Zytel® HTNFR52G30BL NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN high performance polyamide resins feature high retention of properties upon exposure to elevated temperature, to high moisture, and to harsh chemical environments. Polymer families and grades of Zytel® HTN are tailored to optimize performance as well as processability.

Typical applications with Zytel® HTN include demanding applications in the automotive, electrical and electronics, domestic appliances, and construction industries.

Zytel® HTNFR52G30BL NC010 is a 30% glass reinforced, flame retardant, lubricated high performance polyamide resin that has been developed for connector applications.

Product information

Resin Identification	PA6T/66-GF30 FR(16+72)	ISO 1043
Part Marking Code	>PA6T/66-GF30 FR(16+72)<	ISO 11469
Part Marking Code	>PPA-GF30 FR<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF30 FR(16+72),M1F1GNR,S10-120	

Rheological properties

	dry/cond.		
Molding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	1.74E6 / 1.6E6	psi	ISO 527-1/-2
Tensile stress at break, 5mm/min	24700 / 21800	psi	ISO 527-1/-2
Tensile strain at break, 5mm/min	2 / 2	%	ISO 527-1/-2
Flexural modulus	1.52E6 / -	psi	ISO 178
Flexural strength	36300 / 32600	psi	ISO 178
Charpy impact strength, 23 °C	23.8 / 14.3	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30 °C	23.8 / 19	ftlb/in²	ISO 179/1eU
Charpy impact strength, -40 °C	19 / -	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23 °C	5.23 / -	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30 °C	5.23 / -	ftlb/in²	ISO 179/1eA

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	590 / *	°F	ISO 11357-1/-3
Melting temperature, first heat	590 / *	°F	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	194 / 113	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	540 / *	°F	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	572 / *	°F	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	0.11 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel, -40-23 °C	0.111 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel, 55-160 °C	0.0556 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.35 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal, -40-23 °C	0.317 / *	E-4/°F	ISO 11359-1/-2

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Coefficient of linear thermal expansion (CLTE), normal, 55-160°C	0.556 / *	E-4/°F	ISO 11359-1/-2
RTI, electrical, 1.5mm	284	°F	UL 746B
RTI, electrical, 3.0mm	284	°F	UL 746B
RTI, impact, 1.5mm	248	°F	UL 746B
RTI, impact, 3.0mm	248	°F	UL 746B
RTI, strength, 1.5mm	248 / *	°F	UL 746B
RTI, strength, 3.0mm	266	°F	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.0591 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.1181 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. 5V at thickness h	5VA / *	class	IEC 60695-11-20
Thickness tested	0.0591 / *	in	IEC 60695-11-20
UL recognition	yes / *		UL 94
Oxygen index	42 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.75mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	1700 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	1700 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	1760 / -	°F	IEC 60695-2-13
Glow Wire Temperature, No Flame, 3mm	1760 / -	°F	IEC 60335-1
FMVSS Class	DNI		ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	3.5 / -		IEC 62631-2-1
Relative permittivity, 1MHz	3.3 / -		IEC 62631-2-1
Dissipation factor, 100Hz	50 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	140 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	864 / -	kV/in	IEC 60243-1
Comparative tracking index	525 / -		IEC 60112
Comparative tracking index, 23°C	1 / -	PLC	UL 746A
Comparative tracking index M	175 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.3 / *	%	Sim. to ISO 62
Water absorption, 2mm	3 / *	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.21[1] / *	%	Sim. to ISO 62
Density	0.0585 / -	lb/in³	ISO 1183

[1]: 2mm thickness

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Emissions

	dry/cond.		
Odor test	4.5	class	VDA 270
Fogging, F-value (refraction)	95 / *	%	ISO 6452

Injection

Drying Recommended	yes	
Drying Temperature	212	°F
Drying Time, Dehumidified Dryer	6 - 8	h
Processing Moisture Content	≤0.1	%
Melt Temperature Optimum	617	°F
Min. melt temperature	608	°F
Max. melt temperature	626	°F
Min. mold temperature	194	°F
Max. mold temperature	230	°F
Hold Pressure Time (h is the max. wall thickness of the part in mm)	h^2+2	s

Characteristics

Processing	Injection Molding
Additives	Release agent, Flame retardant
Special characteristics	Flame retardant, Lead-free soldering resistant

