Technical Data Sheet

EVANTIC®

Performance Polymers | Engineered Components | Custom Solutions®

VERTEC™ 5001

Unfilled Virgin PEEK (Premium Grade)

Product Description:

VERTEC™ 5001 is Vertec's high elongation, compression molded unreinforced PEEK (polyetheretherketone) material. Its high mechanical properties at elevated temperatures, combined with excellent chemical and hydrolysis resistance, make it the most popular advanced thermoplastic material available today. The use of unreinforced PEEK material is increasingly growing across all industries for metal replacements and other applications. Now, with its FDA compliance, PEEK material can also be used to fabricate components in food and beverage as well as medical and pharmaceutical processing equipment.

Physical Properties	ASTM Method	Typical Values
Specific Gravity, g/cm^3 (lb/ft^3)	D792	1.3 g/cm^3 (81.1 lb/ft^3)
Water Absorption 24 hrs @73.4° F (23°C)	D570	0.15%
Color	N/A	Tan

Mechanical Properties	ASTM Method	Typical Values
Tensile Strength	D1708	14,800 psi (102 MPa)
Tensile Elongation	D1708	25.0 %
Flexural Strength	D790	23,000 psi (158.5 MPa)
Flexural Modulus	D790	525,000 psi (3,619.7 MPa)
Compressive Strength	D695	18,000 psi (124.1 MPa)
Compressive Modulus	D695	450,000 psi (3,102.6 MPa)
Impact Strength (Izod, notched)	D256	1.1 ft-lb/in
Hardness	Shore D	88

Tribological Properties	ASTM Method	Typical Values
Coefficient of Friction - Static	D3702	0.55
Coefficient of Friction - Dynamic	D3702	0.5
Wear Rate PV: 20,000 psi·fpm (137.9 MPa·m/s)	D3702	4.4 µin/min

Characteristics:

- High strength
- High temperature resistance
- Excellent wear resistance
- Excellent chemical resistance
- Low smoke and toxic gas emission
- Superior electrical insulating properties

Typical Applications:

- Centrifugal pump components
  - Impeller and case wear bearings
  - Throat and throttle bearings
  - Inter-stage sleeve bearings
- Jet engine components
- Electrical multi-pin connectors
- Silicon wafer carriers
- Compressor piston and rider rings
- High-temperature valve seats
- Surgical devices
- Down-hole seals and backup rings
- Compressor valve plates
- Food preparation equipment components

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Thermal Properties	ASTM Method	Typical Values
Coefficient of Linear Thermal Expansion (78-300°F / 25.6-204.4°C)	D696	25 x 10 $^{-6}$/° F
Heat Deflection Temperature (@264 psi / 1.82 MPa)	D648	310°F (154.4°C)
Glass Transition Temperature (Tg)	D3418	289°F (142.7°C)
Continuous Service Temperature (Max @ no load)		500°F (260°C)
Melting Point		644 °F (340°C)

Electrical Properties	ASTM Method	Typical Values
Volume Resistivity	D257	10^{16} Ω-cm
Dielectric Strength	D149	
Dielectric Constant	D150	3.3

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Thank you for exploring Evantic's advanced engineered polymer materials and discovering how we can take your products to new heights. Our material science, design and engineering, and manufacturing teams are eager to learn about your project needs, share knowledge, and deliver solutions that surpass expectations.

Contact us today at 1-855-686-8600 or email us at sales@evantic.com.

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Evolving and Advancing Together™

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