

General Information

Chemical Designation: PEEK
Fillers: Graphite/PTFE/Carbon Fiber
Color: Black
Specific Gravity: 1.48

Poly-Texx® PVX is an ultra high-performance engineering thermoplastic material. This semi-crystalline bearing grade PEEK (Polyetheretherketone) is enhanced with carbon fiber, graphite and PTFE. It boasts a balance of high temperature, outstanding mechanical properties, chemical and steam resistance. The combination of superior tribological (wear) properties and low friction, makes it one of the most capable bearing materials available. It can handle hostile outdoor environments, UV exposure, wet and continuous steam sterilizations. It is capable of environments where thermal cycling, high temperature water or steam where most polymer systems degrade.

Poly-Texx® PVX is a self-lubricating bearing material whose key characteristics are high compressive strength, low friction, low coefficient of thermal expansion, superior bearing and wear properties, with superior resistance to steam and water.

Technical Information

| Specification | Test | Value | Units |
|---|---|---------------------|-----------------------------|
| Specific Gravity, 73°F | D792 | 1.48 | - |
| Tensile Strength @ Yield, 73°F | D638 | 18,800 | psi |
| Tensile Modulus of Elasticity, 73°F | D638 | 850,000 | psi |
| Tensile Elongation (at break), 73°F | D638 | 2.0 | % |
| Flexural Strength, 73°F | D790 | 30,000 | psi |
| Flexural Modulus of Elasticity | D790 | 1,400,000 | psi |
| Shear Strength, 73°F | D732 | 10,000 | psi |
| Compressive Strength – Ultimate | | 16,000 | psi |
| Compressive Strength at 2% Deformation | D695 | 16,500 | psi |
| Compressive Strength at 10% Deformation | D695 | 20,000 | psi |
| Deformation Under Load | | | % |
| Compressive Modulus of Elasticity, 73°F | D695 | 500,000 | |
| Compressive Strength \perp to Laminate (Modulus) | | 16,000 | psi |
| Compressive Strength \perp to Laminate (Yield) | | 16,000 | psi |
| Compressive Strength \perp to Laminate (Ultimate) | | 16,000 | psi |
| Hardness, Durometer (Shore "D" scale) | D7901 | M85 | Rockwell M |
| Hardness, Rockwell (Scale as noted) | D7901 | R126 | Rockwell R |
| Izod Impact, Notched @ 73°F | D256 "A" | 1.0 | ft.lbs/in. of notch |
| Coefficient of Friction (Dry vs Steel) Static | PTM 55007 | 0.2 | |
| Coefficient of Friction (Dry vs Steel) Dynamic | PTM 55007 | 0.1-0.15 | |
| Maximum Static Bearing Load (P) | PTM 55007 | 16,000 | psi |
| Maximum Unlubricated No Load Bearing Velocity (V) | PTM 55007 | 600 | ft/minute |
| Maximum Limiting PV (Unlubricated) | PTM 55007 | 100,000 | psi x ft/min. |
| Wear Factor "K" x 10 ⁻¹⁰ | D 37 o2 | .20 | Cubic V |
| Sand Wheel Wear/Abrasion Test | | 50 | UHMW=100 |
| Minimum Mating Surface Hardness | | 25 | Rockwell (Brinnell) |
| Coefficient of Linear Thermal Expansion | D696 | 1.2 | in/in/°F x 10 ⁻⁵ |
| Coefficient of Thermal Expansion // to Laminates | D696 | 1.2 | in/in/°F x 10 ⁻⁵ |
| Coefficient of Thermal Expansion \perp to Laminates | D696 | 1.2 | in/in/°F x 10 ⁻⁵ |
| Softening Point | | 530 | °F |
| Heat Deflection Temperature 264 psi | D648 | 383 | °F |
| Embrittlement Temperature | | Cryogenic | °F Min. |
| Continuous Service Temperature in Air | | 482 | °F Max. |
| Short Term Service Temperature | | 570 | °F Max. |
| Tg-Glass Transition (Amorphous) | D3418 | 289 | °F |
| Melting Point (Crystalline) Peak | D3418 | 649 | °F |
| Thermal Conductivity | C 177 | 1.66 | BTU-in/(hr*ft2°F) |
| Dielectric Strength Short Term | D149 | | Volts/mil |
| Specific Volume Resistance | D257 | 3 x 10 ⁵ | ohm/cm |
| Surface Resistance | D257 | 5 x 10 ⁶ | ohm/sq |
| Dielectric Constant, 106 Hz | D150 | | |
| Dissipation Factor, 106 Hz | D150 | | |
| Flammability @ 3.1mm(1/8 in.) UL94 | UL94 | V-0 | |
| Arc Resistance | | | seconds |
| Water Absorption, Immersion 24 Hours | D570 (2) | 0.05 | % |
| Water Absorption, Immersion Saturation | D570 (2) | 0.3 | % |
| Machinability Rating | | 3 | 1=easy, 10=difficult |
| Tubing Diameter Availability (Off the Shelf) | .50 | 6.0 | inches |
| Sheet Thickness Availability (Off the Shelf) | .250 | 3.0 | inches |
| Characteristics / Attributes | Very High Load / Self Lubricating / Highest PV Rating | | |

Thank you for your interest in our materials. All statements, technical information and recommendations presented are in good faith, based upon tests believed to be reliable and practical field experience. Poly-Tech is not responsible for its accuracy or completeness. It is our recommendation and the customer's responsibility to determine the suitability of any material for any given application.