Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR 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® HTN54G15HSLR NC010 is a 15% glass reinforced, toughened, heat stabilized high performance polyamide resin. It is also a PPA resin.

Product information

Resin Identification	PA-IGF15	ISO 1043
Part Marking Code	>PA-IGF15<	ISO 11469
Part Marking Code	>PPA-IGF15<	SAE J1344
ISO designation	ISO 16396-PA-I,GF15,M1GHNRW,S10-050	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.4 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	5500 / 5500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	130 / 100	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.7 / 2.7	%	ISO 527-1/-2
Flexural modulus	4900 / -	MPa	ISO 178
Tensile creep modulus, 1h	* / 5500	MPa	ISO 899-1
Tensile creep modulus, 1000h	* / 5000	MPa	ISO 899-1
Charpy impact strength, 23°C	70 / 60	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	6 / -	kJ/m²	ISO 179/1eA
Poisson's ratio	0.35 / 0.35		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	304 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	120 / 65	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	235 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	280 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	32 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	28 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	70 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	70 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	104 / *	E-6/K	ISO 11359-1/-2

Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.8 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	23 / *	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	4.2 / -		IEC 62631-2-1
Relative permittivity, 1MHz	3.9 / -		IEC 62631-2-1
Dissipation factor, 100Hz	55 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	135 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / >1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	* / >1E15	Ohm	IEC 62631-3-2
Electric strength	16.5 / -	kV/mm	IEC 60243-1
Comparative tracking index	575 / 575		IEC 60112

Physical/Other properties

	dry/cond.		
Density	1250 / -	kg/m³	ISO 1183

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
Mold Temperature Optimum	100	°C
Min. mould temperature	90	°C
Max. mould temperature	110	°C
Ejection temperature	260	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Additives	Release agent
Special characteristics	Heat stabilised or stable to heat, Hydrolysis resistant

Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

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.

Automotive

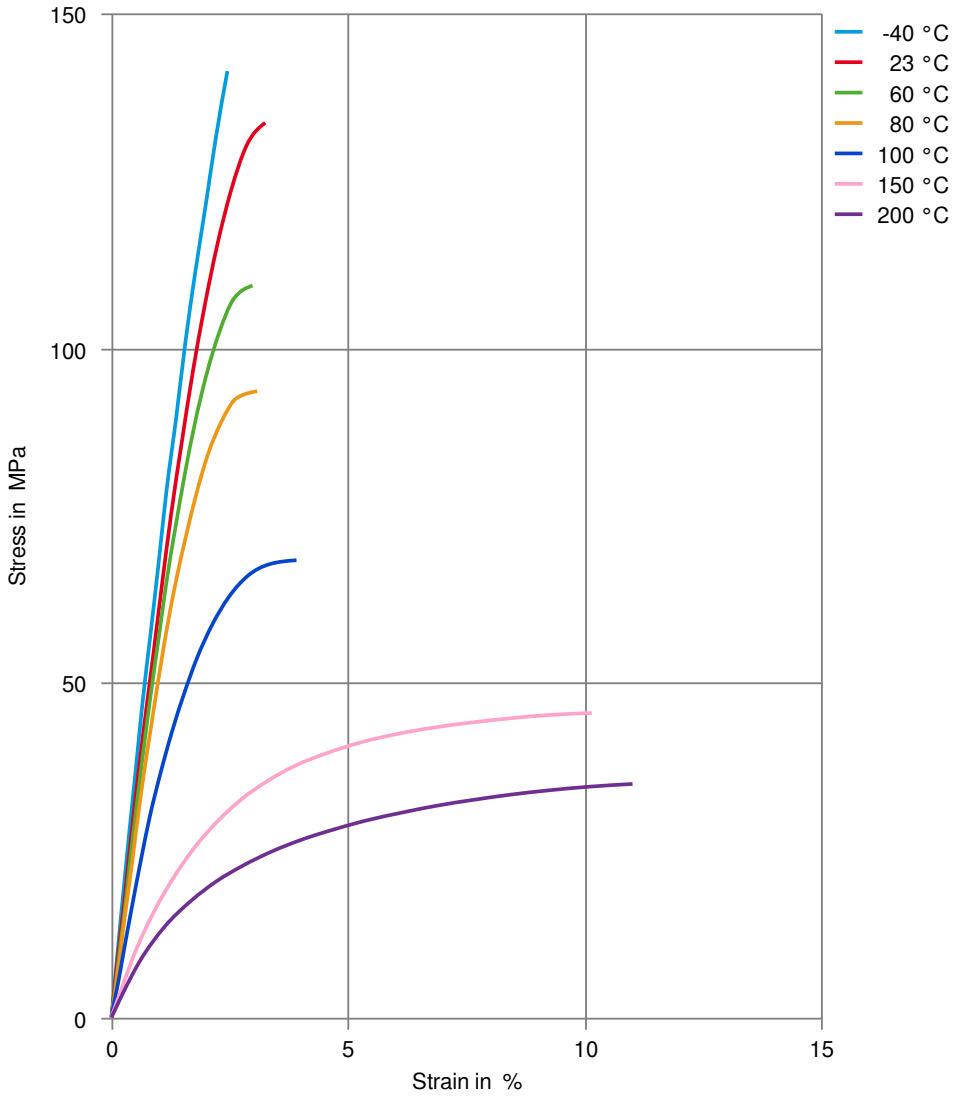
OEM	STANDARD	ADDITIONAL INFORMATION
Ford	WSS-M98P14-A3	
General Motors	GMW18066P-PPA-GF15	Natural

