

What is PPS MOD blue

PPS MOD blue

PPS, lubricant-modified (MOD)

PPS MOD blue is a polyphenylene sulphide equipped with tribological additives for sliding applications at high temperatures. It combines the continuous service temperature of 220 °C, the chemical resistance and the inherent flame retardancy of PPS with low friction, low wear and improved toughness compared to standard PPS.

Properties

PPS MOD blue achieves a notched impact strength of 5 kJ/m² and an elongation at break of 4 % – considerably tougher than unfilled PPS – at a yield stress of 50 MPa and a tensile modulus of 3,000 MPa. The embedded solid lubricants enable dry-running sliding pairings even at temperatures where conventional bearing materials fail; moisture absorption is negligible and thermal expansion low at $50 \cdot 10^{-6}/K$. The blue colouring facilitates visual identification.

The modification reduces strength and hardness compared to standard PPS; the material is available in blue and as round rod only and is not declared for food contact.

Advantages

- Low friction and low wear up to 220 °C
- Improved toughness compared to standard PPS
- Inherently flame retardant, chemically resistant
- Very low moisture absorption, low thermal expansion

Disadvantages

- Lower strength and hardness than standard PPS
- Available as blue round rod only
- Not generally declared for food contact (see FDA declaration)

Processing

PPS MOD blue can be machined using all conventional cutting methods; sharp carbide tools and good cooling via chip removal avoid heat build-up and residual stresses in the part.

For tight tolerances and thick-walled parts, we recommend intermediate annealing to relieve machining stresses; thanks to the low moisture absorption, no conditioning is required.

Typical Applications

PPS MOD blue is used wherever sliding elements must run without lubrication at high temperatures and in aggressive media – for example in the oil and gas industry, in the electrical industry and in chemical plant engineering.

- Plain bearings and bushings for high temperatures
- Valve seats, seal rings and guides in pumps
- Sliding elements in ovens, dryers and hot-air systems

Typical Properties

- Low friction and low wear
- Improved toughness compared to standard PPS
- Very high continuous service temperature
- Inherently flame retardant

Product Examples

- Plain bearings and bushings
- Valve seats and seal rings
- Sliding elements for hot applications

Typical Industries

- Oil and Gas Industry
- Electrical Industry
- Chemical Plant Engineering

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.38
Water absorption	DIN EN ISO 62	%	0.030
Flammability (Thickness 3 mm / 6 mm)	UL 94		V0 / V0
Mechanical Properties			
Yield stress	DIN EN ISO 527	MPa	50
Elongation at break	DIN EN ISO 527	%	4
Tensile modulus of elasticity	DIN EN ISO 527	MPa	3.000
Notched impact strength	DIN EN ISO 179	kJ / m ²	5.0
Ball indentation hardness	DIN EN ISO 2039-1	MPa	130
Shore hardness	DIN EN ISO 868	scale D	77
Thermal Properties			
Melting temperature	ISO 11357-3	°C	285
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	50
Service temperature, long term	Average	°C	-20 ... 220
Service temperature, short term (max.)	Average	°C	260
Electrical Properties			
Surface resistivity	DIN EN 62631-3-2	Ω	10 ¹³