

# VICTREX® PEEK 90G

Polyetheretherketone

Victrex plc

## Message:

High performance thermoplastic material, unreinforced PolyEtherEtherKetone (PEEK), semi crystalline, depth filtered granules for injection moulding, very easy flow, FDA food contact compliant, colour natural/beige.  
Complex geometries with thinner cross sections or longer flow lengths, for high strength and stiffness as well as good ductility. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications

| General Information            |                                       |                   |                 |
|--------------------------------|---------------------------------------|-------------------|-----------------|
| UL YellowCard                  | E161131-552349                        |                   |                 |
| Features                       | Semicrystallization                   |                   |                 |
|                                | Rigidity, high                        |                   |                 |
|                                | High strength                         |                   |                 |
|                                | Good disinfection                     |                   |                 |
|                                | Good liquidity                        |                   |                 |
|                                | Good chemical resistance              |                   |                 |
|                                | Compliance of Food Exposure ductility |                   |                 |
| Uses                           | Non-specific food applications        |                   |                 |
|                                | Medical/nursing supplies              |                   |                 |
| Agency Ratings                 | FDA Food Exposure, Not Rated          |                   |                 |
| Appearance                     | Beige                                 |                   |                 |
|                                | Natural color                         |                   |                 |
| Forms                          | Particles                             |                   |                 |
| Processing Method              | Injection molding                     |                   |                 |
| Physical                       | Nominal Value                         | Unit              | Test Method     |
| Density                        |                                       |                   | ISO 1183        |
| -- 1                           | 1.26                                  | g/cm <sup>3</sup> | ISO 1183        |
| -- 2                           | 1.30                                  | g/cm <sup>3</sup> | ISO 1183        |
| Spiral Flow <sup>3</sup>       |                                       |                   | Internal method |
| -- 4                           | 24.5                                  | cm                | Internal method |
| -- 5                           | 28.0                                  | cm                | Internal method |
| -- 6                           | 33.0                                  | cm                | Internal method |
| Molding Shrinkage <sup>7</sup> |                                       |                   | ISO 294-4       |
| Vertical flow direction: 160°C | 1.3                                   | %                 | ISO 294-4       |
| Flow direction: 160°C          | 1.0                                   | %                 | ISO 294-4       |
| Water Absorption               |                                       |                   | ISO 62          |

| 23°C, 24 hr, 3.20 mm                              | 0.070         | %                 | ISO 62      |
|---------------------------------------------------|---------------|-------------------|-------------|
| Balance, 23°C, 3.20mm, 50% RH                     | 0.40          | %                 | ISO 62      |
| Hardness                                          | Nominal Value | Unit              | Test Method |
| Durometer Hardness (Shore D, 23°C)                | 85            |                   | ISO 868     |
| Mechanical                                        | Nominal Value | Unit              | Test Method |
| Tensile Modulus (23°C)                            | 3700          | MPa               | ISO 527-2   |
| Tensile Stress (Yield, 23°C)                      | 110           | MPa               | ISO 527-2   |
| Tensile Strain (Break, 23°C)                      | 15            | %                 | ISO 527-2   |
| Flexural Modulus (23°C)                           | 4300          | MPa               | ISO 178     |
| Flexural Stress                                   |               |                   | ISO 178     |
| 3.5% strain, 23°C                                 | 135           | MPa               | ISO 178     |
| 23°C <sup>8</sup>                                 | 180           | MPa               | ISO 178     |
| 125°C                                             | 95.0          | MPa               | ISO 178     |
| 175°C                                             | 20.0          | MPa               | ISO 178     |
| 275°C                                             | 14.0          | MPa               | ISO 178     |
| Compressive Stress                                |               |                   | ISO 604     |
| 23°C                                              | 130           | MPa               | ISO 604     |
| 120°C                                             | 80.0          | MPa               | ISO 604     |
| Impact                                            | Nominal Value | Unit              | Test Method |
| Charpy Notched Impact Strength (23°C)             | 4.0           | kJ/m <sup>2</sup> | ISO 179/1eA |
| Charpy Unnotched Impact Strength (23°C)           | No Break      |                   | ISO 179     |
| Notched Izod Impact (23°C)                        | 4.5           | kJ/m <sup>2</sup> | ISO 180/A   |
| Unnotched Izod Impact Strength (23°C)             | No Break      |                   | ISO 180     |
| Thermal                                           | Nominal Value | Unit              | Test Method |
| Heat Deflection Temperature (1.8 MPa, Unannealed) | 156           | °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                                     | 5.0E-5        | cm/cm/°C          | ISO 11359-2 |
| Flow: > 143°C                                     | 1.2E-4        | cm/cm/°C          | ISO 11359-2 |
| Lateral: < 143°C                                  | 5.5E-5        | cm/cm/°C          | ISO 11359-2 |
| Lateral: > 143°C                                  | 1.4E-4        | cm/cm/°C          | ISO 11359-2 |
| Specific Heat (23°C)                              | 2200          | J/kg/°C           | DSC         |
| Thermal Conductivity (23°C)                       | 0.29          | W/m/K             | ISO 22007-4 |
| Electrical                                        | Nominal Value | Unit              | Test Method |
| Volume Resistivity                                |               |                   | IEC 60093   |
| 23°C                                              | 1.0E+16       | ohms · cm         | IEC 60093   |
| 125°C                                             | 1.0E+15       | ohms · cm         | IEC 60093   |
| 275°C                                             | 1.0E+9        | ohms · cm         | IEC 60093   |
| Dielectric Strength (2.50 mm)                     | 23            | kV/mm             | IEC 60243-1 |
| Dielectric Constant (23°C, 1 MHz)                 | 3.10          |                   | IEC 60250   |

