

# PEEK-1000

## Unfilled Virgin Polyetheretherketone

### Material Overview

PEEK-1000 is an unfilled, general-purpose polyetheretherketone grade produced from virgin PEEK resin. It offers the highest elongation, toughness, and impact strength of all materials in the PEEK family. This grade is ideal for instrument and seal components where ductility and inertness are critical.

### Key Properties

Property	Value	Test Method
Density	1.31 g/cm <sup>3</sup>	ISO 1183
Tensile Strength	100-115 MPa	ISO 527
Tensile Modulus	4,300 MPa	ISO 527
Elongation at Break	15-50%	ISO 527
Flexural Strength	165 MPa	ISO 178
Flexural Modulus	4,100 MPa	ISO 178
Compressive Strength	118 MPa	ISO 604
Impact Strength (Notched)	5.5 kJ/m <sup>2</sup>	ISO 179
Hardness	M99 Rockwell	ISO 2039-2
Water Absorption (24h)	0.06-0.12%	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)	-
Short-term Max Temperature	310°C (590°F)	-
Heat Deflection Temperature	160°C (320°F)	ISO 75 (1.8 MPa)
Thermal Conductivity	0.26-0.35 W/(m·K)	ISO 8302
Coefficient of Linear Expansion	55-130 x 10 <sup>-6</sup> /K	ISO 11359
Flammability Rating	V-0	UL 94
Oxygen Index	35%	ISO 4589

## Key Features & Benefits

- Highest toughness and impact strength of all PEEK grades
- Excellent chemical and hydrolysis resistance
- FDA and EU food contact compliant
- Sterilizable by steam, dry heat, ethylene oxide, and gamma irradiation
- Very low smoke and toxic gas emission
- Outstanding wear resistance for unfilled polymer
- Excellent dimensional stability
- Can operate continuously in hot water or steam
- High strength alternative to fluoropolymers

## Typical Applications

- Medical and pharmaceutical components
- Food processing equipment
- Semiconductor manufacturing
- Seals and gaskets
- Electrical insulation components
- Aerospace components

- Automotive parts
- Chemical processing equipment

## Available Forms

PEEK-1000 is available in round rods (Ø3-200mm), plates (5-100mm thickness), and tubular bars. Colors include natural (beige), black, red, yellow, blue, and green.

*Technical Data Sheet - PEEK-1000 Unfilled Grade*