

**Product Texts**

Zytel® HTN51G45HSL NC010 is a 45% glass reinforced, heat stabilized, lubricated, hydrolysis resistant high performance polyamide resin. It is also a PPA resin.

Processing/Physical Characteristics	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Molding shrinkage, parallel	0.1 / *	%	ISO 294-4, 2577
<sup>[C]</sup> Molding shrinkage, normal	0.6 / *	%	ISO 294-4, 2577
<sup>[C]</sup> Thermal conductivity of melt	0.28	W/(m K)	-
<sup>[C]</sup> Spec. heat capacity of melt	1610	J/(kg K)	-
<b>ASTM Data</b>			
Mold Shrinkage, MD	0.001	mm/mm	ASTM D 955
Mold Shrinkage, TD	0.009	mm/mm	ASTM D 955

[C]: CAMPUS

Mechanical properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Tensile Modulus	15000 / 15000	MPa	ISO 527
<sup>[C]</sup> Stress at break	240 / 230	MPa	ISO 527
<sup>[C]</sup> Strain at break	2.4 / 2.1	%	ISO 527
<sup>[C]</sup> Tensile creep modulus, 1h	* / 14000	MPa	ISO 899-1
<sup>[C]</sup> Tensile creep modulus, 1000h	* / 12000	MPa	ISO 899-1
<sup>[C]</sup> Charpy impact strength, +23°C	90 / 75	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy impact strength, -30°C	85 / -	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy notched impact strength, +23°C	12 / 11	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Charpy notched impact strength, -30°C	12 / -	kJ/m <sup>2</sup>	ISO 179/1eA
<b>ASTM Data</b>			
Tensile Modulus	15400 / -	MPa	ASTM D 638
Tensile Strength	245 / -	MPa	ASTM D 638
Elongation at Break	2.2 / -	%	ASTM D 638
Compressive Strength	335 / -	MPa	ASTM D 695
Flexural Modulus	13700 / -	MPa	ASTM D 790
Flexural Strength	328 / -	MPa	ASTM D 790
Rockwell Hardness	M 108 /	-	ASTM D 785
Izod Impact notched, 1/8 in	117 / -	J/m	ASTM D 256
Izod Impact notched, Low-Temperature	117 / -	J/m	ASTM D 256
Temperature	-40	°C	-

[C]: CAMPUS

Thermal properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Glass transition temperature, 10°C/min	135 / *	°C	ISO 11357-1/-2
<sup>[C]</sup> Temp. of deflection under load, 1.80 MPa	265 / *	°C	ISO 75-1/-2
<sup>[C]</sup> Temp. of deflection under load, 0.45 MPa	286 / *	°C	ISO 75-1/-2
<sup>[C]</sup> Coeff. of linear therm. expansion, parallel	15 / *	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Coeff. of linear therm. expansion, normal	54 / *	E-6/K	ISO 11359-1/-2
<sup>[C]</sup> Burning Behav. at 1.5 mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	-
Yellow Card available	yes / *	-	-
<sup>[C]</sup> Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.8 / *	mm	-
Yellow Card available	yes / *	-	-
<sup>[C]</sup> Burning rate, FMVSS, Thickness 1 mm	29	mm/min	ISO 3795 (FMVSS 302)
<sup>[C]</sup> Oxygen index	24 / *	%	ISO 4589-1/-2
<b>ASTM Data</b>			
UL 94 Flame rating	HB	-	UL 94
Thickness tested	1.5	mm	-
DTUL @ 264 psi	261	°C	ASTM D 648
Melting Temperature	300	°C	ASTM D 3418

Glass Transition Temperature	<b>135</b>	°C	ASTM E 1356
Limiting Oxygen Index	<b>24</b>	%	ASTM D 2863

[C]: CAMPUS

Electrical properties	dry / cond	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Relative permittivity, 100Hz	<b>4.2 / -</b>	-	IEC 62631-2-1
<sup>[C]</sup> Relative permittivity, 1MHz	<b>3.9 / -</b>	-	IEC 62631-2-1
<sup>[C]</sup> Dissipation factor, 100Hz	<b>90 / -</b>	E-4	IEC 62631-2-1
<sup>[C]</sup> Dissipation factor, 1MHz	<b>150 / -</b>	E-4	IEC 62631-2-1
<sup>[C]</sup> Volume resistivity	<b>&gt;1E13 / 1E13</b>	Ohm*m	IEC 62631-3-1
<sup>[C]</sup> Surface resistivity	<b>* / 1E14</b>	Ohm	IEC 62631-3-2
<sup>[C]</sup> Electric strength	<b>35 / 34</b>	kV/mm	IEC 60243-1
<sup>[C]</sup> Comparative tracking index	<b>600 / 600</b>	-	IEC 60112
<b>ASTM Data</b>			
Dielectric Strength, Short Time	<b>25.7 / -</b>	kV/mm	ASTM D 149
Dissipation Factor, 1 MHz	<b>0.02 / -</b>	-	ASTM D 150
Dielectric Constant, 1 MHz	<b>4.2 / -</b>	-	ASTM D 150
Surface Resistivity	<b>* / 1E14</b>	Ohm	ASTM D 257
Volume Resistivity	<b>&gt;1E15 / -</b>	Ohm*cm	ASTM D 257

[C]: CAMPUS

Other properties	dry / cond	Unit	Test Standard
<sup>[C]</sup> Water absorption	<b>3.6 / *</b>	%	Sim. to ISO 62
<sup>[C]</sup> Humidity absorption	<b>1.2 / *</b>	%	Sim. to ISO 62
<sup>[C]</sup> Density	<b>1570 / -</b>	kg/m <sup>3</sup>	ISO 1183
Water Absorption, 24hr	<b>0.27</b>	%	ASTM D 570
Water Absorption, Equilibrium	<b>2.8</b>	%	ASTM D 570
Density	<b>1580</b>	kg/m <sup>3</sup>	ASTM D 792

[C]: CAMPUS

## Characteristics

### Processing

Injection Molding

### Features

Weldable

### Delivery form

Pellets, Natural Color

### Chemical Resistance

Hydrolytically Stable

### Additives

Lubricants, Release agent

### Applications

Automotive, Electrical and Electronical

### Special Characteristics

Heat stabilized or stable to heat

### Regional Availability

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

## Other text information

### Injection molding

During molding, use proper protective equipment and adequate ventilation. Avoid exposure to fumes and limit the hold up time and temperature of the resin in the machine. Purge degraded resin carefully with HDPE.

When lower mold temperatures are used, the initial warpage and shrinkage may be lower, but the surface appearance and chemical resistance may be reduced, and the dimensional change may be greater when parts are subsequently heated.