

## VICTREX® PEEK 450GL20

### ➤ Product Description:

High performance thermoplastic material, 20% glass 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 sterilisation for medical and food contact applications.

### ➤ Material Properties

|  | CONDITIONS                      | TEST METHOD | UNITS                                | TYPICAL VALUE    |
|--|---------------------------------|-------------|--------------------------------------|------------------|
| <b>Mechanical Data</b>                     |                                 |             |                                      |                  |
| Tensile Strength                           | Break, 23°C                     | ISO 527     | MPa                                  | 160              |
| Tensile Elongation                         | Break, 23°C                     | ISO 527     | %                                    | 3.3              |
| Tensile Modulus                            | 23°C                            | ISO 527     | GPa                                  | 8.8              |
| Flexural Strength                          | 23°C                            | ISO 178     | MPa                                  | 250              |
| Flexural Modulus                           | 23°C                            | ISO 178     | GPa                                  | 8.8              |
| Izod Impact Strength                       | Notched, 23°C                   | ISO 180/A   | kJ m <sup>-2</sup>                   | 7.5              |
|  | Unnotched, 23°C                 | ISO 180/U   |                                      |                  |
| <b>Thermal Data</b>                        |                                 |             |                                      |                  |
| Melting Point                              |                                 | ISO 11357   | °C                                   | 343              |
| Glass Transition (T <sub>g</sub> )         | Onset                           | ISO 11357   | °C                                   | 143              |
| Specific Heat Capacity                     | 23°C                            | DSC         | kJ kg <sup>-1</sup> °C <sup>-1</sup> | 1.7              |
| Coefficient of Thermal Expansion           | Along flow below T <sub>g</sub> | ISO 11359   | ppm K <sup>-1</sup>                  | 20               |
|  | Average below T <sub>g</sub>    |             |                                      |                  |
|  | Along flow above T <sub>g</sub> |             |                                      |                  |
|  | Average above T <sub>g</sub>    |             |                                      |                  |
| Heat Deflection Temperature                | 1.8 MPa                         | ISO 75-f    | °C                                   | 315              |
| Thermal Conductivity                       | 23°C                            | ISO 22007-4 | W m <sup>-1</sup> K <sup>-1</sup>    | 0.30             |
| <b>Flow</b>                                |                                 |             |                                      |                  |
| Melt Viscosity                             | 400°C                           | ISO 11443   | Pa.s                                 | 480              |
| <b>Miscellaneous</b>                       |                                 |             |                                      |                  |
| Density                                    | Crystalline                     | ISO 1183    | g cm <sup>-3</sup>                   | 1.43             |
| Shore D hardness                           | 23°C                            | ISO 868     |                                      | 85.5             |
| Water Absorption (3.2mm thick Tensile bar) | 24h, 23°C                       | ISO 62-1    | %                                    | 0.05             |
|  | (by immersion)                  |             |                                      |                  |
| <b>Electrical Properties</b>               |                                 |             |                                      |                  |
| Dielectric Strength                        | 2mm thickness                   | IEC 60243-1 | kV mm <sup>-1</sup>                  | 24               |
| Comparative Tracking Index                 |                                 | IEC 60112   | V                                    | 150              |
| Loss Tangent                               | 23°C, 1 MHz                     | IEC 60250   | n/a                                  | 0.005            |
| Dielectric Constant                        | 23°C, 1 kHz                     | IEC 60250   | n/a                                  | 3.1              |
| Volume Resistivity                         |                                 | IEC 60093   | Ω cm                                 | 10 <sup>16</sup> |

| Recommended Processing Conditions |  |
|-----------------------------------|--|
| Drying Temperature / Time         | 150°C / 3h or 120°C / 5h               |
| Temperature settings              | 360 / 365 / 370 / 375 / 380°C (Nozzle) |
| Hopper Temperature                | Not greater than 100°C                 |
| Mould Temperature                 | 170°C - 200°C (max 250°C)              |
| Runner                            | Die / nozzle >3mm, manifold >3.5mm     |
| Gate                              | >2mm or 0.5 x part thickness           |

| Mould Shrinkage and Spiral Flow |                          |             |           |   |     |
|---------------------------------|--------------------------|-------------|-----------|---|-----|
| Mould Shrinkage                 | 380°C nozzle, 190°C tool | Along flow  | ISO 294-4 | % | 0.3 |
|                                 |                          | Across flow |           |   | 0.9 |

**Important note:**

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](http://www.victrex.com) or upon request



**World Headquarters**

Victrex plc, Hillhouse International, Thornton Cleveleys, Lancashire FY5 4QD United Kingdom  
 Tel: +44 (0)1253 897700 Fax: +44 (0)1253 897701 Email: [victrexplc@victrex.com](mailto:victrexplc@victrex.com)

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