

Nycast® 6PA Natural & MD (Natural & MD Filled Cast Nylon)

Cast nylon offers a combination of good mechanical properties, excellent bearing and wear characteristics, and the large-size capabilities of the casting process. Its fatigue resistance, noise damping ability, corrosion resistance, and lightweight make Cast Nylon ideal for metal replacement applications, such as bearings, gears, sheaves, and sprockets. At one-eighth the weight of bronze, cast nylon is easier to handle and maintain than metals such as iron, aluminum, brass, and bronze, which it typically replaces in industrial wear applications.

Other materials that cast nylon commonly replaces because of its superior performance are laminated phenolic, elastomers, and wood. The excellent wear and abrasion resistance results in extended component life and lower maintenance costs. Various formulations are readily available in rod, plate, and tube. Non-standard shapes, such as rings, discs, and blocks can be economically produced in small quantities with short lead times. Custom parts can be cast-to-size or near-net-shape with relatively inexpensive tooling.

NYCAST® 6PA NATURAL

Natural, unfilled cast nylon is the most common variation of nylon delivering outstanding performance without additional lubricants or other additives as a general purpose bearing material. Natural cast nylon offers extremely good wear resistance, high tensile strength and high modulus of elasticity.

NYCAST® 6PA MD

Cast nylon with MD (*MoS₂ or molybdenum disulfide filler*) is a popular choice as a dry lubricant-filled nylon bearing material. MD filled material's more crystalline structure allows for improved wear resistance and compressive strength in comparison to natural, unfilled cast nylon.

Properties	ASTM Test Method	Units	Nycast® 6PA Natural Nycast® 6PA MD
Physical			
Specific Gravity	D792		1.15-1.17
Water Absorption, @ 24 hours	D570	%	0.5-0.6
Water Absorption, @ Saturation	D570	%	5.0-6.0
Mechanical			
Tensile Strength	D638	psi	10,000-13,500
Tensile Modulus	D639	psi	4000,000-550,000
Tensile Elongation	D638	%	20-55
Flexural Strength	D790	psi	15,500-17,500
Flexural Modulus	D790	psi	420,000-500,000
Compressive Strength	D695	psi	13,500-16,000
Compressive Modulus	D695	psi	325,000-400,000
Notched Izod Impact	D256	ft-lbs/in	0.7-0.9
Rockwell Hardness	D785	R Scale	115-125
Shore Hardness	D785	D Scale	78-83
Shear Strength	D732	psi	10,000-11,000
Deformation Under Load	D621	%	0.5-2.5
Dynamic Coefficient of Friction	D1894	-	0.22

Properties	ASTM Test Method	Units	Nycast® 6PA Natural Nycast® 6PA MD
Thermal			
Heat Deflection Temperature @ 66 psi	D648	°F	400-430
@ 264 psi	D648	°F	200-400
Coefficient of Linear Thermal Expansion	D696\E831	in/in/°F	5.0×10^{-5} (Nat only) 6.1×10^{-5}
Continuous Service Temperature	-	°F	230
Intermittent Service Temperature	-	°F	330
Melting Point	D789	°F	450± 10
Electrical			
Dielectric Strength	D149	V/mil	500-600
Dielectric Constant			
60 cycles	D150	-	3.7
1000 cycles	D150	-	3.7
100,00 cycles	D150	-	3.7
Compliance	FDA		Nycast 6PA Natural Nycast 6PA FG Blue
	USDA 3A		Nycast 6PA Natural Nycast 6PA FG Blue
	UL 94 HB		Nycast 6PA Natural