PEEK-GF30

30% Glass Fiber Reinforced Polyetheretherketone

Material Overview

PEEK-GF30 is a 30% glass fiber reinforced polyetheretherketone grade with excellent dimensional stability and outstanding chemical, corrosion, and creep resistance. The addition of glass fibers significantly increases mechanical strength and rigidity while maintaining PEEK's excellent high-temperature performance. This grade is ideal for structural applications requiring improved strength and stability above 150°C.

Material Composition

Component	Percentage	Function
PEEK Base Resin	70%	Matrix material
Glass Fiber	30%	Strength & stiffness reinforcement

Mechanical Properties

Property	Value	Test Method
Density	1.53-1.55 g/cm³	ISO 1183
Tensile Strength	140-160 MPa (20,000+ psi)	ISO 527
Tensile Modulus	10,000-11,000 MPa (1,450 ksi)	ISO 527
Elongation at Break	2-3%	ISO 527
Flexural Strength	210-250 MPa	ISO 178
Flexural Modulus	9,500-10,500 MPa	ISO 178
Compressive Strength	175 MPa	ISO 604

Impact Strength (Notched)	6-8 kJ/m²	ISO 179
Hardness	M102 Rockwell	ISO 2039-2
Water Absorption (24h)	0.02-0.03%	ISO 62

Thermal Properties

Property	Value	Test Method
Melting Temperature	340°C (644°F)	ISO 11357
Glass Transition Temperature	143°C (289°F)	ISO 11357
Continuous Service Temperature	250°C (480°F)	-
Heat Deflection Temperature	315°C (600°F)	ISO 75 (1.8 MPa)
Thermal Conductivity	0.30 W/(m·K)	ISO 8302
Coefficient of Linear Expansion	22 x 10■■ /°C	ISO 11359
Flammability Rating	V-0	UL 94

Electrical Properties

Property	Value	Test Method
Volume Resistivity	10¹■ ohm-cm	IEC 60093
Dielectric Strength	31 kV/mm (790 kV/in)	IEC 60243
Dielectric Constant (1 MHz)	3.2	IEC 60250

Key Features & Benefits

- Significantly increased mechanical strength and rigidity
- Excellent dimensional stability at high temperatures
- Superior creep resistance under load

- Low thermal expansion rate
- Outstanding chemical resistance - insoluble in common solvents
- Excellent resistance to gamma radiation
- Low moisture absorption
- High heat deflection temperature
- True metal replacement capability
- Non-magnetic and non-corrosive

Typical Applications

- Structural components requiring high strength
- Parts exposed to high static loads at elevated temperatures
- Aerospace structural components
- Automotive under-hood components
- Semiconductor manufacturing equipment
- Chemical processing equipment
- Medical device components
- Electronics and electrical components

Important Note

Glass fibers may have an abrasive effect on mating surfaces. PEEK-GF30 is less suitable for bearing or wear applications where sliding contact occurs. For bearing applications, consider PEEK-HPV or PEEK-CA30.