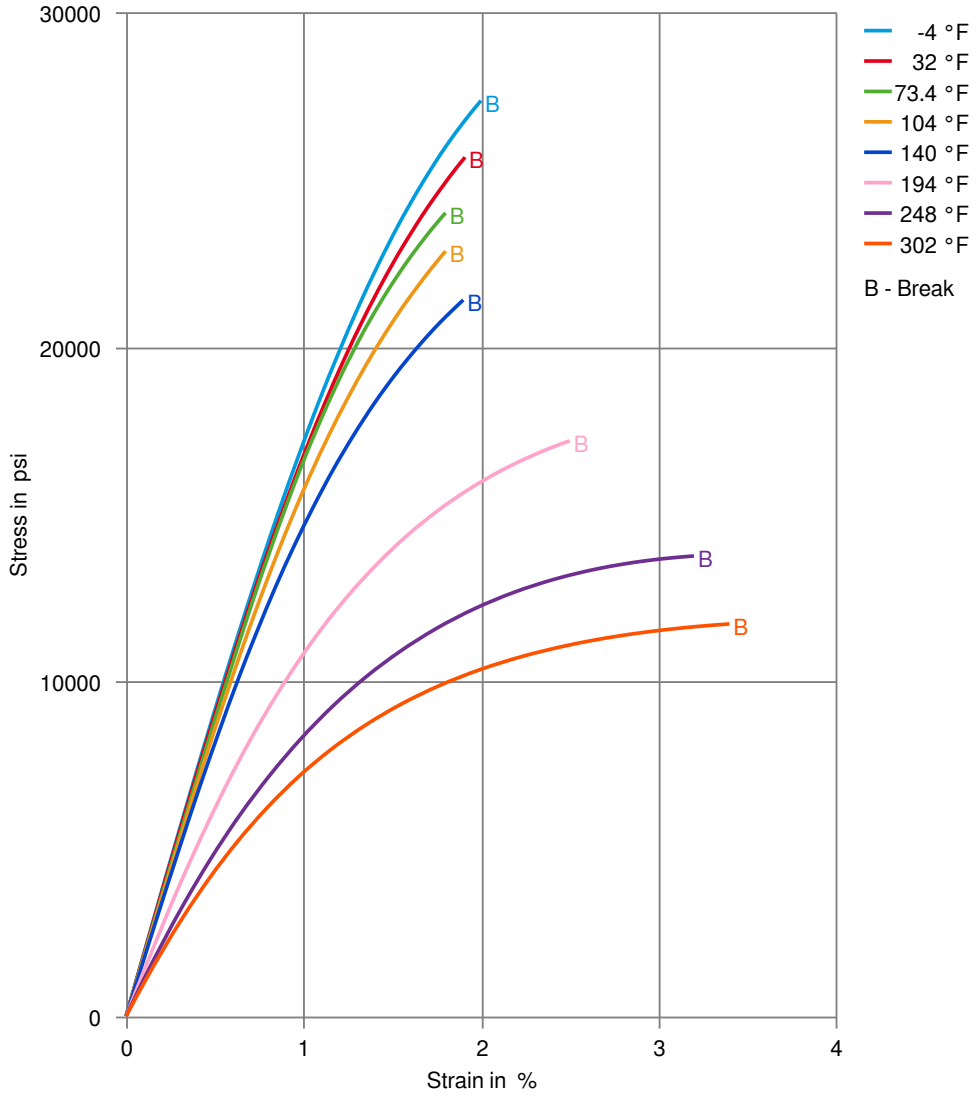
Additional information

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

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