

Victrex® ST™ ST45GL30 Polyetherketoneetherketoneketone (PEKEKK), 30% Glass Fiber Reinforced

Category : Polymer , Thermoplastic , Polyketone , Polyetherketoneetherketoneketone (PEKEKK), Glass Fiber Filled

Material Notes:

Product Description:High performance thermoplastic material, 30% glass fibre reinforced PolyEtherKetoneEtherKetoneKetone (PEKEKK), semi crystalline, granules for injection moulding, standard flow, colour natural/beige.**Typical Application Areas:**Applications for higher strength and stiffness at elevated temperatures. Low coefficient of thermal expansion. Chemically resistant to aggressive environments.**Information Provided by VICTREX®**

Order this product through the following link:

http://www.lookpolymers.com/polymer_Victrex-ST-ST45GL30-Polyetherketoneetherketoneketone-PEKEKK-30-Glass-Fiber-Reinforced.php

| Physical Properties | Metric | English | Comments |
|-----------------------------------|----------------------------------|----------------------------------|-------------------------------------|
| Density | 1.53 g/cc | 0.0553 lb/in ³ | Crystalline; ISO 1183 |
| Water Absorption at Saturation | 0.60 % @Temperature 100 °C | 0.60 % @Temperature 212 °F | immersion; ISO 62-1 |
| Viscosity | 600000 cP @Temperature 420 °C | 600000 cP @Temperature 788 °F | melt; ISO 11443 |
| Linear Mold Shrinkage, Flow | 0.0030 cm/cm | 0.0030 in/in | 360°C nozzle, 160°C tool; ISO 294-4 |
| Linear Mold Shrinkage, Transverse | 0.0090 cm/cm | 0.0090 in/in | 410°C nozzle, 210°C tool; ISO 294-4 |
| Spiral Flow | 10.0 cm @Thickness 1.00 mm | 3.94 in @Thickness 0.0394 in | 410°C nozzle, 210°C tool |
| | 44.0 cm @Thickness 3.00 mm | 17.3 in @Thickness 0.118 in | 410°C nozzle, 210°C tool |

| Mechanical Properties | Metric | English | Comments |
|---------------------------|---------------------------------|-----------------------------------|----------|
| Tensile Strength at Break | 50.0 MPa @Temperature 275 °C | 7250 psi @Temperature 527 °F | ISO 527 |
| | 80.0 MPa @Temperature 175 °C | 11600 psi @Temperature 347 °F | ISO 527 |
| | 130 MPa @Temperature 125 °C | 18900 psi @Temperature 257 °F | ISO 527 |
| | 195 MPa @Temperature 23.0 °C | 28300 psi @Temperature 73.4 °F | ISO 527 |

| Mechanical Properties | Metric | English | Comments |
|------------------------------|-------------------------|----------------------------|-------------|
| Elongation at Break | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Tensile Modulus | 12.0 GPa | 1740 ksi | ISO 527 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Flexural Strength | 70.0 MPa | 10200 psi | ISO 178 |
| | @Temperature 275 °C | @Temperature 527 °F | |
| | 120 MPa | 17400 psi | ISO 178 |
| | @Temperature 175 °C | @Temperature 347 °F | |
| | 180 MPa | 26100 psi | ISO 178 |
| | @Temperature 125 °C | @Temperature 257 °F | |
| | 280 MPa | 40600 psi | ISO 178 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Flexural Modulus | 11.0 GPa | 1600 ksi | ISO 178 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Compressive Strength | 50.0 MPa | 7250 psi | ISO 604 |
| | @Temperature 250 °C | @Temperature 482 °F | |
| | 75.0 MPa | 10900 psi | ISO 604 |
| | @Temperature 200 °C | @Temperature 392 °F | |
| | 190 MPa | 27600 psi | ISO 604 |
| | @Temperature 120 °C | @Temperature 248 °F | |
| | 290 MPa | 42100 psi | ISO 604 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Izod Impact, Notched (ISO) | 11.0 kJ/m ² | 5.23 ft-lb/in ² | ISO 180/A |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Izod Impact, Unnotched (ISO) | 60.0 kJ/m ² | 28.6 ft-lb/in ² | ISO 180/U |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Charpy Impact Unnotched | 7.00 J/cm ² | 33.3 ft-lb/in ² | ISO 179/1U |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Charpy Impact, Notched | 0.900 J/cm ² | 4.28 ft-lb/in ² | ISO 179/1eA |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |

