Technical Data Sheet

EVANTIC®

Performance Polymers | Engineered Components | Custom Solutions®

VERTEC™ 5010

30% Glass Filled PEEK

Product Description:

VERTEC™ 5010 is a glass fiber reinforced PEEK (polyetheretherketone) material. It exhibits higher modulus than VERTEC 5000 (neat PEEK), thus offering more resistance to deformation under load at elevated temperatures. This material is an ideal candidate for many structural component applications carrying high static loads. Due to the abrasiveness of glass fibers, its use against soft metal surfaces in dynamic applications must be carefully examined.

Physical Properties	ASTM Method	Typical Values
Specific Gravity, g/cm^3 (lb/ft^3)	D792	1.54 gr/cm^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	10,500 psi (72.4 MPa)
Tensile Elongation	D1708	3.0 %
Flexural Strength	D790	28,200 psi (194.4 MPa)
Flexural Modulus	D790	1,000,000 psi (6,894.7 MPa)
Compressive Strength	D695	19,100 psi (131.7 MPa)
Compressive Modulus	D695	500,000 psi (3,447.3 MPa)
Impact Strength (Izod, notched)	D256	1.4 ft-lb/in
Hardness	Shore D	90

Tribological Properties	ASTM Method	Typical Values
Coefficient of Friction - Static	D3702	0.75
Coefficient of Friction - Dynamic	D3702	0.7
Wear Rate PV: 20,000 psi·fpm (137.9 MPa·m/s)	D3702	4.2 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	14 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^{16} Ω-cm
Dielectric Strength	D149	
Dielectric Constant	D150	3.7

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