Technical Data Sheet

EVANTIC®

Performance Polymers | Engineered Components | Custom Solutions®

VERTEC™ 5040

25% PTFE Filled PEEK

Product Description:

VERTEC™ 5040 is a PTFE (polytetrafluoroethylene) lubricated PEEK (polyetheretherketone) composite. It offers excellent strength, chemical resistance, and impact resistance along with low coefficient of friction and excellent wear properties.

Physical Properties	ASTM Method	Typical Values
Specific Gravity, g/cm^3 (lb/ft^3)	D792	1.48 g/cm^3 (92.4 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	8,500 psi (58.6 MPa)
Tensile Elongation	D1708	5.0 %
Flexural Strength	D790	14,500 psi (99.9 MPa)
Flexural Modulus	D790	450,000 psi (3,102.6 MPa)
Compressive Strength	D695	11,000 psi (75.8 MPa)
Compressive Modulus	D695	400,000 psi (2,757.9 MPa)
Impact Strength (Izod, notched)	D256	0.6 ft-lb/in
Hardness	Shore D	86

Tribological Properties	ASTM Method	Typical Values
Coefficient of Friction - Static	D3702	0.22
Coefficient of Friction - Dynamic	D3702	0.13
Wear Rate PV: 20,000 psi·fpm (137.9 MPa·m/s)	D3702	4.5 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	50 x 10 -6/° F
Heat Deflection Temperature (@264 psi / 1.82 MPa)	D648	300°F (148.9°C)
Glass Transition Temperature (Tg)	D3418	289°F (142.7°C)
Continuous Service Temperature (Max @ no load)		480°F (248.9°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	

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