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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-GF30FR(16+72)	ISO 1043
Part Marking Code	>PA6T/66-GF30FR(16+72)<	ISO 11469
Part Marking Code	>PPA-GF30FR<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF30 FR(16+72),M1F1GNR,S10-120	

Rheological properties

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

Typical mechanical properties

	dry/cond.		
Tensile modulus	12000 / 11000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	170 / 150	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2 / 2	%	ISO 527-1/-2
Flexural modulus	10500 / -	MPa	ISO 178
Flexural strength	250 / 220	MPa	ISO 178
Charpy impact strength, 23°C	50 / 30	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	50 / 40	kJ/m²	ISO 179/1eU
Charpy impact strength, -40°C	40 / -	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	11 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	11 / -	kJ/m²	ISO 179/1eA
Poisson's ratio	0.33 / 0.34		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	310 / *	°C	ISO 11357-1/-3
Melting temperature, first heat	310 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90 / 45	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	282 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	300 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	20 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	10 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	57 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	63 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	100 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 1.5mm	140	°C	UL 746B

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RTI, electrical, 3.0mm	140	°C	UL 746B
RTI, impact, 1.5mm	120	°C	UL 746B
RTI, impact, 3.0mm	120	°C	UL 746B
RTI, strength, 1.5mm	120 / *	°C	UL 746B
RTI, strength, 3.0mm	130	°C	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	3 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. 5V at thickness h	5VA / *	class	IEC 60695-11-20
Thickness tested	1.5 / *	mm	IEC 60695-11-20
UL recognition	yes / *		UL 94
Oxygen index	42 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.75mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	925 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	925 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	960 / -	°C	IEC 60695-2-13
Glow Wire Temperature, No Flame, 3mm	960 / -	°C	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	34 / -	kV/mm	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	1620 / -	kg/m³	ISO 1183

[1]: 2mm thickness

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VDA Properties

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

Injection

Drying Recommended	yes	
Drying Temperature	100	°C
Drying Time, Dehumidified Dryer	6 - 8	h
Processing Moisture Content	≤0.1	%
Melt Temperature Optimum	325	°C
Min. melt temperature	320	°C
Max. melt temperature	330	°C
Min. mould temperature	90	°C
Max. mould temperature	110	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
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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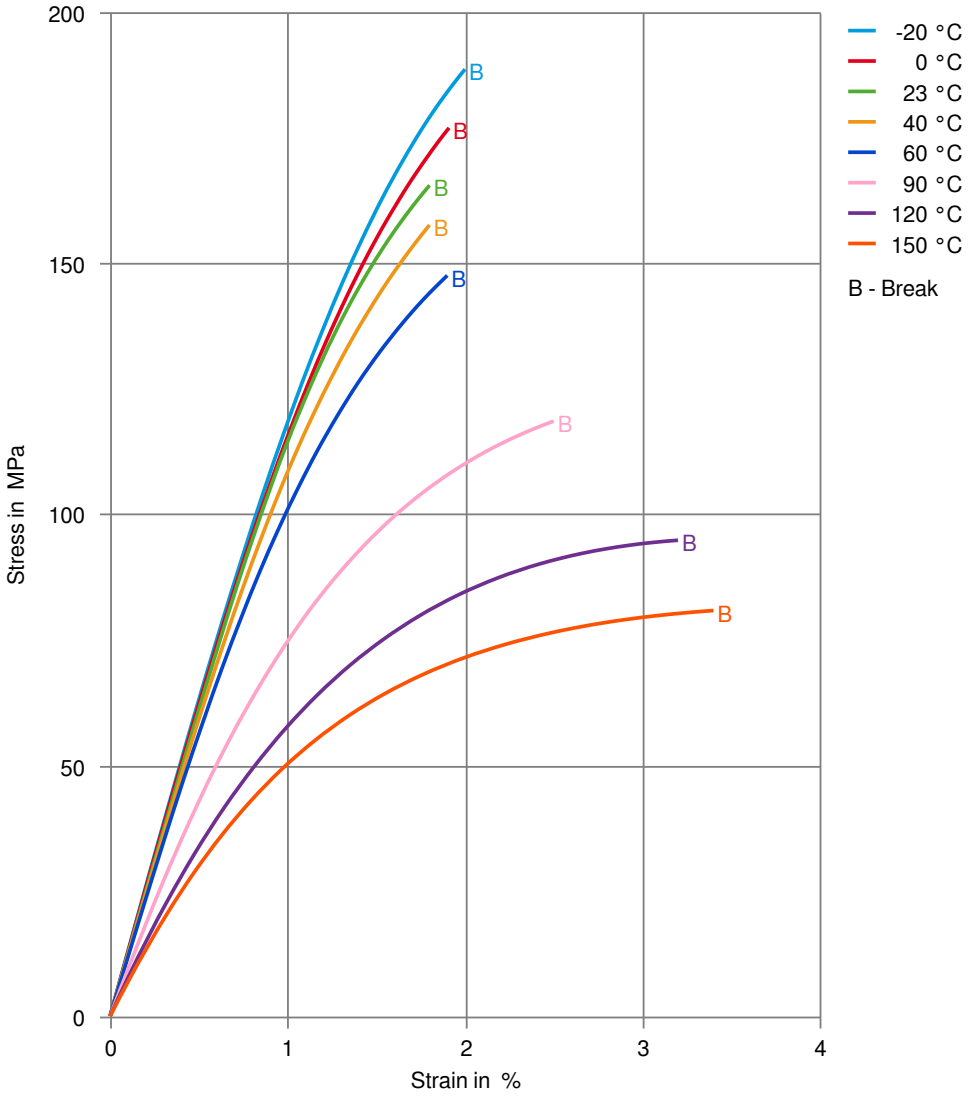
Stress-strain (dry)



