

What is PA 6 FG

PA 6 FG natural

PA 6, food grade (FG)

PA 6 FG is an extruded polyamide 6 in a compound specifically designed for food contact (FG = Food Grade). It combines the typical properties of PA 6 – high toughness, good sliding and wear properties – with a formulation intended for use in the food industry.

Properties

PA 6 is a semi-crystalline engineering thermoplastic with high toughness, good abrasion and wear resistance, and very good sliding properties. The FG compound does not change this property profile but additionally ensures suitability for food contact.

Like all polyamides, PA 6 FG absorbs moisture from the environment; this makes the material tougher and more impact-resistant, while stiffness and dimensional stability decrease somewhat.

Advantages

- Formulation suitable for food contact
- Tough, wear-resistant all-rounder
- Good sliding properties
- Good machinability

Disadvantages

- Moisture absorption up to 3 % in standard atmosphere, causing dimensional and property changes
- Not resistant to strong acids and permanently hot water (hydrolysis)

Processing

PA 6 FG can be machined using all conventional cutting methods (sawing, turning, drilling, milling, planing, grinding). As an unreinforced material, HSS tools are sufficient; good cooling via chip removal is important to avoid softening or smearing of the surface caused by heat build-up.

Because of moisture absorption and comparatively high thermal expansion, we take swelling and shrinkage behaviour into account for tight tolerances and condition the semi-finished product where required.

Typical Applications

PA 6 FG is used wherever components may come into contact with food and, at the same time, toughness, wear resistance and good sliding properties are required, for example in food processing equipment and general mechanical engineering.

- Components in food processing
- Conveyor belt components and guide parts
- Plain bearings and bushings in packaging and processing machinery

Typical Properties

- Formulation suitable for food contact
- Tough, wear-resistant all-rounder

Product Examples

- Conveyor belt components
- Guide and wear parts
- Plain bearings and bushings
- Components for packaging machinery

Typical Industries

- Food Industry
- Mechanical Engineering

	Test Method	Unit	Value
General Properties			

	Test Method	Unit	Value
Density	DIN EN ISO 1183-1	g / cm ³	1.14
Water absorption	DIN EN ISO 62	%	3.00
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	80
Elongation at break	DIN EN ISO 527	%	>50
Tensile modulus of elasticity	DIN EN ISO 527	MPa	3.200
Notched impact strength	DIN EN ISO 179	kJ / m ²	>3.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	170
Shore hardness	DIN EN ISO 868	scale D	82
Thermal Properties			
Melting temperature	ISO 11357-3	°C	220
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	90
Service temperature, long term	Average	°C	-40 ... 85
Service temperature, short term (max.)	Average	°C	160
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	75