DuPont™ Zytel® ST

super tough nylon resins

Giving You the Edge in Molding and Part Design

DUPONT®

The miracles of science™

Zytel® ST Advantage Nylons

Give You the Edge...

You could always count on DuPont super tough (ST) and toughened (T) nylons for best-in-category impact resistance and flex fatigue.

Now the Advantage series of Zytel® ST and T nylon resins allow you to turn out rugged parts in a wider range of designs and at lower molding costs than ever before.

Advantage offers...	How you benefit
Better flow	Gain more design freedom • Use thinner walls • Design larger parts, like the long rail for the roof rack at lower right. • Build in more functions: living hinges, snap fits, etc. • Get stronger knit lines Make stronger welds – up to 50%
Cooler melt temperature	Shorten mold cycles up to 25% Reduce thermal degradation
Lower injection pressure, up to 40%	Use smaller machines with lower hourly costs Add mold cavities Reduce molded-in stress Reduce warpage
Less mold deposit	Cut downtime for mold cleaning
Better surface appearance	Use tough parts where they show
All of the above	***Reduce part and system costs*** ***Improve part performance and quality*** ***Develop innovative part designs*** ***Strengthen your competitive position*** ***Expand your company's markets***

What to make of them

Zytel® ST and T Advantage resins and other super tough and toughened Zytel® nylon resins give you the right properties and design freedom for a wide variety of rugged industrial and consumer products.

Here are just a few of the many possibilities: fasteners for automotive and industrial use; high-performance cable ties; sporting goods, especially those needing low-temperature toughness; safety products such as fire extinguisher valves; automotive parts of various kinds including emission canisters, roof racks and more; power tools; and appliance components such as impeller fans, bag clips, etc.

Upgrade standard nylon parts

Thanks to their outstanding flow properties, Zytel® ST and T Advantage series resins can fill most existing tools designed for standard nylon 66 or 6 resins. So they allow you to upgrade or solve problems with part performance. Make tougher cable ties, for example, and add improved functional features such as snap locks.

A Good Tool for Good Hands

Task Force Tips engineered its versatile, multi-purpose Res-Q-Rench to take plenty of hard use by firefighters and rescue workers. And in molding it from Zytel® ST801 Advantage super tough nylon, TFT achieves major benefits in quality and productivity.

- Uniform color, no blush or flow marks.
- Minimal mold desposit.
- Lower melt temperature than with a standard super tough nylon.
- Reduced boost pressure to reach the target fill rate.

Multiple Solutions to Fit Your Part's Needs

The Zytel® product line contains a range of super tough ST and toughened T grades to allow you to fulfill different requirements.

Key properties are listed in the tables on the back page.

ST Means Super Tough

Classic ST Advantage

Zytel® ST801A Same great physical properties and chemical resistance as the world's preeminent super tough nylon. Advantage molding benefits. Heat-stabilized and weatherable grades available.

Moisture-stable ST Advantage

Zytel® DMX ST601AH Super tough nylon with superior dimensional stability and consistent strength and stiffness when moisture conditions change. Advantage molding benefits.

High-stiffness, toughest ST nylon

Zytel® ST901 Highest impact resistance of our super tough nylons plus superior stiffness and low mold shrinkage. Suitable for both molded parts and extruded profiles.

Flexible, extrudable ST

Zytel® ST811HS Our most flexible Zytel® ST resin. Suitable for profile extrusion or injection molding. Ideal for products that must withstand repeated flexing: tubing, hose liners or cable jacketing, for example.

T Stands for Toughened

Classic T Advantage

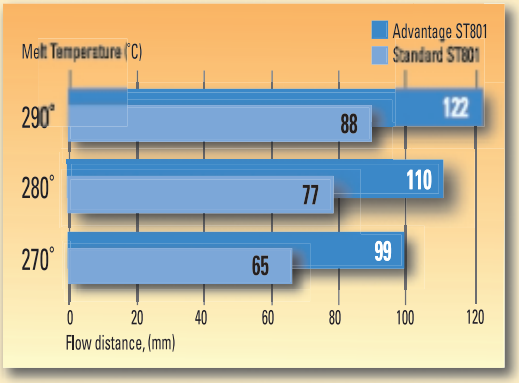
Zytel® MT409A More toughness than standard nylon, more stiffness than super tough nylons plus Advantage molding benefits. Regular, heat-stabilized and weatherable grades available.

Moisture-stable T Advantage

Zytel® DMX MT609AH Superior dimensional stability and consistent strength and stiffness when moisture conditions change. Great for parts needing more toughness than standard nylon, more stiffness than super tough nylons. Advantage molding benefits.

