.