| Thermal Properties | Metric | English | Comments |
|---|---|---|-----------------------------|
| CTE, linear | 40.0 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 22.2 $\mu\text{in}/\text{in}\cdot\text{°F}$ | Average below Tg; ISO 11359 |
| | @Temperature \leq 162 °C | @Temperature \leq 324 °F | |
| | 100 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 55.6 $\mu\text{in}/\text{in}\cdot\text{°F}$ | Average above Tg; ISO 11359 |
| | @Temperature \geq 162 °C | @Temperature \geq 324 °F | |
| CTE, linear, Parallel to Flow | 21.0 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 11.7 $\mu\text{in}/\text{in}\cdot\text{°F}$ | Below Tg; ISO 11359 |
| | @Temperature \leq 162 °C | @Temperature \leq 324 °F | |
| | 23.0 $\mu\text{m}/\text{m}\cdot\text{°C}$ | 12.8 $\mu\text{in}/\text{in}\cdot\text{°F}$ | Above Tg; ISO 11359 |
| | @Temperature \geq 162 °C | @Temperature \geq 324 °F | |
| Thermal Conductivity | 0.350 W/m-K | 2.43 BTU-in/hr-ft ² -°F | Along flow; ISO 22007-4 |
| | 0.300 W/m-K | 2.08 BTU-in/hr-ft ² -°F | Average; ISO/CD 22007-4 |
| | @Temperature 23.0 °C | @Temperature 73.4 °F | |
| Melting Point | 387 °C | 729 °F | ISO 11357 |
| Deflection Temperature at 1.8 MPa (264 psi) | 380 °C | 716 °F | ISO 75-f |
| Glass Transition Temp, Tg | 162 °C | 324 °F | Onset; ISO 11357 |
| | 169 °C | 336 °F | Midpoint; ISO 11357 |

| Electrical Properties | Metric | English | Comments |
|----------------------------|---|---|-------------|
| Volume Resistivity | 1.00e+16 ohm-cm | 1.00e+16 ohm-cm | IEC 60093 |
| Dielectric Constant | 3.3 | 3.3 | IEC 60250 |
| | @Frequency 1000 Hz, Temperature 23.0 °C | @Frequency 1000 Hz, Temperature 73.4 °F | |
| Dielectric Strength | 22.0 kV/mm | 559 kV/in | IEC 60243-1 |
| | @Thickness 2.00 mm | @Thickness 0.0787 in | |
| Dissipation Factor | 0.0040 | 0.0040 | IEC 60250 |
| | @Frequency 1.00e+6 Hz, Temperature 23.0 °C | @Frequency 1.00e+6 Hz, Temperature 73.4 °F | |
| Comparative Tracking Index | 150 V | 150 V | IEC 60112 |
| | 150 V | 150 V | IEC 60112 |

| Electrical Properties | Metric | English | Comments |
|------------------------|-----------------|-----------------|--------------------|
| Processing Properties | Metric | English | Comments |
| Processing Temperature | <= 100 °C | <= 212 °F | Hopper Temperature |
| Nozzle Temperature | 410 °C | 770 °F | |
| Mold Temperature | 200 - 220 °C | 392 - 428 °F | |
| Drying Temperature | 150 °C | 302 °F | |
| | @Time 21600 sec | @Time 6.00 hour | |
| | 180 °C | 356 °F | |
| | @Time 10800 sec | @Time 3.00 hour | |

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