Technical Data Sheet

EVANTIC®

Performance Polymers | Engineered Components | Custom Solutions®

VERTEC™ 5023

Proprietary Bearing Grade PEEK (Soft)

Product Description:

VERTEC™ 5023 is a proprietary, bearing grade PEEK (polyetheretherketone) material developed especially for the canning industry. Tribological evaluations under dry running conditions have shown its friction coefficient and wear rate to be much lower than any other bearing grade PEEK composite material available in the market. It is more ductile and flexible than our top-of-the-line Vertec 5025 and Vertec 5028, allowing more of a softer contact surface against a variety of metallic counter-surfaces. At the PV values of 40,000 psi-fpm and higher, its coefficient of friction approaches that of unfilled PTFE. Also, the counter-surface wear is much less.

Physical Properties	ASTM Method	Typical Values
Specific Gravity, g/cm^3 (lb/ft^3)	D792	1.36g/cm^3 (1.7 lb/ft^3)
Water Absorption 24 hrs @73.4° F (23°C)	D570	0.15%
Color	N/A	Black

Mechanical Properties	ASTM Method	Typical Values
Tensile Strength	D1708	16,500 psi (113.7 MPa)
Tensile Elongation	D1708	6.0 %
Flexural Strength	D790	24,000 psi (165.4 MPa)
Flexural Modulus	D790	1,000,000 psi (6,894.7 MPa)
Compressive Strength	D695	23,000 psi (158.5 MPa)
Compressive Modulus	D695	520000 psi
Impact Strength (Izod, notched)	D256	1.2 ft-lb/in
Hardness	Shore D	86

Tribological Properties	ASTM Method	Typical Values
Coefficient of Friction - Static	D3702	0.25
Coefficient of Friction - Dynamic	D3702	0.1
Wear Rate PV: 20,000 psi·fpm (137.9 MPa·m/s)	D3702	1.5 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	11 x 10 -6/° F
Heat Deflection Temperature (@264 psi / 1.82 MPa)	D648	600°F (315.5°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	10^9 Ω-cm
Dielectric Strength	D149	
Dielectric Constant	D150	

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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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