

PEEK

PEEK - Polyether Ether Ketone



OVERVIEW

PEEK is a high-performance material with one of the highest strength-to-weight ratios of any engineered polymer. The material is a very rigid plastic with excellent lubricity and boasts a continuous working temperature of 500 °F / 260 °C. When extruded, PEEK can be used as an alternative to other materials including aluminum, steel, and glass.

PEEK is used in various industries such as High Performance Liquid Chromatography (HPLC) because of its strength. In these analytical applications, the increased tensile strength yields increased burst pressure when extruded in tubing form. Medical applications increasingly use PEEK when more torque and pushability are needed for advanced catheter componentry. In challenging applications such as oil and gas, PEEK is typically extruded as a coating over optical fiber and also extruded over magnet and lead wires for motors requiring advanced insulation that is abrasion and chemically resistant. Aerospace markets utilize PEEK because of its strength and resistance to flame and abrasion - protecting wire, cable, and fiber optics.



We can extrude PEEK in a variety of options.

Fillers available with PEEK extrusions:

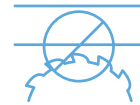
- Carbon
- Barium Sulfate
- Boron Nitride



TENSILE STRENGTH



DIELECTRIC STRENGTH



ABRASION RESISTANCE

APPLICATIONS

- HPLC/analytical tubing
- Wire and cable insulation
- Thermally stable fiber optic coatings
- Catheter componentry

PRODUCTS

- Tight tolerance custom extrusions
- PEEKshrink® (PEEK heat shrink)
- Lay-Flat® tubing
- Drawn fiber
- Insulated Wire
- Convoluted tubing
- Multi-Lumens
- Custom profiles
- Monofilament
- Coated optical fiber

KEY PROPERTIES




- Ideal stainless steel replacement
- Lightweight
- Biocompatible
- Lubricious
- High temperature resistance
- Excellent purity
- High burst pressure
- Thermoformable
- Resistant to gamma radiation
- Limiting oxygen index 35% at 3.2 mm
- Exceptional torsional stability
- Excellent impact and wear resistance












PEEK






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The information presented in this publication is believed to be accurate and is not intended to constitute a specification. Property characteristics are dramatically impacted by geometry and processing method, thus properties of extruded parts may vary. In some instances, data may not be available for publication and will be notated as "na" where applicable. These tables are meant to serve as a general guideline only. Users should evaluate the material to determine suitability for their own particular application.

PHYSICAL		ASTM	PEEK
	Density (g/cc)	D792	1.3
	Water Absorption (%)	ISO 62-1	0.07 - 0.45
	Oxygen Index (%)	D2863	24

ELECTRICAL		ASTM	PEEK
	Volume Resistivity (Ω - cm)	D257	1.0×10^{16}
	Dielectric Constant 1 MHz	DIN 53483	3.1
	Dielectric Strength (V/mil)	EIC 60243-1	584.2

MECHANICAL		ASTM	PEEK
	Hardness, Shore D	D2240	84.5
	Ultimate Tensile Strength (MPa)	ISO 527 (1 or 3)	98 - 100
	Elongation at Break (%)	ISO 527 (1 or 3)	40 - 45
	Modulus of Elasticity (GPa)	D527	3700 - 4000
	Flexural Modulus (GPa)	ISO 178	3800 - 4200
	Coefficient of Friction	D1894	0.58

THERMAL		ASTM	PEEK
	Thermal Conductivity (W/m - K)	ISO 22007-4	0.29 - 0.32
	Maximum Service Temp, Air ($^{\circ}$ C)		260
	Melt Temp ($^{\circ}$ C)	ISO 12086	343
	Decomposition Temp ($^{\circ}$ C)	AIR	541 - 542.6
	Coefficient of Thermal Expansion, linear 20 $^{\circ}$ (μ m/m- $^{\circ}$ C)	D4702	45