Stress-strain (dry)

Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

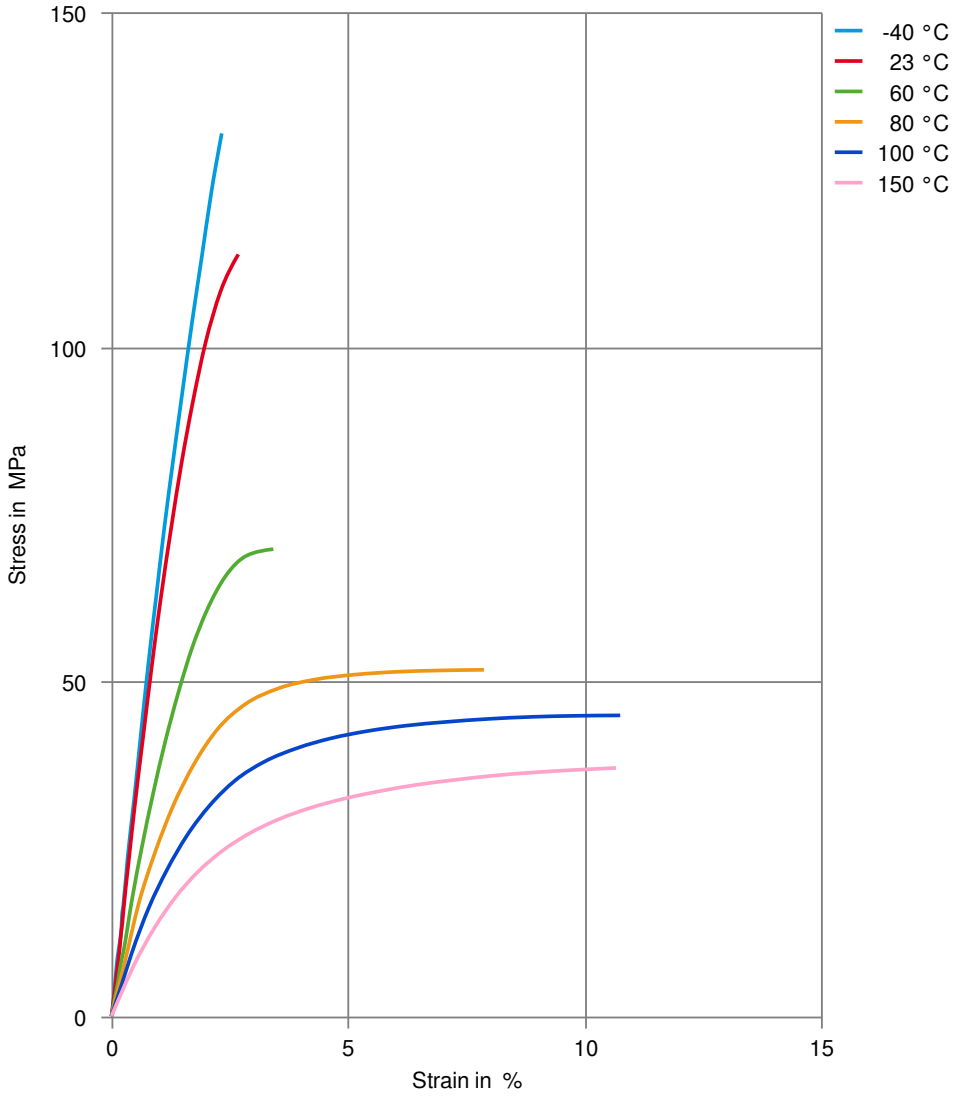


Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (cond.)

