

What is POM-C FG natural

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POM-C, food grade (FG)

POM-C FG natural is a polyoxymethylene copolymer in a food grade compound (FG). It offers the typical POM properties – high strength and stiffness, low moisture absorption, very good sliding properties and excellent machinability – in a compound designed for direct food contact.

Properties

POM-C FG natural combines a yield stress of 67 MPa and a tensile modulus of 2,800 MPa with good toughness (elongation at break 30 %) and a continuous service temperature of 100 °C. The low moisture absorption (0.2 %) ensures stable dimensions even in wet and cleaning areas; the material is resistant to many cleaning agents, fats and oils and is regarded as one of the easiest engineering plastics to machine.

POM is not resistant to strong acids (pH < 4) and oxidising agents such as chlorine bleach in high concentrations, and has only limited UV resistance. Bonding requires surface pretreatment.

Advantages

- Compound suitable for food contact (see FDA declaration)
- High strength and stiffness, good toughness
- Low moisture absorption, very good dimensional stability
- Excellent machinability, very good sliding properties

Disadvantages

- Not resistant to strong acids and oxidising agents
- Cannot be bonded without surface pretreatment, not available flame retardant (UL 94 HB)
- Limited UV resistance

Processing

POM-C FG natural is one of the easiest engineering plastics to machine: sawing, turning, milling, drilling and thread cutting are straightforward with standard HSS or carbide tools, chips break short and surfaces come out clean. Good cooling via chip removal avoids heat build-up.

For tight tolerances and thick-walled parts, we recommend intermediate annealing to relieve machining stresses; the low moisture absorption makes conditioning unnecessary.

Typical Applications

POM-C FG natural is used wherever dimensionally stable, wear-resistant components with food contact are required – for example in the food and packaging industries, in beverage filling and in general mechanical engineering.

- Format parts, star wheels and guides for filling and packaging lines
- Gears, rollers and sliding elements
- Cutting and portioning parts for food processing

Typical Properties

- Compound suitable for food contact
- One of the easiest engineering plastics to machine
- Low moisture absorption

Product Examples

- Format parts and star wheels
- Gears and rollers
- Cutting and portioning parts

Typical Industries

- Food Industry
- Packaging Industry
- Mechanical Engineering

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.41
Water absorption	DIN EN ISO 62	%	0.20
Flammability (Thickness 3 mm / 6 mm)	UL 94		HB / HB
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	67
Elongation at break	DIN EN ISO 527	%	30
Tensile modulus of elasticity	DIN EN ISO 527	MPa	2.800
Notched impact strength	DIN EN ISO 179	kJ / m ²	6.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	150
Shore hardness	DIN EN ISO 868	scale D	81
Thermal Properties			
Melting temperature	ISO 11357-3	°C	165
Thermal conductivity	DIN 52612-1	W / (m * K)	0.31
Thermal capacity	DIN 52612	kJ / (kg * K)	1.50
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	110
Service temperature, long term	Average	°C	-50 ... 100
Service temperature, short term (max.)	Average	°C	140
Heat deflection temperature	DIN EN ISO 75, Verf. A, HDT	°C	110