Technical Data Sheet

EVANTIC®

Performance Polymers | Engineered Components | Custom Solutions®

VERTEC™ 5000

Unfilled Virgin PEEK (Standard Grade)

Product Description:

VERTEC™ 5000 is an unfilled 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 unfilled PEEK material is increasingly growing across all industries for metal replacements and other applications. Now, with its FDA approval, 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/cm³ (lb/ft³)	D792	1.3 g/cm³ (81.1 lb/ft³)
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	14,300 psi (98.6 MPa)
Tensile Elongation	D1708	15 %
Flexural Strength	D790	22,000 psi (151.7 MPa)
Flexural Modulus	D790	500,000 psi (3,447.4 MPa)
Compressive Strength	D695	17,000 psi (117.2 MPa)
Compressive Modulus	D695	440,000 psi (3,033.7 MPa)
Impact Strength (Izod, notched)	D256	1.4 ft-lb/in
Hardness	Shore D	87

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	4.6 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 (25×10^{-6} /°F)
Heat Deflection Temperature (@264 psi / 1.82 MPa)	D648	300°F (148.8°C)
Glass Transition Temperature (Tg)	D3418	289°F (149.7°C)
Continuous Service Temperature (Max @ no load)		480°F (248.8°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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Warning: Properties shown on this document are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. For specific application recommendations, consult Evantic Material Solutions. While the utmost care has been used in compiling this document, we assume no responsibility for errors. This edition cancels all previous issues.

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Evolving and Advancing Together™

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