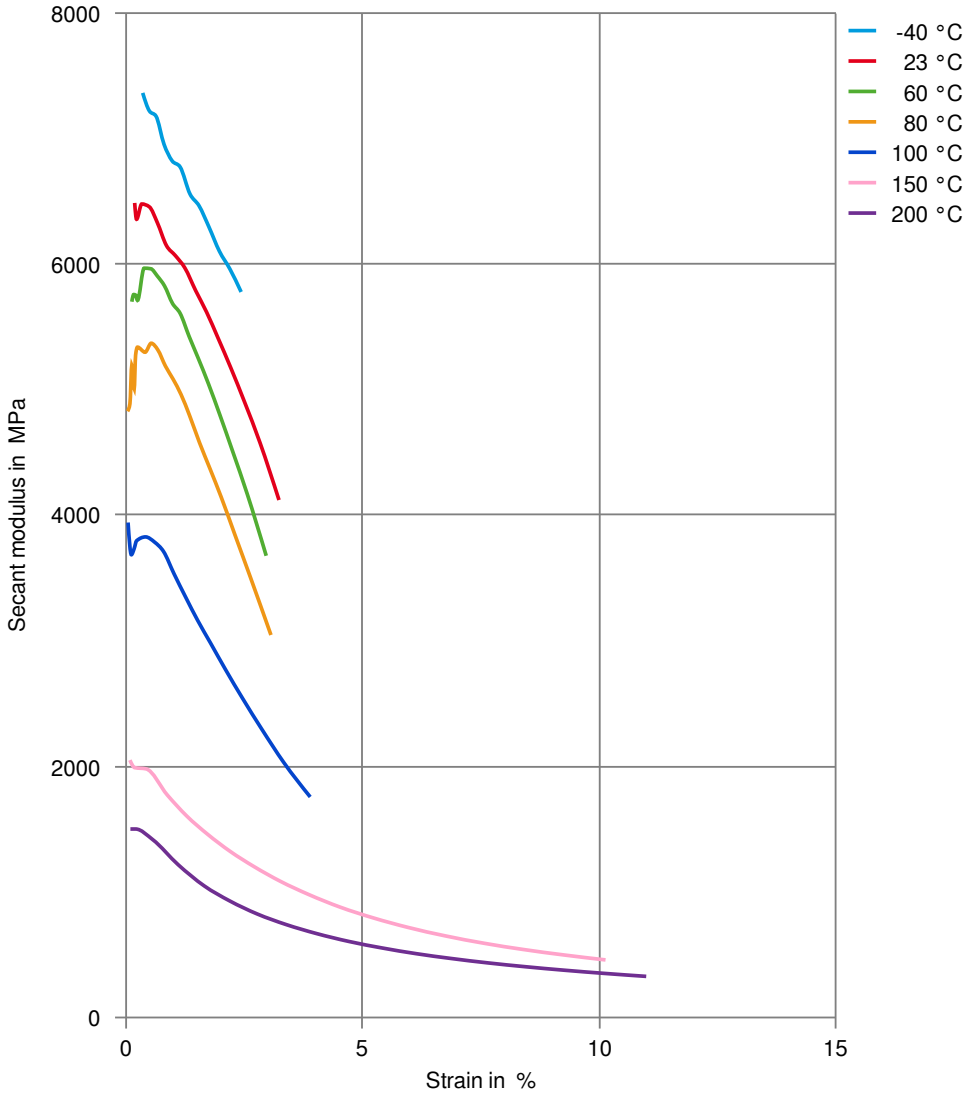


Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)

