

Technical Data Sheet

Oil Filled Polyamide 6 (PA6, OF) [Nylon 6, OF]

Chemical Name(s): Oil Filled Polyamide 6, Oil Filled Nylon 6
Common Abbreviation(s): PA6+Oil
Available Profiles: Sheet, Rod

Oil-Filled Nylon is a variant of standard PA6 (Nylon 6) that includes an internal lubrication system, offering enhanced wear resistance and reduced friction. It is particularly suited for applications involving heavy loads, reducing the need for external lubrication and extending the lifespan of components. It is ideal for bushings, gears, and other moving parts subjected to wear.

Benefits:

- Superior wear and abrasion resistance vs. Standard Nylon
- Reduced coefficient of friction (self-lubricating)
- Enhanced load-bearing capabilities
- Improved dimensional stability
- High mechanical strength and impact resistance
- Long service life under harsh conditions

Common Applications:

- Heavy-duty bushings and bearings
- Gears and wear pads
- Conveyor components
- High-load, low-speed industrial applications
- Rollers and pulleys
- Structural and mechanical components

TYPICAL PROPERTIES of OIL FILLED POLYAMIDE 6 (PA6, OF) [NYLON 6, OF]

	Property	Test Method	Value
Physical Properties	Density (g/cm ³)	ATSM D792	1.15
	Water Absorption (%)	ASTM D570	1.0
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	75
	Tensile Modulus (MPa)	ASTM D638	2800
	Tensile Elongation at Break (%)	ASTM D638	35
	Flexural Strength (MPa)	ASTM D790	110
	Flexural Modulus (MPa)	ASTM D790	2700
	Compressive Strength (MPa)	ASTM D695	85
	Hardness (Shore D)	ASTM D785	D78
	Impact Strength (kJ/m ²)	ASTM D256	6.5
Thermal Properties	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	7.5 x 10 ⁻⁵
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	85
	Approx. Melting Temperature (°C)	ASTM D3418	215
	Max Operating Temperature (°C)	-	105
Electrical Properties	Dielectric Strength (kV/mm)	ASTM D149	20
	Dielectric Constant at 1 MHz	ASTM D150	3.4
	Dissipation Factor at 1 kHz	ASTM D150	0.01
	Surface Resistivity (ohm/sq)	ASTM D257	>10 ¹²
	Arc Resistance (sec)	ASTM D495	140-160
Flammability	Flammability Rating	UL94	HB
Standards Compliance	ASTM D638, D790, D695, D257 compliant ISO 1043 compliant for polyamide materials		
Environmental Considerations	Recyclability: Oil-Filled Nylon can be recycled but may require specific processing due to its lubricant content. Environmental Impact: The added lubricant significantly reduces wear, extending the lifespan of components and reducing the need for external lubricants in many applications.		