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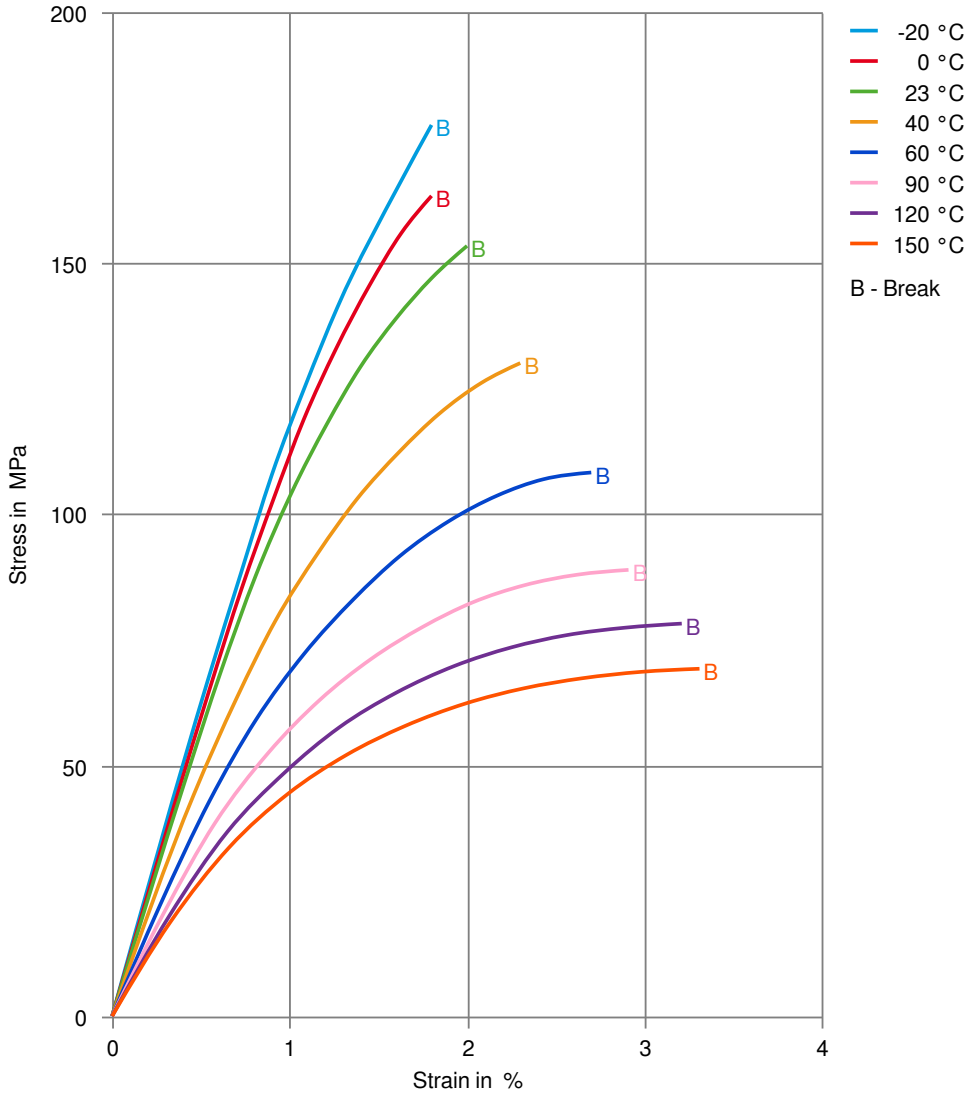
Stress-strain (cond.)



