Technical Data Sheet

EVANTIC®

Performance Polymers | Engineered Components | Custom Solutions®

VERTEC™ 5048

Food Grade PEEK

Product Description:

VERTEC™ 5048 is PEEK (polyetheretherketone) based food-grade bearing material. This off-white material combines high compressive strength with very high thermal conductivity. It offers low CTE along with low coefficient of friction. These properties make it an ideal bearing material for applications where carbon fiber or graphite is not desirable. One such application is in food or pharmaceuticals grade service. It has successfully replaced PTFE, bearing grade PPS and PEEK, as well as stainless steel or other expensive metals to produce a growing range of cost-effective parts with outstanding wear and excellent heat/chemical resistance.

Physical Properties	ASTM Method	Typical Values
Specific Gravity, g/cm^3 (lb/ft^3)	D792	1.65 g/cm^3 (103 lb/ft^3)
Water Absorption 24 hrs @73.4° F (23°C)	D570	0.15%
Color	N/A	White

Mechanical Properties	ASTM Method	Typical Values
Tensile Strength	D1708	9,000 psi (62 MPa)
Tensile Elongation	D1708	1.5 %
Flexural Strength	D790	16,000 psi (110.3 MPa)
Flexural Modulus	D790	500,000 psi (3,447.3 MPa)
Compressive Strength	D695	18,000 psi (124.1 MPa)
Compressive Modulus	D695	500,000 psi (3,447.3 MPa)
Impact Strength (Izod, notched)	D256	0.8 ft-lb/in
Hardness	Shore D	91

Tribological Properties	ASTM Method	Typical Values
Coefficient of Friction - Static	D3702	0.2
Coefficient of Friction - Dynamic	D3702	0.14
Wear Rate PV: 20,000 psi·fpm (137.9 MPa·m/s)	D3702	2.0 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	29 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)		525°F (273.9°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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EVANTIC®

Evolving and Advancing Together™

Corporate Headquarters
10633 West Little York Road
Building 3, Suite 3
Houston, Texas 77041
Phone: 1-855-686-8600
Sales: sales@evantic.com
www.evantic.com