

## Victrex® PEEK 450GL20 Polyetheretherketone, 20% Glass Fibre Reinforced

Category : Polymer , Thermoplastic , Polyketone , Polyetheretherketone (PEEK) , Polyetheretherketone, PEEK, Glass Fiber Filled

### Material Notes:

**Product Description:**High performance thermoplastic material, 20% carbon fibre reinforced Polyetheretherketone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard flow, FDA food contact compliant, colour natural/beige.  
**Typical Application Areas:**Applications for higher strength in a static system. Low coefficient of thermal expansion. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications.  
 Information Provided by VICTREX®

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Victrex-PEEK-450GL20-Polyetheretherketone-20-Glass-Fibre-Reinforced.php](http://www.lookpolymers.com/polymer_Victrex-PEEK-450GL20-Polyetheretherketone-20-Glass-Fibre-Reinforced.php)

| Physical Properties               | Metric               | English                   | Comments                            |
|-----------------------------------|----------------------|---------------------------|-------------------------------------|
| Density                           | 1.43 g/cc            | 0.0517 lb/in <sup>3</sup> | Crystalline; ISO 1183               |
| Water Absorption at Saturation    | 0.40 %               | 0.40 %                    | Equilibrium; by immersion; ISO 62-1 |
|                                   | @Temperature 23.0 °C | @Temperature 73.4 °F      |                                     |
|                                   | 0.45 %               | 0.45 %                    | immersion; ISO 62-1                 |
|                                   | @Temperature 100 °C  | @Temperature 212 °F       |                                     |
| Viscosity                         | 475000 cP            | 475000 cP                 | melt; ISO 11443                     |
|                                   | @Temperature 400 °C  | @Temperature 752 °F       |                                     |
| Linear Mold Shrinkage, Flow       | 0.0030 cm/cm         | 0.0030 in/in              | 360°C nozzle, 160°C tool; ISO 294-4 |
| Linear Mold Shrinkage, Transverse | 0.0090 cm/cm         | 0.0090 in/in              | 380°C nozzle, 190°C tool; ISO 294-4 |
| Spiral Flow                       | 10.0 cm              | 3.94 in                   | 380°C nozzle, 190°C tool            |
|                                   | @Thickness 1.00 mm   | @Thickness 0.0394 in      |                                     |

| Mechanical Properties     | Metric               | English              | Comments |
|---------------------------|----------------------|----------------------|----------|
| Tensile Strength at Break | 160 MPa              | 23200 psi            | ISO 527  |
|                           | @Temperature 23.0 °C | @Temperature 73.4 °F |          |
| Elongation at Break       | 3.4 %                | 3.4 %                | ISO 527  |
|                           | @Temperature 23.0 °C | @Temperature 73.4 °F |          |
| Tensile Modulus           | 8.80 GPa             | 1280 ksi             | ISO 527  |
|                           | @Temperature 23.0 °C | @Temperature 73.4 °F |          |
| Flexural Strength         | 250 MPa              | 36300 psi            | ISO 178  |
|                           | @Temperature 23.0 °C | @Temperature 73.4 °F |          |
|                           | 8.30 GPa             | 1200 ksi             |          |

| Flexural Modulus<br>Mechanical Properties | Metric<br>@ Temperature 23.0 °C                | English<br>@ Temperature 73.4 °F                   | ISO 178<br>Comments |
|---|--|--|---------------------|
| Izod Impact, Notched (ISO)                | 10.0 kJ/m <sup>2</sup><br>@Temperature 23.0 °C | 4.76 ft-lb/in <sup>2</sup><br>@Temperature 73.4 °F | ISO 180/A           |
| Izod Impact, Unnotched (ISO)              | 65.0 kJ/m <sup>2</sup><br>@Temperature 23.0 °C | 30.9 ft-lb/in <sup>2</sup><br>@Temperature 73.4 °F | ISO 180/U           |

| Thermal Properties                          | Metric                                | English  | Comments                    |
|---|---------------------------------------|--|-----------------------------|
| CTE, linear                                 | 45.0 µm/m-°C<br>@Temperature <=143 °C | 25.0 µin/in-°F<br>@Temperature <=289 °F                    | Average below Tg; ISO 11359 |
|   | 120 µm/m-°C<br>@Temperature >=143 °C  | 66.7 µin/in-°F<br>@Temperature >=289 °F                    | Average above Tg; ISO 11359 |
| CTE, linear, Parallel to Flow               | 20.0 µm/m-°C<br>@Temperature <=143 °C | 11.1 µin/in-°F<br>@Temperature <=289 °F                    | Below Tg; ISO 11359         |
|   | 22.0 µm/m-°C<br>@Temperature >=143 °C | 12.2 µin/in-°F<br>@Temperature >=289 °F                    | Above Tg; ISO 11359         |
| Thermal Conductivity                        | 0.350 W/m-K                           | 2.43 BTU-in/hr-ft <sup>2</sup> -°F                         | Along flow; ISO 22007-4     |
|   | 0.300 W/m-K<br>@Temperature 23.0 °C   | 2.08 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 73.4 °F | Average; ISO/CD 22007-4     |
| Melting Point                               | 343 °C                                | 649 °F   | ISO 11357                   |
| Deflection Temperature at 1.8 MPa (264 psi) | 315 °C                                | 599 °F   | ISO 75-f                    |
| Glass Transition Temp, Tg                   | 143 °C                                | 289 °F   | Onset; ISO 11357            |
|   | 150 °C                                | 302 °F   | Midpoint; ISO 11357         |

| Electrical Properties | Metric                                     | English                                    | Comments    |
|-----------------------|--|--|-------------|
| Volume Resistivity    | 1.00e+16 ohm-cm                            | 1.00e+16 ohm-cm                            | IEC 60093   |
| Dielectric Constant   | 3.1  | 3.1  | IEC 60250   |
|                       | @Frequency 1000 Hz,<br>Temperature 23.0 °C | @Frequency 1000 Hz,<br>Temperature 73.4 °F |             |
| Dielectric Strength   | 24.0 kV/mm                                 | 610 kV/in                                  | IEC 60243-1 |

| Electrical Properties      | @Thickness 2.00 mm<br>Metric                                   | @Thickness 0.0787 in<br>English                                | Comments  |
|----------------------------|--|--|-----------|
| Dissipation Factor         | 0.0050<br><br>@Frequency 1.00e+6<br>Hz,<br>Temperature 23.0 °C | 0.0050<br><br>@Frequency 1.00e+6<br>Hz,<br>Temperature 73.4 °F | IEC 60250 |
| Comparative Tracking Index | 150 V  | 150 V  | IEC 60112 |

| Processing Properties  | Metric                        | English                       | Comments           |
|------------------------|-------------------------------|-------------------------------|--------------------|
| Processing Temperature | <= 100 °C                     | <= 212 °F                     | Hopper Temperature |
| Nozzle Temperature     | 380 °C                        | 716 °F                        |                    |
| Mold Temperature       | 170 - 200 °C                  | 338 - 392 °F                  |                    |
| Drying Temperature     | 120 °C<br><br>@Time 18000 sec | 248 °F<br><br>@Time 5.00 hour |                    |
|                        | 150 °C<br><br>@Time 10800 sec | 302 °F<br><br>@Time 3.00 hour |                    |

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