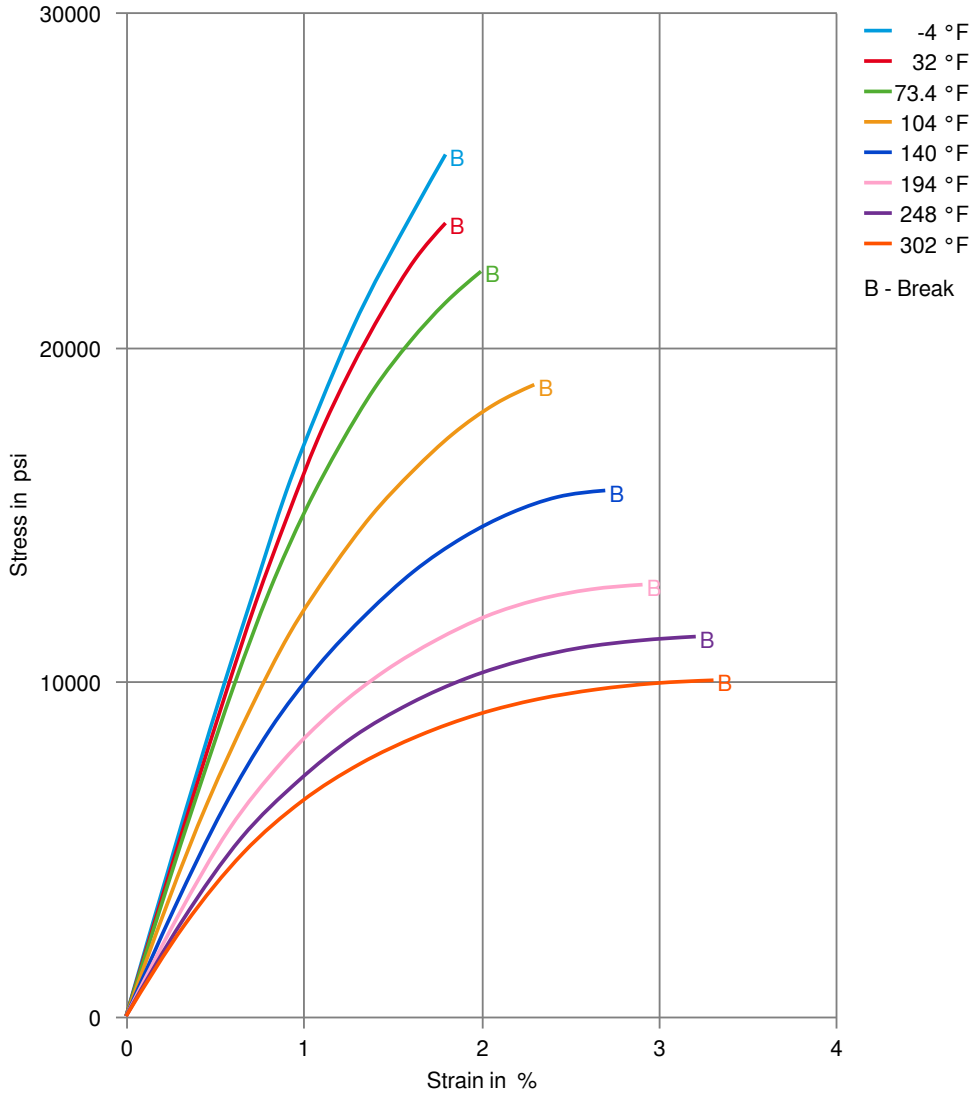
Stress-strain (dry)



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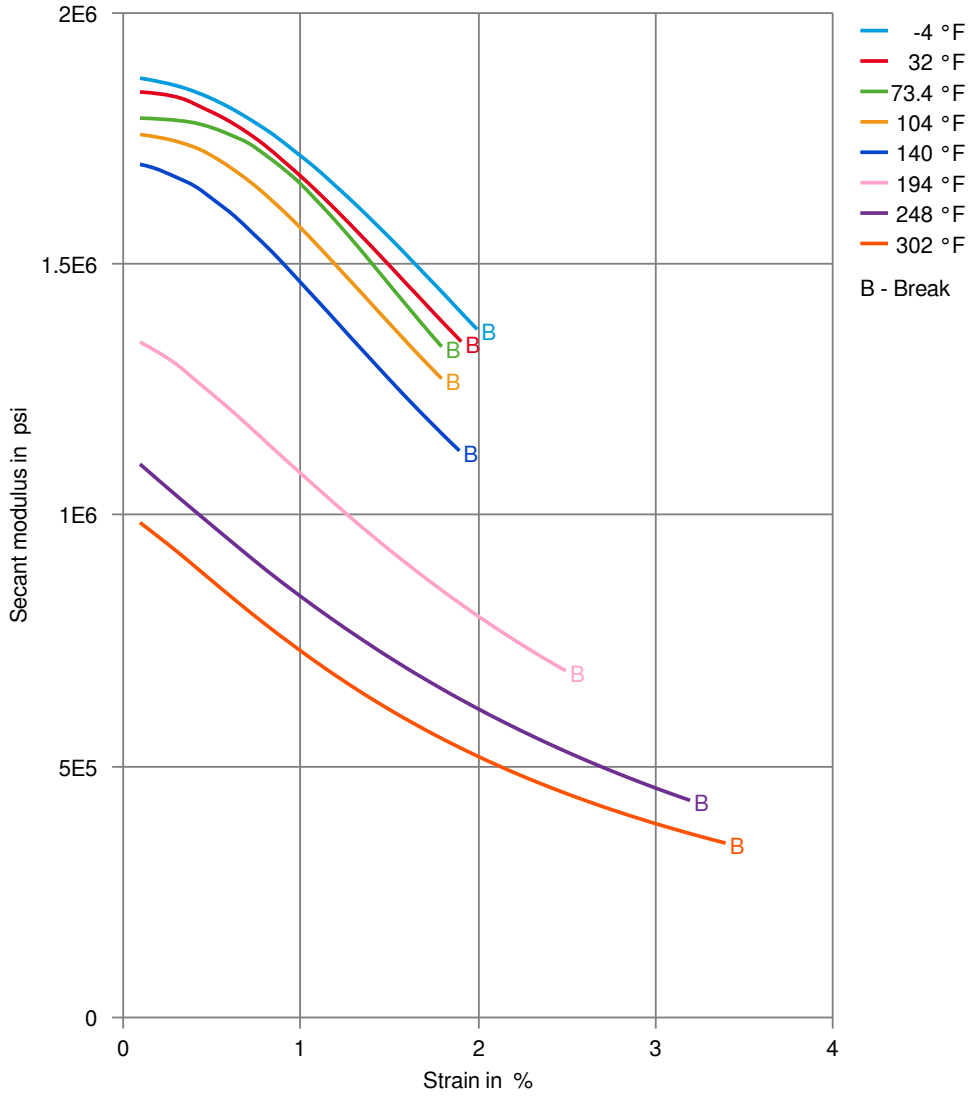
Stress-strain (cond.)



