# VICTREX® PEEK 90HMF40

Polyetheretherketone

Victrex plc

## Message:

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.

| General Information | | | |
|---|---|---|---|
| Filler / Reinforcement | Carbon fiber reinforced material, 40% filler by weight | | |
| Features | Semicrystallization<br>Low friction coefficient<br>High strength<br>Good liquidity<br>Good chemical resistance<br>Good wear resistance | | |
| Appearance | Black | | |
| Forms | Particles | | |
| Processing Method | Injection molding | | |
| **Physical** | **Nominal Value** | **Unit** | **Test Method** |
| Density [1] | 1.45 | g/cm³ | ISO 1183 |
| Spiral Flow | 10.0 | cm | Internal method |
| Molding Shrinkage [2] | | | ISO 294-4 |
| Vertical flow direction | 0.40 | % | ISO 294-4 |
| Flow direction | 0.0 | % | ISO 294-4 |
| Water Absorption | | | ISO 62 |
| 23°C, 24 hr, 3.20 mm | 0.030 | % | ISO 62 |
| Saturated, 23°C, 3.20mm | 0.30 | % | ISO 62 |
| **Hardness** | **Nominal Value** | **Unit** | **Test Method** |
| Durometer Hardness (Shore D) | 89 | | ISO 868 |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Modulus (23°C) | 45000 | MPa | ISO 527-2 |
| Tensile Stress | | | ISO 527-2 |
| Fracture, 23°C | 330 | MPa | ISO 527-2 |
| Fracture, 120°C | 220 | MPa | ISO 527-2 |
| Fracture, 180°C | 145 | MPa | ISO 527-2 |
| Fracture, 275°C | 85.0 | MPa | ISO 527-2 |
| Tensile Strain (Break, 23°C) | 1.2 | % | ISO 527-2 |
| Flexural Modulus (23°C) | 37000 | MPa | ISO 178 |

| | | | |
|---|---|---|---|
| Flexural Stress | | | ISO 178 |
| 23°C | 480 | MPa | ISO 178 |
| 120°C | 350 | MPa | ISO 178 |
| 180°C | 220 | MPa | ISO 178 |
| 275°C | 120 | MPa | ISO 178 |
| Compressive Stress | | | ISO 604 |
| 23°C | 310 | MPa | ISO 604 |
| 120°C | 250 | MPa | ISO 604 |
| 200°C | 120 | MPa | ISO 604 |
| **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 | $kJ/m^2$ | ISO 179/1U |
| Notched Izod Impact (23°C) | 11 | $kJ/m^2$ | ISO 180/A |
| Unnotched Izod Impact Strength (23°C) | 60 | $kJ/m^2$ | ISO 180 |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Heat Deflection Temperature (1.8 MPa, Unannealed) | 349 | °C | ISO 75-2/Ae |
| Glass Transition Temperature | 143 | °C | ISO 11357-2 |
| Melting Temperature | 343 | °C | ISO 11357-3 |
| Linear thermal expansion coefficient | | | ISO 11359-2 |
| Flow: > 143°C | 1.0E-6 | cm/cm/°C | ISO 11359-2 |
| Flow: < 143°C | 3.0E-6 | cm/cm/°C | ISO 11359-2 |
| Lateral: < 143°C | 3.5E-5 | cm/cm/°C | ISO 11359-2 |
| Lateral: > 143°C | 8.0E-5 | cm/cm/°C | ISO 11359-2 |
| Specific Heat (23°C) | 1800 | J/kg/°C | DSC |
| Thermal Conductivity (23°C) | 2.0 | W/m/K | ISO 22007-4 |
| **Electrical** | **Nominal Value** | **Unit** | **Test Method** |
| Volume Resistivity [3] (23°C) | 1.0E+5 | ohms·cm | ASTM D4496 |
| **Fill Analysis** | **Nominal Value** | **Unit** | **Test Method** |
| Melt Viscosity (400°C) | 330 | Pa·s | ISO 11443 |
| **Injection** | **Nominal Value** | **Unit** | |
| Drying Temperature | 120 - 150 | °C | |
| Drying Time | 3.0 - 5.0 | hr | |
| Hopper Temperature | < 100 | °C | |
| Rear Temperature | 365 | °C | |
| Middle Temperature | 370 - 375 | °C | |
| Front Temperature | 380 | °C | |
| Nozzle Temperature | 385 | °C | |
| Mold Temperature | 190 - 200 | °C | |
| **Injection instructions** | | | |
| Runner: Die / nozzle >3mm, manifold >3.5mmGate: >2mm or 0.5 x part thickness | | | |
| **NOTE** | | | |

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|---|---|
| 1. | Crystalline |
| 2. | 380°C nozzle, 190°C tool |
| 3. | 1V |



## Recommended distributors for this material

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