

## VICTREX® PEEK 650CA30

### ➤ Product Description:

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

### ➤ Typical Application Areas:

Applications for higher strength and stiffness in a static or dynamic system. Excellent wear resistance, low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

### ➤ Material Properties

|                                  | CONDITIONS          | TEST METHOD | UNITS                             | TYPICAL VALUE |
|----------------------------------|---------------------|-------------|-----------------------------------|---------------|
| <b>Mechanical Data</b>           |                     |             |                                   |               |
| Tensile Strength                 | Break, 23°C         | ISO 527     | MPa                               | 250           |
|                                  | Break, 125°C        |             |                                   | 150           |
|                                  | Break, 175°C        |             |                                   | 85            |
|                                  | Break, 275°C        |             |                                   | 50            |
| Tensile Elongation               | Break, 23°C         | ISO 527     | %                                 | 1.9           |
| Tensile Modulus                  | 23°C                | ISO 527     | GPa                               | 25            |
| Flexural Strength                | 23°C                | ISO 178     | MPa                               | 370           |
|                                  | 125°C               |             |                                   | 250           |
|                                  | 175°C               |             |                                   | 120           |
|                                  | 275°C               |             |                                   | 60            |
| Flexural Modulus                 | 23°C                | ISO 178     | GPa                               | 21.5          |
| Compressive Strength             | 23°C                | ISO 604     | MPa                               | 280           |
|                                  | 120°C               |             |                                   | 180           |
|                                  | 200°C               |             |                                   | 60            |
| Charpy Impact Strength           | Notched, 23°C       | ISO 179/1eA | kJ m <sup>-2</sup>                | 10.5          |
|                                  | Unnotched, 23°C     | ISO 179/1U  |                                   | 60            |
| Izod Impact Strength             | Notched, 23°C       | ISO 180/A   | kJ m <sup>-2</sup>                | 12            |
|                                  | Unnotched, 23°C     | ISO 180/U   |                                   | 60            |
| <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>               | 6             |
|                                  | Average below Tg    |             |                                   | 50            |
|                                  | Along flow above Tg |             |                                   | 6             |
|                                  | Average above Tg    |             |                                   | 135           |
| Heat Deflection Temperature      | 1.8 MPa             | ISO 75-f    | °C                                | 333           |
| Thermal Conductivity             | Along flow, 23°C    | ISO 22007-4 | W m <sup>-1</sup> K <sup>-1</sup> | 2.0           |
|                                  | Average, 23°C       |             |                                   | 0.95          |
| <b>Flow</b>                      |                     |             |                                   |               |
| Melt Viscosity                   | 420°C               | ISO 11443   | Pa.s                              | 800           |

| Miscellaneous                 |                   |            |                    |                   |
|-------------------------------|-------------------|------------|--------------------|-------------------|
| Density                       | Crystalline       | ISO 1183   | g cm <sup>-3</sup> | 1.40              |
| Water Absorption by immersion | Saturation, 23°C  | ISO 62-1   | %                  | 0.3 *             |
|                               | Saturation, 100°C |            |                    | 0.45 *            |
| Electrical Properties         |                   |            |                    |                   |
| Volume Resistivity            | 23°C, 1V          | ASTM D4496 | Ω cm               | 10 <sup>5</sup> * |

\* Result based on similar products

| Typical Processing Conditions |  |
|-------------------------------|--|
| Drying Temperature / Time     | 150°C / 3h or 120°C / 5h               |
| Temperature settings          | 390 / 400 / 405 / 410 / 415°C (Nozzle) |
| Hopper Temperature            | Not greater than 100°C                 |
| Mould Temperature             | 180°C - 210°C (max 250°C)              |
| Runner                        | Die / nozzle >3mm, manifold >3.5mm     |
| Gate                          | >2mm or 0.5 x part thickness           |

| Mould Shrinkage and Spiral Flow |                          |                   |           |    |     |
|---------------------------------|--------------------------|-------------------|-----------|----|-----|
| Spiral Flow                     | 415°C nozzle, 200°C tool | 1mm thick section | Victrex   | mm | 80  |
|                                 |                          | 3mm thick section |           |    | 375 |
| Mould Shrinkage                 | 415°C nozzle, 200°C tool | Along flow        | ISO 294-4 | %  | 0.1 |
|                                 |                          | Across flow       |           |    | 0.5 |

#### 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

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