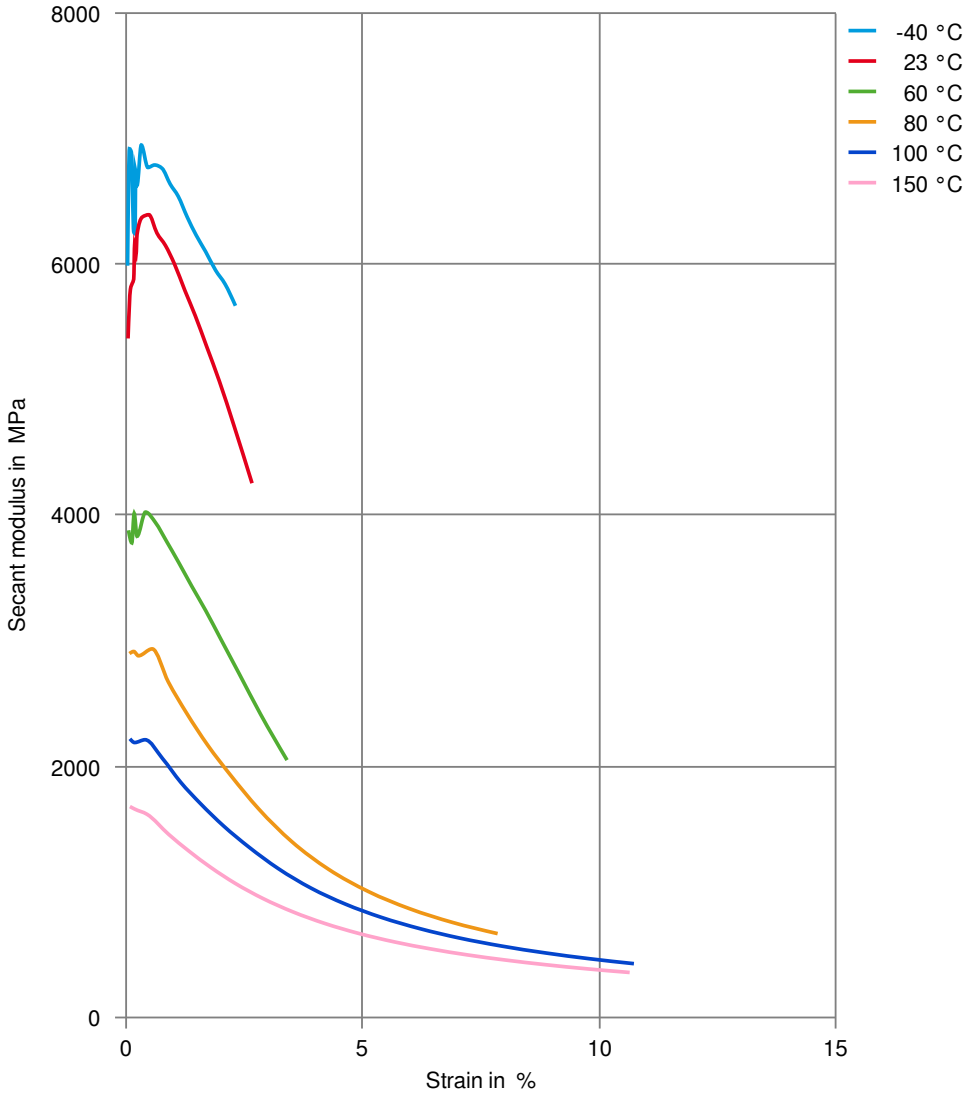


Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (cond.)

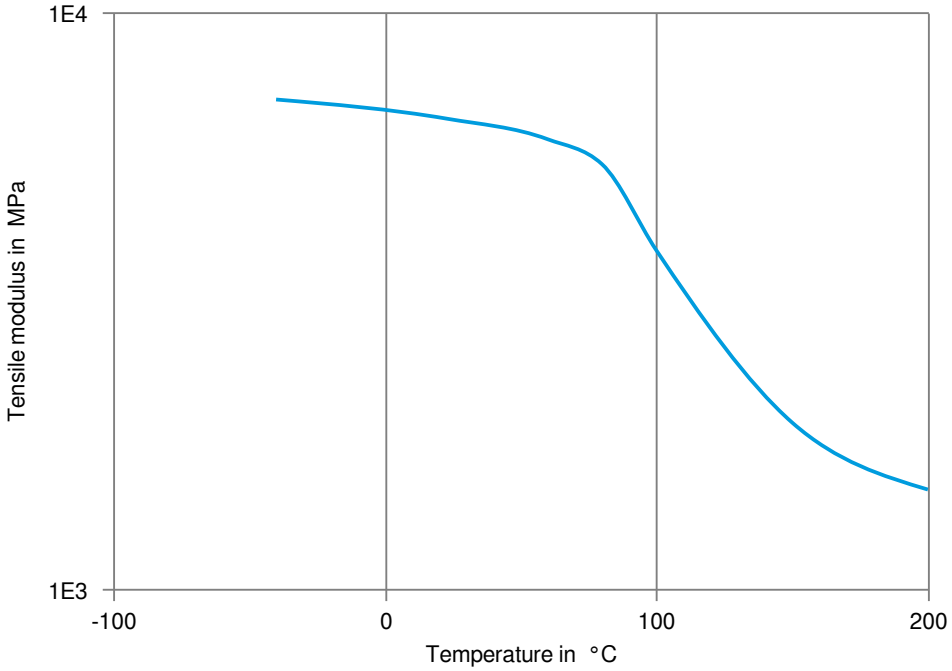


Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Tensile modulus-temperature (dry)



Celanese
The chemistry inside innovation™

Zytel® HTN54G15HSLR NC010

HIGH PERFORMANCE POLYAMIDE RESIN

Tensile modulus-temperature (cond.)