HYDE
A. L. HYDE COMPANY

NYLON
ROD AND SLAB

Product Data Sheet

PRODUCT DESCRIPTION

NYLON is one of the most widely used and versatile thermoplastic resins. Its combination of physical properties versus its price make it a favorite choice for numerous applications. NYLON's toughness, wear resistance, tensile strength and lubricity make it a good choice for many mechanical machine parts. NYLON has a consistent history of replacing other materials including: metal, brass, bronze, aluminum and rubber. In replacing metal gears in machinery, NYLON can be advantageous because of its ability to reduce noise, use less lubrication and increase gear life.

NYLON can be easily fabricated on most mills with high precision.

A.L. Hyde Company extrudes many different grades of NYLON to meet our customer's needs. This data sheet shows the physical properties of our standard grades: Zytel* 42, 159L, ST801 and Molybdenum Disulphide Filled NYLON. All of these products are extruded in a wide variety of rod and slab sizes.

PROPERTIES

- Strength, stiffness
- Chemical Resistance
- Low Coefficient of Friction
- Wear and Abrasion Resistance
- Noise Reduction Characteristics
- Can Operate Without Lubrication
- FDA Approved
- Good Electrical Properties

TYPICAL APPLICATIONS

- Bearings
- Bushings
- Gears
- Rollers
- Cams
- Insulators
- Seals
- Sleeves

PRODUCT COMPARISON

- **Zytel 42 –** A standard 6/6 NYLON. It is characterized as having an excellent combination of physical properties including: a high melting point, resistance to repeated impact, low coefficient of friction and resistance to abrasion. It has good resistance to fuels, lubricants and most chemicals, but is attacked by phenols, strong acids and oxidizing agents.

  NOTE: *A commonly used grade of NYLON is Zytel 101 — this is an injection molding grade of NYLON 6/6. Zytel 101* ***can not*** *be extruded into rod and slab. The equivalent of Zytel 101 in extrusion is Zytel 42 which Hyde extrudes. Zytel 42 has physical properties that are, in most cases, equivalent to those of Zytel 101.*

- **Zytel 159L –** A 612 NYLON with an additive to enhance surface lubrication. It has improved chemical resistance, dimensional stability and electrical properties than that of Zytel 42.

- **ST801 –** A supertough NYLON that has substantially improved impact over other NYLONs. Its impact is over 15 ft•lb/in. as compared to most NYLONs with a impact of about 1.0 ft•lb/in.

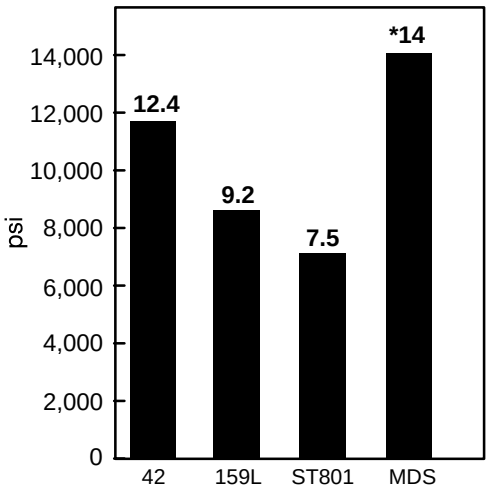
- **Molybdenum Disulphide Filled NYLON –** A filled NYLON 6/6. The addition of particles of molybdenum disulphide enhance the lubricity of this product over unfilled NYLON. In applications requiring high lubricity, this material may be a good candidate. In addition to greater lubricity, other property enhancements that occur are: low surface friction, increased heat resistance, higher tensile properties and improved dimensional stability.

*® Registered trademark of Dupont.

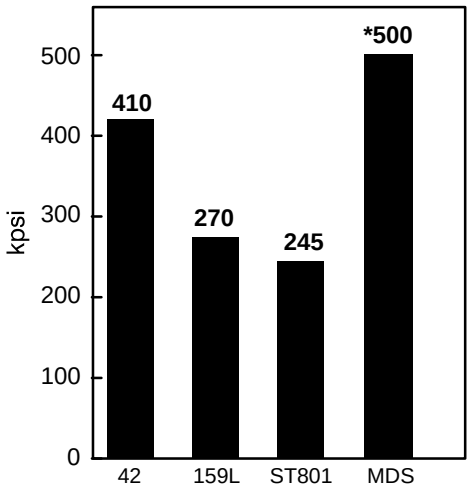
Physical Property Comparison

PHYSICAL PROPERTIES	ASTM	UNITS	Zytel 42 (6/6)	Zytel 159L (612)	ST801	Molybdenum Disulphide Filled NYLON
Specific Gravity	D792	—	1.14	1.06	1.08	1.14 – 1.18
Tensile Strength 73°F	D638	kpsi	12.4	9.2	7.5	10 – 14
Elongation at Break 73°F	D638	%	90	190	60	—
Flexural Modulus 73°F	D790	kpsi	410	270	245	400 – 500
Shear Strength	D732	kpsi	9.6	—	8.4	—
Izod Impact 73°F	D256	ft•lb/in	1.2	1	17	—
Coefficient of Linear Thermal Expansion	D696	in./in./°F	4×10^{-5}	5×10^{-5}	21.6×10^{-5}	—
Heat Deflection Temperature 264 psi	D648	°F	194	194	160	200 – 470°F
Melting Point	D789	°F	491	411	491	—
Compressive Strength 1% Deformation	D695	kpsi	4.9	2.4	—	12
Water Absorption 24 hrs at 73°F	D570	%	1.2	.25	1.2	.05 – 1.4

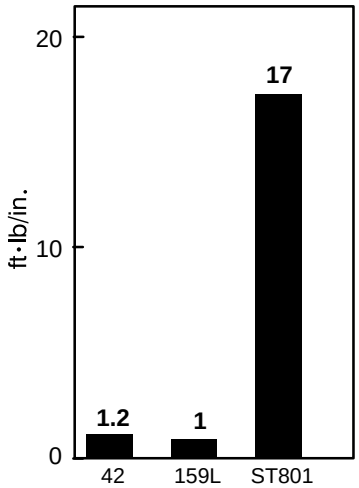
Nylon Comparisons



Tensile Strength
* range from 10 – 14



Flexural Strength
* range from 400 – 500



Izod Impact at 73° F

Electrical Property Comparison

ELECTRICAL PROPERTIES	ASTM	UNITS	Zytel 42	Zytel 159L	ST801
Volume Resistivity	D257	Ohm-cm	10^{15}	10^{15}	10^{14}
Dielectric constant 100 Hz 10^3 Hz 10^6 Hz	D150	—	 4 3.9 3.6	 4 4 3.5	 3.2 3.2 2.9
Dissipation Factor 100 Hz 10^3 Hz 10^6 Hz	—	—	 .01 .02 .02	 .02 .02 .02	 .01 .01 .02
UL Flammability	UL-94	—	HB	HB	HB
Oxygen Index	0-2863	% O_2	—	25	18

For more information contact A.L. Hyde Company, or your local distributor of Hyde quality engineering thermoplastics.

Your local distributor:

ALH15695

HYDE
A. L. HYDE COMPANY

1 Main Street
Grenloch, New Jersey 08032
609-227-0500 Fax: 609-232-1754
1-800-234-HYDE (4933)
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