

What is PEI GF30 natural

PEI GF30 natural

PEI, glass-fibre reinforced 30 %

PEI GF30 natural is a polyetherimide reinforced with 30 % glass fibres. The reinforcement significantly increases stiffness, strength and hardness and reduces thermal expansion – with the heat deflection temperature of 210 °C, inherent flame retardancy and very good electrical insulating properties typical of PEI.

Properties

PEI GF30 natural is an amorphous high-performance thermoplastic with embedded short glass fibres. Tensile modulus and yield stress are well above those of unfilled PEI, and dimensional stability under heat is excellent; continuous service up to 170 °C and short-term up to 210 °C are possible. The material is flame retardant (UL 94 V0) with very low smoke generation and an excellent electrical insulator.

The fibre reinforcement reduces the elongation at break; the fibres are abrasive to tools. Like all amorphous materials, PEI is sensitive to stress cracking in contact with certain solvents.

Advantages

- Very high stiffness, strength and hardness
- Heat deflection temperature 210 °C, continuous service up to 170 °C
- Inherently flame retardant (UL 94 V0), low smoke density
- Excellent dimensional stability and electrical insulation

Disadvantages

- Low elongation at break, more brittle than unfilled PEI
- Glass fibres are abrasive to tools
- Sensitive to stress cracking with some solvents
- Not generally declared for food contact (see FDA declaration)

Processing

PEI GF30 natural can be machined using all conventional cutting methods. Because of the abrasive glass fibres, carbide or diamond tools are recommended; sharp cutting edges and good cooling via chip removal avoid heat build-up. Cooling lubricants must be compatible with PEI.

Glass-fibre-containing dust generated during machining should be extracted; for tight tolerances we recommend intermediate annealing.

Typical Applications

PEI GF30 natural is used wherever stiff, dimensionally stable and flame-retardant components are required at high temperatures – for example in aerospace, the electrical industry, electronics and medical technology.

- Structural parts and brackets for aerospace
- Insulating and support parts in electrical engineering
- Dimensionally stable precision and functional parts

Typical Properties

- High stiffness through glass-fibre reinforcement
- Inherently flame retardant (UL 94 V0)
- High heat deflection temperature

Product Examples

- Structural parts and brackets
- Insulating and support parts
- Precision parts

Typical Industries

- Aerospace
- Electrical Industry
- Electronics
- Medical Technology

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.51
Water absorption	DIN EN ISO 62	%	0.400
Flammability (Thickness 3 mm / 6 mm)	UL 94		V0 / V0
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	120
Elongation at break	DIN EN ISO 527	%	4
Tensile modulus of elasticity	DIN EN ISO 527	MPa	5.000
Shore hardness	DIN EN ISO 868	scale D	92
Thermal Properties			
Service temperature, long term	Average	°C	-30 ... 170
Service temperature, short term (max.)	Average	°C	210
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	210