



## PEEK 5025

PEEK 5025 is a Premium Bearing Grade PEEK Composite. The physical and mechanical properties of PEEK 5025 are same or better than that of standard 30% CF PEEK (VICTREX® 450CA30) but the friction and wear properties of PEEK 5025 are significantly better than that any carbon fiber filled PEEK composite. In tribological evaluations, it outperforms 30% CF PEEK and Standard Bearing Grade PEEK (PEEK HPV®) by 2-3 Times. PEEK 5025 has a significantly lower coefficient of thermal expansion, higher thermal conductivity and dramatically lower coefficient of static/dynamic friction than that of other bearing grade PEEK materials. At the PV values higher than 40,000 psi-fpm (up to 120,000), its coefficient of friction approaches that of unfilled PTFE below 0.1. Even at a month long dry running at 120,000 psi-fpm PV against stainless steel counter-surface, the 5025 sample did not show any significant wear. Also, the counter-surface wear is much less than other bearing grade or unfilled PEEKs.

With the physicals of 30% Carbon fiber PEEK, and better tribologicals than other bearing grade peeks, 5025 is the premium choice for wear applications such as bearings, bearing sleeves, bearing cages, riders, rings, thrust washers, slide pads, and other wear components, to be used in environments as varied as saltwater, wastewater, powergen, down-hole, industrial production lines equipment, etc. It is compatible with a wide range of chemical environments, and is appropriate for high temp and pressure steam service.

### Typical Physical Properties

	<i>ASTM Method</i>	<i>Typical Values</i>
Specific Gravity	D792	1.42 gr/cm <sup>3</sup>
Water Absorption (24hrs. @73.4°F)	D570	.15 %
Color	N/A	Black

### Mechanical Properties

Tensile Strength	D1708/D638	18,900 psi
Tensile Elongation	D1708/D638	3.5 %
Flexural Strength	D790	25,000 psi
Flexural Modulus	D790	1.3 10 <sup>6</sup> psi
Compressive Strength	D695	25,000 psi
Compressive Modulus	D695	540,000 psi
Impact Strength (Izod, notched)	D256	
Hardness	Shore D	88

### Tribological Properties

Coefficient of Friction		
Static	D3702	.12
Dynamic	D3702	.14
Wear Rate (PV: 20,000 psi-fpm)	D3702	.80 μin/min

### Thermal Properties

Coefficient of Linear Thermal Expansion (78 to 400 °F)	D696	25 10 <sup>-6</sup> /°F
Heat Deflection Temperature (264psi)	D648	450 °F
Glass Transition Temperature (Tg)	D3418	
Continuous Service Temperature (Max @ no load)		480 °F
Melting Point		644 °F

### Electrical Properties

Volume Resistivity	D257	10 <sup>16</sup> ohm-cm
Dielectric Strength	D149	KVcm
Dielectric Constant	D150	50Hz, 200 °C