

What is PA 66 MO natural

PA 66 MO natural

PA 66, MoS₂-modified

PA 66 MO natural is a polyamide 66 modified with molybdenum disulphide (MoS₂). The solid lubricant increases hardness and strength and significantly improves sliding and abrasion behaviour – for highly stressed sliding and wear parts.

Properties

PA 66 MO natural is a semi-crystalline polyamide with embedded MoS₂. The solid lubricant acts as a nucleating agent and leads to higher hardness and strength than unmodified PA 66; at the same time it lowers the coefficient of friction and improves abrasion behaviour. The high melting point (260 °C) and high continuous service temperature of PA 66 are retained.

Like all polyamides, PA 66 MO natural absorbs moisture from the environment (up to approx. 2.7 % in standard atmosphere); this makes the material tougher and more impact-resistant, while stiffness and dimensional stability decrease somewhat.

Advantages

- High hardness and strength
- Excellent sliding and abrasion performance
- High continuous service temperature
- Good machinability

Disadvantages

- Moisture absorption up to approx. 2.7 % in standard atmosphere, causing dimensional and property changes
- Lower elongation at break and toughness than unmodified PA 66
- Not generally declared for food contact (see FDA declaration)

Processing

PA 66 MO 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.

Thanks to the higher hardness, 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 66 MO natural is used wherever components are subject to sliding and abrasion loads while high hardness and temperature resistance are required – for example in mechanical and plant engineering, vehicle construction and the building industry.

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

Typical Properties

- Improved sliding properties through MoS₂ additive
- Higher hardness than standard PA 66
- Good wear resistance

Product Examples

- Plain bearings and slide strips
- Guide and deflection elements
- Gears and rollers

Typical Industries

- Mechanical and Plant Engineering
- Vehicle Construction
- Building Industry

	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	90
Elongation at break	DIN EN ISO 527	%	20
Tensile modulus of elasticity	DIN EN ISO 527	MPa	3.400
Notched impact strength	DIN EN ISO 179	kJ / m ²	>2.0
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