

Technical Data Sheet

Polyamide 66 (PA66) [Nylon 66]

Chemical Name(s): Polyamide 66, Nylon 66
Common Abbreviation(s): PA66
Available Profiles: Sheet, Rod

Nylon PA66 is a strong, stiff engineering thermoplastic with superior mechanical properties, higher temperature resistance, and better wear resistance compared to PA6 (Nylon 6). It is commonly used in demanding applications where high mechanical strength and heat resistance are critical, such as automotive parts, gears, and industrial machinery components.

Benefits:

- High mechanical strength and rigidity
- Excellent wear and abrasion resistance
- High melting temperature and heat resistance
- Good chemical resistance to oils and fuels
- Superior impact strength, especially in dry conditions
- Low friction and good sliding properties

Common Applications:

- Automotive components (e.g., engine parts, transmission components)
- Industrial gears and bearings
- Conveyor components and rollers
- Structural mechanical parts
- Electrical connectors and insulators

TYPICAL PROPERTIES of OIL FILLED POLYAMIDE 66 (PA66, OF) [NYLON 66, OF]

	Property	Test Method	Value
Physical Properties	Density (g/cm ³)	ATSM D792	1.14
	Water Absorption (%)	ASTM D570	1.2
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	82
	Tensile Modulus (MPa)	ASTM D638	3200
	Tensile Elongation at Break (%)	ASTM D638	30
	Flexural Strength (MPa)	ASTM D790	125
	Flexural Modulus (MPa)	ASTM D790	3200
	Compressive Strength (MPa)	ASTM D695	90
	Hardness (Shore D)	ASTM D785	D80
Thermal Properties	Impact Strength (kJ/m ²)	ASTM D256	7
	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	8.0 x 10 ⁻⁵
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	105
	Approx. Melting Temperature (°C)	ASTM D3418	255
Electrical Properties	Max Operating Temperature (°C)	-	130
	Dielectric Strength (kV/mm)	ASTM D149	22
	Dielectric Constant at 1 MHz	ASTM D150	3.6
	Dissipation Factor at 1 kHz	ASTM D150	0.02
	Surface Resistivity (ohm/sq)	ASTM D257	>10 ¹²
Flammability	Arc Resistance (sec)	ASTM D495	150-180
	Flammability Rating	UL94	HB
Standards Compliance	ASTM D638, D790, D695, D257 compliant ISO 1043 compliant for polyamide materials		
Environmental Considerations	Recyclability: Nylon PA66 is recyclable and commonly reused in industrial applications. Environmental Impact: PA66 has a longer life span in high-load and high-temperature applications, reducing the need for replacement.		