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HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)

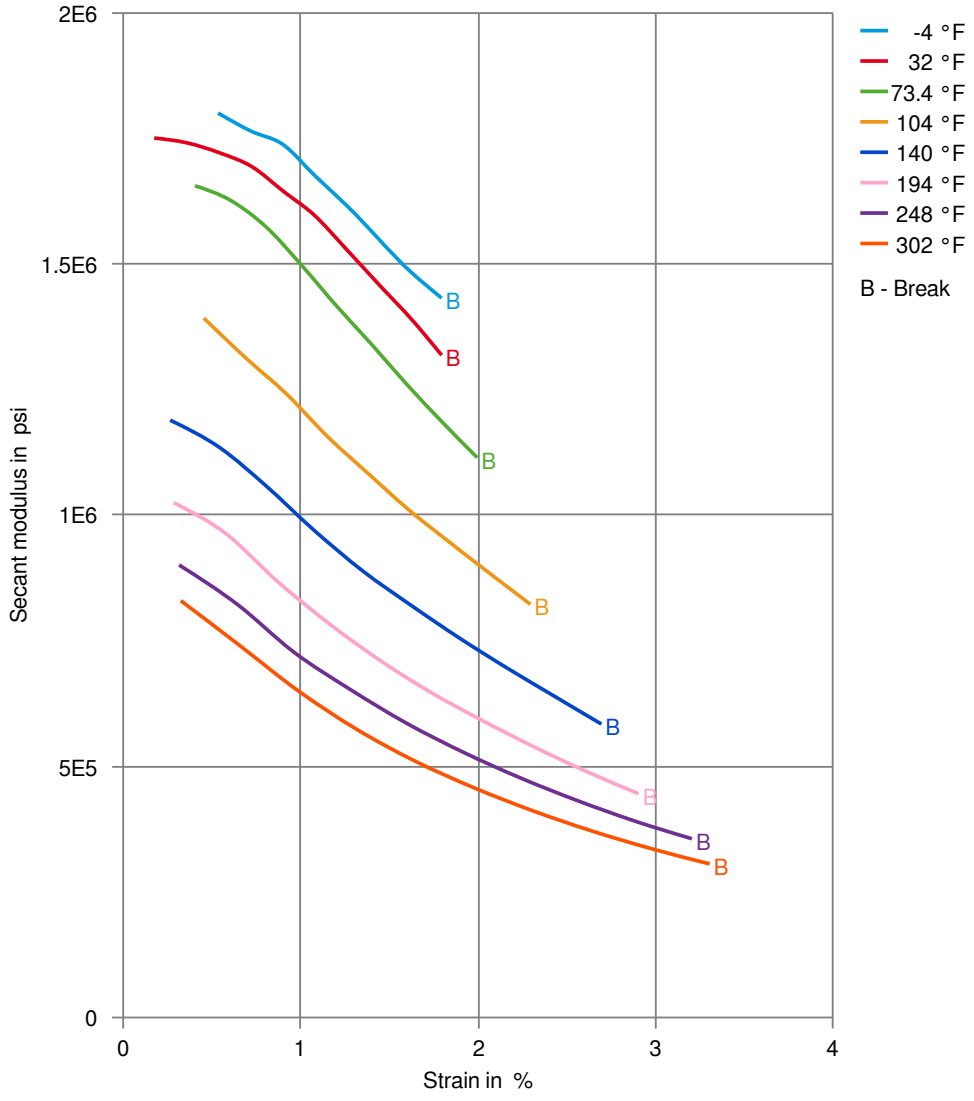


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Secant modulus-strain (cond.)



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