

VICTREX™ PEEK POLYMER 450G™

General Information

Product Description

High performance thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, colour natural/beige.

Applications for higher strength and stiffness as well as high ductility. Chemically resistant to aggressive environments. Suitable for steam sterilisation. Further information is available on request.

Material Properties

| Physical | Nominal Value | Unit | Test Method |
|---|---------------|-------------------|-----------------|
| Density (Crystalline) | 1.30 | g/cm ³ | ISO 1183 |
| Spiral Flow ¹ | 11.0 | cm | Internal Method |
| Molding Shrinkage ² | | | ISO 294-4 |
| Across Flow | 1.3 | % | |
| Flow | 0.90 | % | |
| 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 Modulus (23°C) | 4000 | MPa | ISO 527-1 |
| Tensile Stress (Yield, 23°C) | 98.0 | MPa | ISO 527-2 |
| Tensile Strain (Break, 23°C) | 45 | % | ISO 527-2 |
| Flexural Modulus (23°C) | 3800 | MPa | ISO 178 |
| Flexural Stress | | | ISO 178 |
| 3.5% Strain, 23°C | 125 | MPa | |
| 23°C ³ | 165 | MPa | |
| 125°C | 85.0 | MPa | |
| 175°C | 19.0 | MPa | |
| 275°C | 12.5 | MPa | |
| Compressive Stress | | | ISO 604 |
| 23°C | 125 | MPa | |
| 120°C | 70.0 | MPa | |
| Impact | Nominal Value | Unit | Test Method |
| Charpy Notched Impact Strength (23°C) | 7.0 | kJ/m ² | ISO 179/1eA |
| Charpy Unnotched Impact Strength (23°C) | No Break | | ISO 179/1U |
| Notched Izod Impact Strength (23°C) | 8.0 | kJ/m ² | ISO 180/A |
| Unnotched Izod Impact Strength (23°C) | No Break | | ISO 180/1U |
| Hardness | Nominal Value | Unit | Test Method |
| Shore Hardness (Shore D, 23°C) | 84.5 | | ISO 868 |
| Thermal | Nominal Value | Unit | Test Method |
| Deflection Temperature Under Load | | | ISO 75-2/Af |
| 1.8 MPa, Unannealed | 152 | °C | |
| Glass Transition Temperature | | | ISO 11357-2 |
| Onset | 143 | °C | |
| Midpoint | 150 | °C | |
| Melting Temperature | 343 | °C | ISO 11357-3 |

VICTREX™ PEEK POLYMER 450G™

| Thermal | Nominal Value | Unit | Test Method |
|---------------------------------------|---------------|---------|----------------|
| CLTE - Flow | | | ISO 11359-2 |
| < 143°C | 45 | ppm/K | |
| > 143°C | 120 | ppm/K | |
| CLTE - Average | | | ISO 11359-2 |
| < 143°C | 55 | ppm/K | |
| > 143°C | 140 | ppm/K | |
| Thermal Conductivity | | | ISO 22007-4 |
| 23°C ⁴ | 0.29 | W/m/K | |
| 23°C ⁵ | 0.32 | W/m/K | |
| RTI Elec | 260 | °C | UL 746B |
| RTI Imp | 180 | °C | UL 746B |
| RTI Str | 240 | °C | UL 746B |
| Electrical | Nominal Value | Unit | Test Method |
| Volume Resistivity | | | IEC 60093 |
| 23°C | 1.0E+16 | ohms·cm | |
| 125°C | 1.0E+15 | ohms·cm | |
| 275°C | 1.0E+9 | ohms·cm | |
| Dielectric Strength | | | IEC 60243-1 |
| 0.0500 mm | 200.0 | kV/mm | |
| 2.00 mm | 23.0 | kV/mm | |
| Dielectric Constant | | | IEC 60250 |
| 23°C, 50 Hz | 3.00 | | |
| 23°C, 1 kHz | 3.10 | | |
| 200°C, 50 Hz | 4.50 | | |
| Dissipation Factor (23°C, 1 MHz) | 4.0E-3 | | IEC 60250 |
| Comparative Tracking Index | 150 | V | IEC 60112 |
| Flammability | Nominal Value | Unit | Test Method |
| Glow Wire Flammability Index (2.0 mm) | 960 | °C | IEC 60695-2-12 |
| Fill Analysis | Nominal Value | Unit | Test Method |
| Melt Viscosity (400°C) | 350 | 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 | 355 | °C |
| Middle Temperature | 360 to 365 | °C |
| Front Temperature | 370 | °C |
| Nozzle Temperature | 375 | °C |
| Mould Temperature | 170 to 200 | °C |

Injection Notes

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: 190°C, Melt Temperature: 375°C, 1.00 mm

² 375°C nozzle, 190°C tool

³ At yield

⁴ Average

⁵ Along flow

Revision Date: December 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 2025.