

# VICTREX® PEEK 450GL30 BLACK

## ➤ Product Description:

High performance thermoplastic material, 30% glass fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline, granules for injection moulding and extrusion, standard viscosity, FDA food contact compliant, colour black.

## ➤ 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                               | 175           |
|                                  | Break, 125°C          |             |                                   | 120 *         |
|                                  | Break, 175°C          |             |                                   | 60 *          |
|                                  | Break, 225°C          |             |                                   | 35 *          |
| Tensile Elongation               | Break, 23°C           | ISO 527     | %                                 | 2.4           |
| Tensile Modulus                  | 23°C                  | ISO 527     | GPa                               | 11.5          |
| Flexural Strength                | 23°C                  | ISO 178     | MPa                               | 250           |
|                                  | 125°C                 |             |                                   | 190 *         |
|                                  | 175°C                 |             |                                   | 80 *          |
|                                  | 225°C                 |             |                                   | 50 *          |
| Flexural Modulus                 | 23°C                  | ISO 178     | GPa                               | 11.0          |
| Compressive Strength             | 23°C                  | ISO 604     | MPa                               | 250 *         |
|                                  | 120°C                 |             |                                   | 160 *         |
|                                  | 200°C                 |             |                                   | 55 *          |
| Izod Impact Strength             | Notched, 23°C         | ISO 180/A   | kJ m <sup>-2</sup>                | 10.5          |
|                                  | Unnotched, 23°C       | ISO 180/U   |                                   | 55            |
| <b>Thermal Data</b>              |                       |             |                                   |               |
| Melting Point                    |                       | ISO 11357   | °C                                | 343           |
| Glass Transition (Tg)            | Onset                 | ISO 11357   | °C                                | 143           |
|                                  | Midpoint              |             |                                   | 150           |
| Coefficient of Thermal Expansion | Along flow below Tg   | ISO 11359   | ppm K <sup>-1</sup>               | 18 *          |
|                                  | Average below Tg      |             |                                   | 45 *          |
|                                  | Along flow above Tg   |             |                                   | 18 *          |
|                                  | Average above Tg      |             |                                   | 110 *         |
| Heat Deflection Temperature      | 1.8 MPa               | ISO 75-f    | °C                                | 328           |
| Thermal Conductivity             | Along flow, 23°C      | ISO 22007-4 | W m <sup>-1</sup> K <sup>-1</sup> | 0.35          |
|                                  | Average, 23°C         |             |                                   | 0.30          |
| Relative Thermal Index           | Electrical            | UL 746B     | °C                                | 240           |
|                                  | Mechanical w/o impact |             |                                   | 240           |
|                                  | Mechanical w/impact   |             |                                   | 220           |
| <b>Flow</b>                      |                       |             |                                   |               |
| Melt Viscosity                   | 400°C                 | ISO 11443   | Pa.s                              | 550           |

| Miscellaneous                 |                   |          |                    |      |
|-------------------------------|-------------------|----------|--------------------|------|
| Density                       | Crystalline       | ISO 1183 | $\text{g cm}^{-3}$ | 1.51 |
| Shore D hardness              | 23°C              | ISO 868  |                    | 87.5 |
| Water Absorption by immersion | Saturation, 23°C  | ISO 62-1 | %                  | 0.3  |
|                               | Saturation, 100°C |          |                    | 0.45 |

| Electrical Properties      |               |             |                     |                   |
|----------------------------|---------------|-------------|---------------------|-------------------|
| Dielectric Strength        | 2mm thickness | IEC 60243-1 | $\text{kV mm}^{-1}$ | 21.5              |
| 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                 | 3.3 *             |
| Volume Resistivity         | 23°C          | IEC 60093   | $\Omega \text{ cm}$ | $5 \cdot 10^{15}$ |

| Fire Smoke Toxicity |               |                |    |       |
|---------------------|---------------|----------------|----|-------|
| Glow Wire Test      | 2mm thickness | IEC 60695-2-12 | °C | 960 * |

\* Result based on similar products

| Typical Processing Conditions |   |
|-------------------------------|---|
| Drying Temperature / Time     | 150°C / 3h or 120°C / 5h (residual moisture <0.02%) |
| Temperature settings          | 360 / 370 / 375 / 380 / 385°C (Nozzle)              |
| Hopper Temperature            | Not greater than 100°C                              |
| Mould Temperature             | 180°C - 200°C                                       |
| Runner                        | Die / nozzle >3mm, manifold >3.5mm                  |
| Gate                          | >2mm or 0.5 x part thickness                        |

| Mould Shrinkage and Spiral Flow |                          |                   |           |    |     |
|---------------------------------|--------------------------|-------------------|-----------|----|-----|
| Spiral Flow                     | 385°C nozzle, 190°C tool | 1mm thick section | Victrex   | mm | 85  |
|                                 |                          | 3mm thick section |           |    | 410 |
| Mould Shrinkage                 | 385°C nozzle, 190°C tool | Along flow        | ISO 294-4 | %  | 0.3 |
|                                 |                          | Across flow       |           |    | 0.9 |

#### Important notes:

- 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.*
- 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

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