|                                            |                                                  |        |                |
|--------------------------------------------|--------------------------------------------------|--------|----------------|
| Dissipation Factor (23°C, 1 MHz)           | 4.0E-3                                           |        | IEC 60250      |
| Comparative Tracking Index                 | 150                                              | V      | IEC 60112      |
| Flammability                               | Nominal Value                                    | Unit   | Test Method    |
| Glow Wire Flammability Index (2.00 mm)     | 960                                              | °C     | IEC 60695-2-12 |
| Oxygen Index                               |                                                  |        | ISO 4589-2     |
| -- <sup>9</sup>                            | 24                                               | %      | ISO 4589-2     |
| -- <sup>10</sup>                           | 35                                               | %      | ISO 4589-2     |
| Toxicity                                   |                                                  |        | NES 713        |
| CO Content                                 | 0.0740                                           |        | NES 713        |
| CO2 Content                                | 0.150                                            |        | NES 713        |
| Total Gases                                | 0.220                                            |        | NES 713        |
| Fill Analysis                              | Nominal Value                                    | Unit   | Test Method    |
| Melt Viscosity (400°C)                     | 90.0                                             | 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                           | 350                                              | °C     |                |
| Middle Temperature                         | 355                                              | °C     |                |
| Front Temperature                          | 355                                              | °C     |                |
| Nozzle Temperature                         | 360                                              | °C     |                |
| Mold Temperature                           | 170 - 200                                        | °C     |                |
| Injection instructions                     |                                                  |        |                |
| Runner: Die / nozzle >3mm, manifold >3.5mm |                                                  |        |                |
| NOTE                                       |                                                  |        |                |
| 1.                                         | Amorphous                                        |        |                |
| 2.                                         | Crystalline                                      |        |                |
| 3.                                         | 1 mm                                             |        |                |
| 4.                                         | Mold temperature: 160°C, melt temperature: 365°C |        |                |
| 5.                                         | Mold temperature: 180°C, melt temperature: 375°C |        |                |
| 6.                                         | Mold temperature: 200°C, melt temperature: 400°C |        |                |
| 7.                                         | 360°C nozzle                                     |        |                |
| 8.                                         | at Yield                                         |        |                |
| 9.                                         | 0.4 mm                                           |        |                |
| 10.                                        | 3.2 mm                                           |        |                |

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