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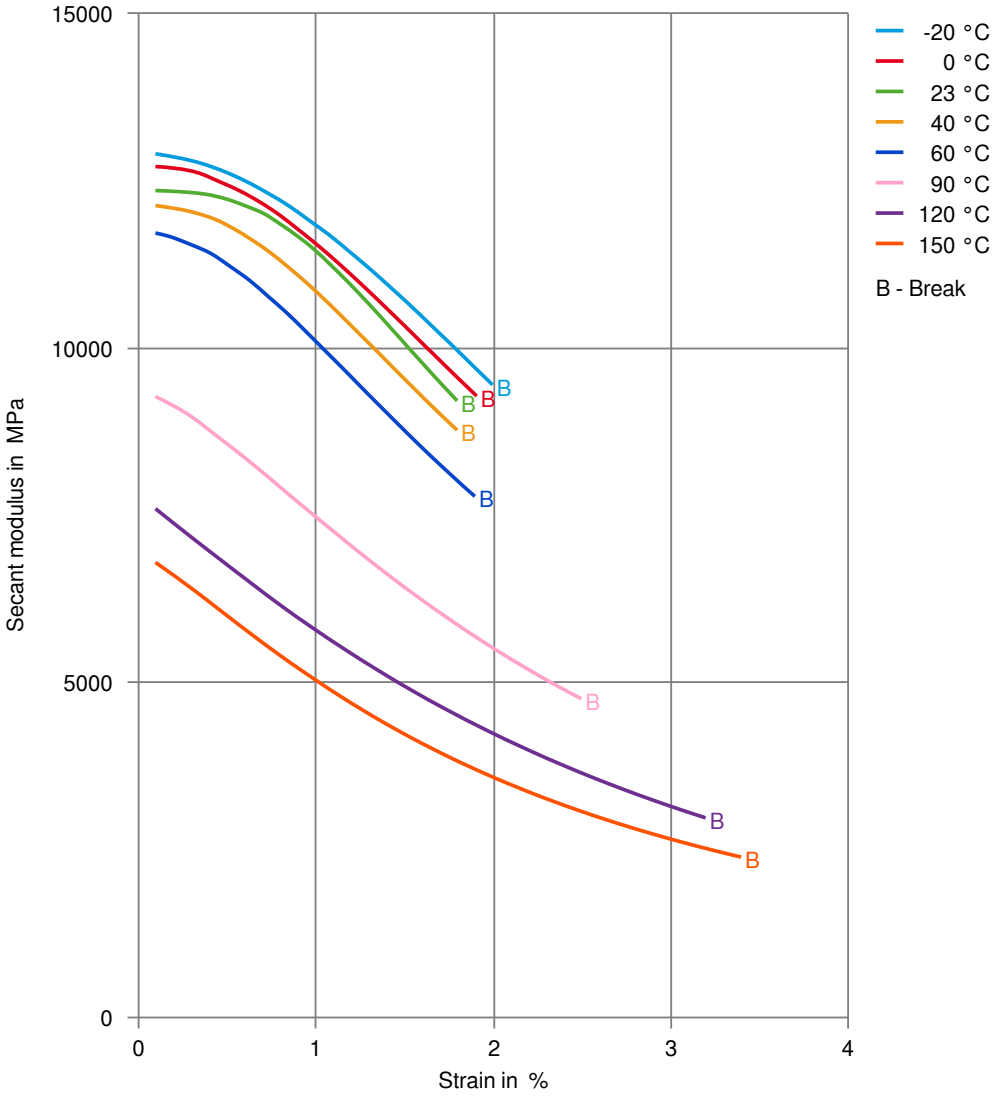
Secant modulus-strain (dry)



