

PEEK (Polyether Ether Ketone) Material Properties Data Sheet

Comprehensive Technical Data for PEEK High-Performance Thermoplastic

Introduction

This technical data sheet provides comprehensive physical, mechanical, thermal, and electrical properties of PEEK (Polyether Ether Ketone). PEEK is a high-performance thermoplastic known for its excellent mechanical properties, chemical resistance, and high-temperature performance. It is widely used in demanding applications in aerospace, automotive, medical, and industrial sectors.

Material Properties

Property	Typical Value
Density (g/cm ³)	1.26-1.32
Melting Point (°C)	334
Glass Transition Temperature (°C)	143
Operating Temperature Range (°C)	-60 to +160 (continuous)
Tensile Strength (MPa)	90-100
Tensile Modulus (GPa)	3.6-4.1
Elongation at Break (%)	40-60
Flexural Strength (MPa)	140-170
IZOD Impact Strength (kJ/m ²)	7-10 (notched)
Coefficient of Friction (against steel)	0.3-0.5
Dielectric Constant (@1MHz)	3.2-3.3
Dielectric Strength (kV/mm)	18-22
Volume Resistivity (Ω·cm)	>10 ¹⁶
Linear Coefficient of Thermal Expansion (10 ⁻⁵ /°C)	3.5-4.5
Thermal Conductivity (W/m·K)	0.25-0.30
Water Absorption (%)	0.3-0.5 (24 hrs)
Flammability Rating	UL94 V-0

Key Characteristics

- Excellent mechanical strength and stiffness
- High continuous use temperature
- Superior chemical resistance
- Low flammability with low smoke emission
- Excellent wear and abrasion resistance
- Dimensional stability under load
- Biocompatibility for medical applications
- Processable by injection molding, extrusion, and machining
- Resistance to radiation and hydrolysis

Typical Applications

- Aerospace components and bearings
- Automotive under-the-hood applications
- Medical implants and instruments
- Oil and gas seals and valves
- Electrical connectors and insulators
- Food processing equipment
- Industrial wear components

(内容由 AI 生成, 仅供参考)