

What is PA 6 MO natural

PA 6 MO natural

PA 6, MoS2-modified

PA 6 MO natural is a polyamide 6 modified with molybdenum disulphide (MoS2). The solid lubricant increases crystallinity and produces a homogeneous microstructure – the result is a harder, stiffer polyamide with significantly improved sliding and wear behaviour.

Properties

PA 6 MO natural is a semi-crystalline polyamide with embedded MoS2. The solid lubricant acts as a nucleating agent and leads to higher hardness, stiffness and strength than unmodified PA 6; at the same time it lowers the coefficient of friction and improves abrasion behaviour. The material is also UV-resistant.

Like all polyamides, PA 6 MO natural absorbs moisture from the environment (up to approx. 3 % in standard atmosphere); this makes the material tougher and more impact-resistant, while stiffness and dimensional stability decrease somewhat.

Advantages

- High hardness and rigidity
- Excellent sliding and abrasion performance
- High mechanical strength
- UV-resistant

Disadvantages

- Moisture absorption up to approx. 3 % in standard atmosphere, causing dimensional and property changes
- Not resistant to strong acids and permanently hot water (hydrolysis)
- Not generally declared for food contact (see FDA declaration)

Processing

PA 6 MO natural can be machined like standard PA 6 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.

Thanks to the higher hardness and stiffness, tight tolerances and clean edges are easily achieved; the MoS2 modification does not cause any significant additional tool wear.

For tight tolerances, we take swelling and shrinkage behaviour into account and condition the semi-finished product where required.

Typical Applications

PA 6 MO natural is used wherever components are subject to sliding and abrasion loads while high stiffness is required – for example in conveyor technology, mechanical engineering and aerospace.

- Plain bearings and slide strips
- Guide and deflection elements
- Gears, rollers and wear parts

Typical Properties

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Product Examples

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- Guide and deflection elements
- Gears and rollers

Typical Industries

- Conveyor Technology & Automation
- Mechanical Engineering
- Aerospace

	Test Method	Unit	Value
General Properties			
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, Method A, HDT	°C	75