

# VICTREX PC™ 140 CPD Granules

## General Information

### Product Description

High performance biocompatible thermoplastic material, 30% carbon fibre reinforced PolyEtherEtherKetone (PEEK), semi crystalline. Granules for injection moulding and extrusion, easy flow, specifically for drug delivery devices, pharmaceutical manufacturing and packaging. Colour black.

### Typical Application Areas

For use in applications requiring high strength, high stiffness, and high ductility. Suitable for drug delivery devices, pharmaceutical manufacturing and packaging. As PEEK is hygroscopic, drying before use is recommended. Further information is available upon request.

VICTREX PC™ offers high performance for strength, chemical resistance, wear resistance, toughness and purity whilst being PFAS free.

## Material Properties

| Physical   | Nominal Value | Unit              | Test Method     |
|--|---------------|-------------------|-----------------|
| Density (Crystalline)                              | 1.40          | g/cm <sup>3</sup> | ISO 1183        |
| Molding Shrinkage <sup>1</sup>                     |               |                   | ISO 294-4       |
| Across Flow  | 0.50          | %                 |                 |
| Flow   | 0.10          | %                 |                 |
| Water Absorption (Saturation, 23°C)                | 0.30          | %                 | ISO 62          |
| CrystallinityDSC                                   | 24.5          | %                 | Internal Method |
| Mechanical   | Nominal Value | Unit              | Test Method     |
| Tensile Modulus (23°C)                             | 28000         | MPa               | ISO 527-1       |
| Tensile Stress (Yield, 23°C)                       | 270           | MPa               | ISO 527-2       |
| Tensile Strain (Break, 23°C)                       | 1.5           | %                 | ISO 527-2       |
| Flexural Modulus (23°C)                            | 24000         | MPa               | ISO 178         |
| Flexural Stress <sup>2</sup> (23°C)                | 380           | MPa               | ISO 178         |
| Compressive Stress <sup>3</sup> (23°C)             | 300           | MPa               | ISO 604         |
| Impact   | Nominal Value | Unit              | Test Method     |
| Charpy Notched Impact Strength (23°C)              | 6.0           | kJ/m <sup>2</sup> | ISO 179/1eA     |
| Notched Izod Impact Strength (23°C)                | 7.5           | kJ/m <sup>2</sup> | ISO 180/A       |
| Hardness   | Nominal Value | Unit              | Test Method     |
| Shore Hardness (Shore D, 23°C)                     | 87.5          |                   | ISO 868         |
| Thermal  | Nominal Value | Unit              | Test Method     |
| Glass Transition Temperature (Onset)               | 143           | °C                | ISO 11357-2     |
| Melting Temperature                                | 343           | °C                | ISO 11357-3     |
| Recrystallization Temperature                      | 300           | °C                | ISO 11357-3     |
| Fill Analysis                                      | Nominal Value | Unit              | Test Method     |
| Melt Viscosity (400°C, 1000 sec <sup>-1</sup> )    | 300           | Pa·s              | Internal Method |
| Melt Stability400°C, 1000 sec <sup>-1</sup> , 1 hr | 1.0           | %                 | Internal Method |

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## Typical Processing Information

| Injection          | Nominal Value | Unit |
|--------------------|---------------|------|
| Drying Temperature | 120 to 150    | °C   |
| Drying Time        | 3.0 to 5.0    | hr   |
| Hopper Temperature | < 100         | °C   |
| Rear Temperature   | 365           | °C   |
| Middle Temperature | 370 to 375    | °C   |
| Front Temperature  | 380           | °C   |
| Nozzle Temperature | 385           | °C   |
| Mould Temperature  | 180 to 210    | °C   |

### Injection Notes

Drying Temperature/Time: 150 °C / 3 h or 120 °C / 5 h (residual moisture <0.02%)

Runner: Die / nozzle >3mm, manifold >3.5mm

Gate: >2mm or 0.5 x part thickness

#### Important Notes:

1) 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.

2) 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.

#### Storage Requirements

Store in original packaging away from direct sunlight and extremes of temperatures. Do not use if sealing tab is broken prior to opening.

#### Development Material

During qualification activities NFHI (Not For Human Implantation) grades are available upon request.

Detailed data available on our website [www.victrex.com](http://www.victrex.com) or upon request.

## Notes

<sup>1</sup> 375°C nozzle, 190°C tool

<sup>2</sup> At yield

<sup>3</sup> Notched

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