

# VICTREX® PEEK 450FC30

Polyetheretherketone

Victrex plc

## Message:

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

Tribological applications for high strength. Excellent wear resistance, very low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments.

| General Information                |                                              |       |                   |
|------------------------------------|----------------------------------------------|-------|-------------------|
| UL YellowCard                      | E161131-224305                               |       |                   |
| Filler / Reinforcement             | Carbon \Graphite \PTFE, 30% filler by weight |       |                   |
| Features                           | Semicrystallization                          |       |                   |
|                                    | Low friction coefficient                     |       |                   |
|                                    | High strength                                |       |                   |
|                                    | Good liquidity                               |       |                   |
|                                    | Good chemical resistance                     |       |                   |
|                                    | Good wear resistance                         |       |                   |
| Agency Ratings                     | FDA Food Exposure, Not Rated                 |       |                   |
| Appearance                         | Black                                        |       |                   |
| Forms                              | Particles                                    |       |                   |
| Processing Method                  | Extrusion                                    |       |                   |
|                                    | Injection molding                            |       |                   |
| Physical                           | Nominal Value                                | Unit  | Test Method       |
| Density <sup>1</sup>               | 1.45                                         | g/cm³ | ISO 1183          |
| Spiral Flow <sup>2</sup>           |                                              |       |                   |
| -- <sup>3</sup>                    | 8.00                                         | cm    | ExxonMobil Method |
| -- <sup>4</sup>                    | 38.0                                         | cm    | Internal method   |
| Molding Shrinkage <sup>5</sup>     |                                              |       | ISO 294-4         |
| Vertical flow direction: 200°C     | 0.70                                         | %     | ISO 294-4         |
| Flow direction: 200°C              | 0.30                                         | %     | ISO 294-4         |
| Water Absorption                   |                                              |       | ISO 62            |
| 23°C, 24 hr, 3.20 mm               | 0.040                                        | %     | ISO 62            |
| Balance, 23°C, 3.20mm, 50% RH      | 0.30                                         | %     | ISO 62            |
| Hardness                           | Nominal Value                                | Unit  | Test Method       |
| Durometer Hardness (Shore D, 23°C) | 83                                           |       | ISO 868           |
| Mechanical                         | Nominal Value                                | Unit  | Test Method       |
| Tensile Modulus (23°C)             | 12500                                        | MPa   | ISO 527-2         |
| Tensile Stress                     |                                              |       | ISO 527-2         |

|                                                   |               |                   |                |
|---------------------------------------------------|---------------|-------------------|----------------|
| Fracture, 23°C                                    | 140           | MPa               | ISO 527-2      |
| Fracture, 125°C                                   | 95.0          | MPa               | ISO 527-2      |
| Fracture, 175°C                                   | 55.0          | MPa               | ISO 527-2      |
| Fracture, 225°C                                   | 45.0          | MPa               | ISO 527-2      |
| Fracture, 275°C                                   | 35.0          | MPa               | ISO 527-2      |
| Tensile Strain (Break, 23°C)                      | 2.2           | %                 | ISO 527-2      |
| Flexural Modulus (23°C)                           | 11500         | MPa               | ISO 178        |
| Flexural Stress (23°C)                            | 230           | MPa               | ISO 178        |
| Compressive Stress                                |               |                   | ISO 604        |
| 23°C                                              | 170           | MPa               | ISO 604        |
| 120°C                                             | 110           | MPa               | ISO 604        |
| Impact                                            | Nominal Value | Unit              | Test Method    |
| Charpy Notched Impact Strength (23°C)             | 5.0           | kJ/m <sup>2</sup> | ISO 179/1eA    |
| Charpy Unnotched Impact Strength (23°C)           | 35            | kJ/m <sup>2</sup> | ISO 179/1U     |
| Notched Izod Impact (23°C)                        | 6.0           | kJ/m <sup>2</sup> | ISO 180/A      |
| Unnotched Izod Impact Strength (23°C)             | 35            | kJ/m <sup>2</sup> | ISO 180        |
| Thermal                                           | Nominal Value | Unit              | Test Method    |
| Heat Deflection Temperature (1.8 MPa, Unannealed) | 315           | °C                | ISO 75-2/A     |
| Glass Transition Temperature                      | 143           | °C                | ISO 11357-2    |
| Melting Temperature                               | 343           | °C                | ISO 11357-3    |
| Linear thermal expansion coefficient              |               |                   | ISO 11359-2    |
| Flow: < 143°C                                     | 1.5E-5        | cm/cm/°C          | ISO 11359-2    |
| Flow: > 143°C                                     | 2.0E-5        | cm/cm/°C          | ISO 11359-2    |
| Lateral: < 143°C                                  | 4.5E-5        | cm/cm/°C          | ISO 11359-2    |
| Lateral: > 143°C                                  | 1.2E-4        | cm/cm/°C          | ISO 11359-2    |
| Specific Heat (23°C)                              | 1800          | J/kg/°C           | DSC            |
| Thermal Conductivity (23°C)                       | 0.87          | W/m/K             | ISO 22007-4    |
| RTI Imp                                           | 180           | °C                | UL 746         |
| RTI                                               | 240           | °C                | UL 746         |
| Electrical                                        | Nominal Value | Unit              | Test Method    |
| Volume Resistivity <sup>6</sup> (23°C)            | 1.0E+10       | ohms · cm         | IEC 60093      |
| Flammability                                      | Nominal Value | Unit              | Test Method    |
| Glow Wire Flammability Index (2.00 mm)            | 960           | °C                | IEC 60695-2-12 |
| Oxygen Index                                      | 43            | %                 | ISO 4589-2     |
| Fill Analysis                                     | Nominal Value | Unit              | Test Method    |
| Melt Viscosity (400°C)                            | 550           | Pa · s            | ISO 11443      |
| Injection                                         | Nominal Value | Unit              |                |
| Drying Temperature                                | 120 - 150     | °C                |                |
| Drying Time                                       | 3.0 - 5.0     | hr                |                |
| Hopper Temperature                                | < 100         | °C                |                |
| Rear Temperature                                  | 365           | °C                |                |

|                    |           |    |
|--------------------|-----------|----|
| Middle Temperature | 370 - 375 | °C |
| Front Temperature  | 380       | °C |
| Nozzle Temperature | 385       | °C |
| Mold Temperature   | 170 - 200 | °C |

#### Injection instructions

Runner: Die / nozzle >3mm, manifold >3.5mmGate: >2mm or 0.5 x part thickness

#### NOTE

|    |                                                  |
|----|--------------------------------------------------|
| 1. | Crystalline                                      |
| 2. | Mold temperature: 200°C, melt temperature: 385°C |
| 3. | 1 mm                                             |
| 4. | 3 mm                                             |
| 5. | 385°C nozzle                                     |
| 6. | 1V                                               |

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#### Recommended distributors for this material

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