

What is PA 66 FG natural

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PA 66, food grade (FG)

PA 66 FG natural is a polyamide 66 in a food grade compound (FG). It offers the high strength, hardness and abrasion resistance of PA 66 in a grade designed for contact with foodstuffs – for components in filling, packaging and conveyor technology in the food industry.

Properties

PA 66 FG natural has the property profile of standard PA 66: high tensile strength and hardness, high abrasion resistance with good sliding properties, a high melting point (260 °C) and a high continuous service temperature. The compound is designed for food contact; compliance is described in the associated FDA declaration.

Like all polyamides, PA 66 FG natural absorbs moisture from the environment (up to approx. 2.8 % in standard atmosphere); this makes the material tougher and more impact-resistant, while stiffness and dimensional stability decrease somewhat.

Advantages

- Compound designed for food contact
- High strength, hardness and abrasion resistance
- High continuous service temperature
- Very good machinability

Disadvantages

- Moisture absorption up to approx. 2.8 % in standard atmosphere, causing dimensional and property changes
- Lower toughness than PA 6, more notch-sensitive
- Not resistant to strong acids and permanently hot water (hydrolysis)

Processing

PA 66 FG natural can be machined like standard PA 66 using all conventional cutting methods; HSS or carbide tools are sufficient. Good cooling via chip removal remains important to avoid softening or smearing of the surface caused by heat build-up.

For components with food contact, we use food-compatible cooling lubricants and supply with batch traceability on request. For tight tolerances, we take swelling and shrinkage behaviour into account and condition the semi-finished product where required.

In welding and bonding, PA 66 FG behaves like standard PA 66; for bonded joints in food areas, adhesives approved for food contact must be used.

Typical Applications

PA 66 FG natural is used wherever wear-resistant polyamide components come into contact with foodstuffs – for example in the food and packaging industry and in mechanical engineering for filling and conveyor systems.

- Sliding and guide elements in filling lines
- Gears, rollers and star wheels
- Format parts and wear parts in conveyor technology

Typical Properties

- Compound suitable for food contact
- High toughness
- Good wear resistance

Product Examples

- Sliding and guide elements
- Gears and star wheels
- Format parts

Typical Industries

- Food Industry
- Packaging Industry
- Mechanical Engineering

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.15
Water absorption	DIN EN ISO 62	%	2.80
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / V2
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	85
Elongation at break	DIN EN ISO 527	%	50
Tensile modulus of elasticity	DIN EN ISO 527	MPa	3.300
Notched impact strength	DIN EN ISO 179	kJ / m ²	>3.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	180
Shore hardness	DIN EN ISO 868	scale D	83
Thermal Properties			
Melting temperature	ISO 11357-3	°C	260
Thermal conductivity	DIN 52612-1	W / (m * K)	0.23
Thermal capacity	DIN 52612	kJ / (kg * K)	1.70
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	80
Service temperature, long term	Average	°C	-30 ... 95
Service temperature, short term (max.)	Average	°C	170
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	100