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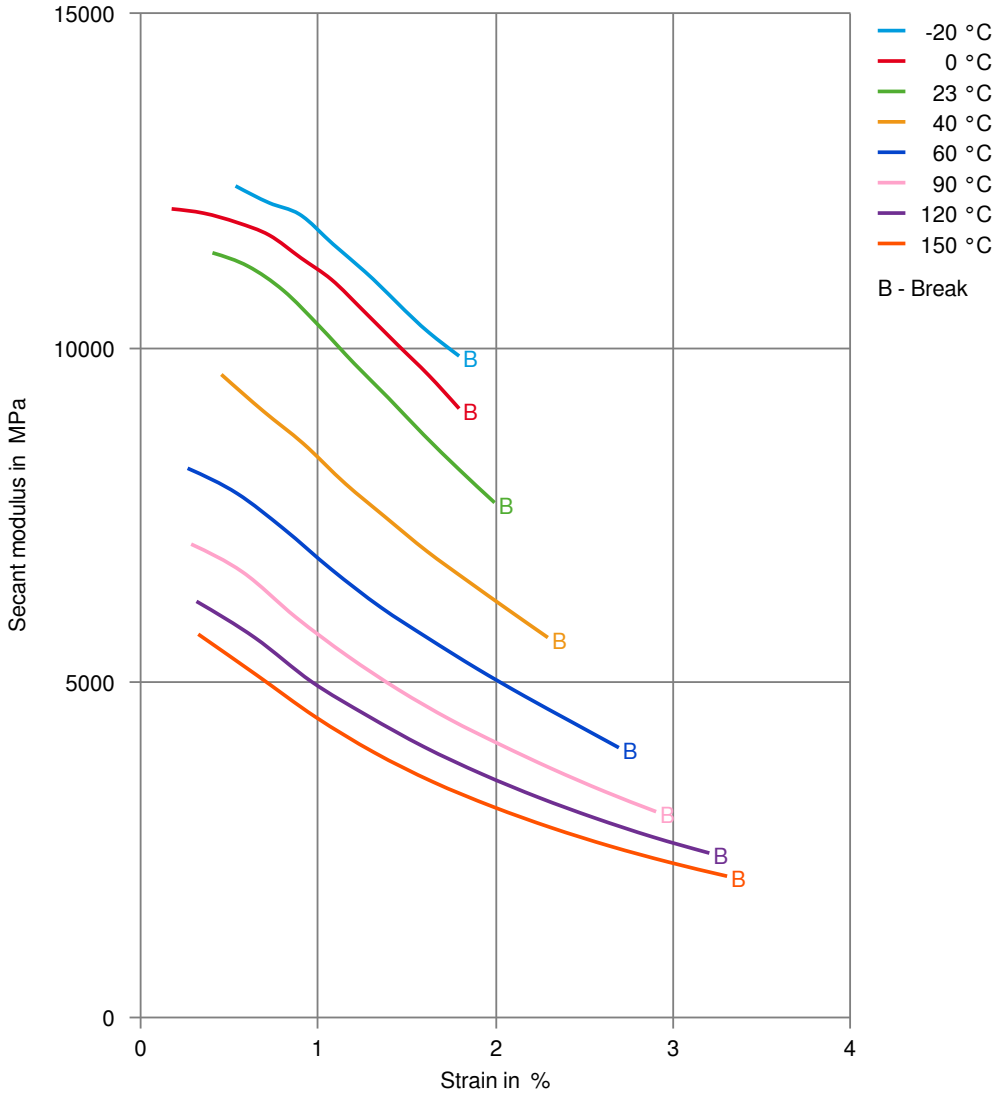
Secant modulus-strain (cond.)



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