

Nylon 6

Nylon offers extremely good wear resistance, high tensile strength, and high modulus of elasticity, making it a great option in applications such as bearings, gears, and sprockets. Additionally, Nylon 6 (Black) is FDA, USDA, and 3A – dairy compliant and can be used in the food industry.

Applications

Nylon 6 is great for the electrical and building industries, automation, conveyor technology, vehicle construction, the food industry, and wind energy. Likewise, bearings, gears, pulleys, sprockets, valve seals, and components in the food processing industry are some applications of Nylon 6.

Key Product Benefits

- High Mechanical and Impact Strength
- Wear Resistance
- Lightweight
- Good Sliding Properties
- Machinability and Weldability
- FDA, USDA, and 3A – Dairy Compliant (Black Nylon 6)

Properties

Property	Test Method	Value (Black)	Value (Blue)
Density	ASTM D792	1.15-1.17 g/cm ³	1.15-1.17 g/cm ³
Tensile Strength	ASTM D638	10,000–13,500 psi	10,000–13,500 psi
Tensile Elongation	ASTM D638	20–55%	20–30%
Tensile Modulus	ASTM D638	400,000–550,000 psi	450,000–550,000 psi
Compressive Strength	ASTM D695	13,500–16,000 psi	13,500–16,000 psi
Compressive Modulus	ASTM D695	325,000–400,000 psi	325,000–400,000 psi
Flexural Strength	ASTM D790	15,000–17,500 psi	15,000–17,500 psi
Flexural Modulus	ASTM D790	420,000–500,000 psi	420,000–500,000 psi
Shear Strength	ASTM D732	10,000–11,000 psi	10,000–11,000 psi
Izod Impact, Notched	ASTM D256	1.5-2.5 ft-lb/in	1.0-2.5 ft-lb/in
Rockwell Hardness (R Scale)	ASTM D785	110–115	110–120
Shore Hardness (D Scale)	ASTM D2240	78–84	78–86

Property (Continued)	Test Method (Continued)	Value (Black) (Continued)	Value (Blue) (Continued)
Melting Point	ASTM D3418	420-440°F	420-440°F
Coefficient of Linear Thermal Expansion	ASTM D696	5.0 × 10 ⁻⁵ in/in/°F	5.0 × 10 ⁻⁵ in/in/°F
Deformation Under Load	ASTM D621	0.5-2.5%	0.5-2.6%
Heat Deflection Temperature @ 264 psi	ASTM D648	200-300°F	200-400°F
Heat Deflection Temperature @ 66 psi		300-400°F	300-450°F
Continuous Service Temperature		230°F	250°F
Intermittent Service Temperature		330-340°F	350°F
Dynamic Coefficient of Friction	ASTM D1894	0.26	0.26
Water Absorption @ 24 hours	ASTM D570	0.5-0.6%	0.5-0.6%
Water Absorption @ Saturation	ASTM D570	4.0-6.0%	4.0-6.0%
Dielectric Strength	ASTM D149	500-600 V/mil	500-600 V/mil
Dielectric Constant (60Hz, 1000Hz, 1 MHz)	ASTM D150	3.7	3.7
Flammability	UL 94	HB	
FDA Compliant		Yes	
USDA 3A Compliant		Yes	