

## Product Texts

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-31kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

**Zytel® ST811HS is a flexible, heat stabilized Super Tough polyamide 6 resin developed for extrusion and injection molding applications such as cable and rope jacketing, hose inner cores and fasteners and ski binding parts.**

Processing/Physical Characteristics	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Molding shrinkage, parallel	<b>0.9 / *</b>	%	ISO 294-4, 2577
<sup>[C]</sup> Molding shrinkage, normal	<b>1.4 / *</b>	%	ISO 294-4, 2577
<sup>[C]</sup> Density of melt	<b>880</b>	kg/m <sup>3</sup>	-
<sup>[C]</sup> Thermal conductivity of melt	<b>0.15</b>	W/(m K)	-
<sup>[C]</sup> Spec. heat capacity of melt	<b>2600</b>	J/(kg K)	-
<sup>[C]</sup> Ejection temperature	<b>190</b>	°C	-

[C]: CAMPUS

Mechanical properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Tensile Modulus	<b>900 / 400</b>	MPa	ISO 527
<sup>[C]</sup> Yield stress	<b>31 / -</b>	MPa	ISO 527
<sup>[C]</sup> Yield strain	<b>29 / -</b>	%	ISO 527
<sup>[C]</sup> Nominal strain at break	<b>&gt;50 / -</b>	%	ISO 527
<sup>[C]</sup> Charpy impact strength, +23°C	<b>N / N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy impact strength, -30°C	<b>N / N</b>	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy notched impact strength, +23°C	<b>71 / 129</b>	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Charpy notched impact strength, -30°C	<b>14 / 13</b>	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Puncture energy, +23°C	<b>16 / -</b>	J	ISO 6603-2
<sup>[C]</sup> Puncture energy, -30°C	<b>25 / -</b>	J	ISO 6603-2

**ASTM Data**

Tensile Strength	<b>48 / -</b>	MPa	ASTM D 638
Elongation at Break	<b>225 / -</b>	%	ASTM D 638
Flexural Modulus	<b>524 / -</b>	MPa	ASTM D 790
Shore D Hardness	<b>70 / -</b>	-	ASTM D 2240
Izod Impact notched, 1/8 in	<b>N / -</b>	J/m	ASTM D 256
Izod Impact notched, Low-Temperature	<b>693 / -</b>	J/m	ASTM D 256
Temperature	<b>-40</b>	°C	-

[C]: CAMPUS

Thermal properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Melting temperature, 10°C/min	<b>218 / *</b>	°C	ISO 11357-1/-3
<sup>[C]</sup> Glass transition temperature, 10°C/min	<b>50 / *</b>	°C	ISO 11357-1/-2
<sup>[C]</sup> Temp. of deflection under load, 1.80 MPa	<b>47 / *</b>	°C	ISO 75-1/-2
<sup>[C]</sup> Vicat softening temperature, B	<b>95 / *</b>	°C	ISO 306
<sup>[C]</sup> Coeff. of linear therm. expansion, parallel	<b>200 / *</b>	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Coeff. of linear therm. expansion, normal	<b>180 / *</b>	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Burning Behav. at 1.5 mm nom. thickn.	<b>HB / *</b>	class	IEC 60695-11-10
Thickness tested	<b>1.5 / *</b>	mm	-
Yellow Card available	<b>yes / *</b>	-	-
<sup>[C]</sup> Burning Behav. at thickness h	<b>HB / *</b>	class	IEC 60695-11-10

Thickness tested	0.8 / *	mm	-
Yellow Card available	yes / *	-	-
<b>ASTM Data</b>			
UL 94 Flame rating	HB	-	UL 94
Thickness tested	1.5	mm	-
Coefficient of Thermal Expansion, MD	200	E-6/K	ASTM D 696
Coefficient of Thermal Expansion, TD	180	E-6/K	ASTM D 696
DTUL @ 66 psi	170	°C	ASTM D 648
DTUL @ 264 psi	52	°C	ASTM D 648
Melting Temperature	216	°C	ASTM D 3418

[C]: CAMPUS

Electrical properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Dissipation factor, 100Hz	80 / 550	E-4	IEC 62631-2-1
<sup>[C]</sup> Dissipation factor, 1MHz	140 / 1800	E-4	IEC 62631-2-1
<sup>[C]</sup> Volume resistivity	1E13 / 1E11	Ohm*m	IEC 62631-3-1
<sup>[C]</sup> Surface resistivity	* / 1E15	Ohm	IEC 62631-3-2
<sup>[C]</sup> Electric strength	31 / -	kV/mm	IEC 60243-1

[C]: CAMPUS

Other properties	dry / cond	Unit	Test Standard
<sup>[C]</sup> Water absorption	6.8 / *	%	Sim. to ISO 62
<sup>[C]</sup> Humidity absorption	2.3 / *	%	Sim. to ISO 62
<sup>[C]</sup> Density	1040 / -	kg/m <sup>3</sup>	ISO 1183
Water Absorption, 24hr	1.5	%	ASTM D 570
Density	1040	kg/m <sup>3</sup>	ASTM D 792

[C]: CAMPUS

Film Properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Strain at yield, parallel	4 / *	%	ISO 527-3

[C]: CAMPUS

## Characteristics

### Processing

Injection Molding, Other Extrusion

### Delivery form

Pellets, Natural Color

### Additives

Lubricants, Release agent

### Special Characteristics

High impact or impact modified, Heat stabilized or stable to heat

### Chemical Resistance

General Chemical Resistance

### Applications

Automotive, Electrical and Electronical, Sports Equipment

### Regional Availability

North America, Europe, Asia Pacific, South and Central America, Near East/Africa