Advantage Resins Run Cooler...

Improved flow allows you to fill molds at lower melt temperatures.

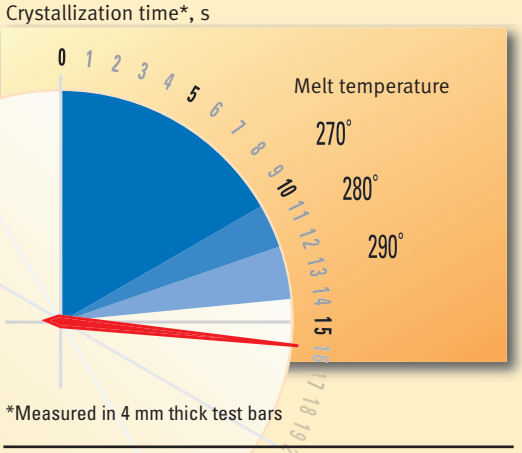


Test conditions: Snake mold with 1 mm channel depth; injection pressure 80 MPa (11,500 psi), injection speed 50 mm/sec; mold temp., 70°C; moisture, 0.1%.

...Let You Run Faster

Cooler melts take less time to freeze, allowing earlier part ejection.

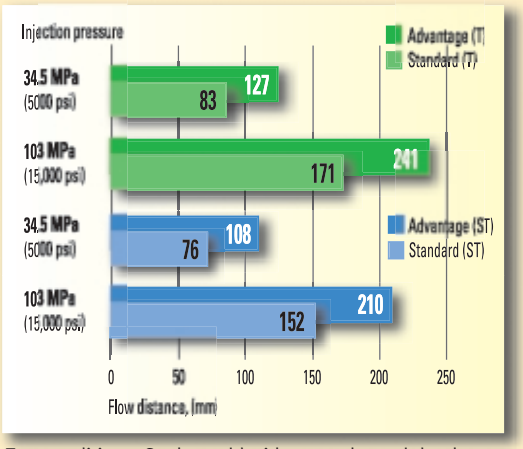
Crystallization time*, s



*Measured in 4 mm thick test bars

Advantage Resins Fill at Lower Pressure...

...So you can run molds in smaller machines.



Test conditions: Snake mold with 1 mm channel depth; melt temperature, 290°C (555°F); injection speed 50 mm/s; mold temperature, 70°C (160°F).

Typical Properties[1] of Zytel® Super Tough and Toughened Nylon Resins

Property	Units	ST801AHS Advantage	DMX ST601AH Advantage	ST901L Amorphous	ST811HS Extrusion	MT409AHS Advantage	DMXMT609AH Advantage	Standard (Zytel® 101)	Test Method ASTM
Izod impact, notched	J/m (ft-lb/in)								D 256
Dry, as molded		No break	No break	No break	No break	133 (2.5)	81 (1.5)	53 (1.0)	
Elongation at break	%								D 638
Dry, as molded		50	21	>100	>100	35	3	60	
50% RH		-	43	>100	>100	-	16	>100	
Flexural modulus	MPa (kpsi)								D 790
Dry, as molded		1900 (276)	2050 (297)	2000 (290)	524 (76)	2400 (348)	2623 (380)	2830 (410)	
50% RH		-	2129 (309)	2100 (300)	297 (43)	-	2641 (383)	1210 (175)	
Tensile strength	MPa (kpsi)								D 638
Dry, as molded		48.4 (7.0)	52.1 (7.6)	62 (9.0)	48 (7.0)	61.2 (8.9)	62.5 (9.1)	83 (12.0)	
50% RH		-	48 (7)	52 (7.5)	41 (5.9)	-	58.3 (8.5)	77 (11.2)	
Heat deflection temp. @ 1.8 MPa (264 psi)	°C (°F)	61 (142)	62 (144)	115 (239)	52 (126)	65 (149)	65 (149	65 (149)	D 648
Melting point	°C (°F)	261 (502)	259 (498)	-	216 (421)	262 (504)	259 (498)	262 (504)	D 3418

1: Properties shown are for comparison and preliminary evaluation. For more detailed properties, ISO properties and latest test results, please visit plastics.dupont.com on the Web or consult your DuPont representative or distributor.

See for yourself

To order a trial quantity or obtain additional information in the U.S.A., contact your DuPont representative or the nearest branch of an authorized U.S. distributor, General Polymers or PolyOne Distribution, or call, 1-800-441-0575. For contact information in other countries, please visit our Web site.

plastics.dupont.com

H-94327 (10/01)