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Zytel® HTN53G50HSLR 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® HTN53G50HSLR NC010 is a 50% glass reinforced, heat stabilised, lubricated high performance polyamide resin developed for moderate temperature structural applications requiring retention of high impact and stiffness.

Product information

Resin Identification	PA-GF50	ISO 1043
Part Marking Code	>PA-GF50<	ISO 11469
Part Marking Code	>PA-GF50<	SAE J1344
ISO designation	ISO 16396-PA,GF50,M1GHNRW,S10-160	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.4 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	16500 / 16300	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	250 / 215	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.8 / 3.2	%	ISO 527-1/-2
Flexural modulus	15000 / -	MPa	ISO 178
Charpy impact strength, 23°C	95 / -	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	15 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	14 / -	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	15 / -	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	13.5 / -	kJ/m²	ISO 180/1A
Poisson's ratio	0.33 / 0.33		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	260 / *	°C	ISO 11357-1/-3
Melting temperature, first heat	260 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	85 / 45	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	236 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	17 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	14 / *	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	55 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	55 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	110 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	65	°C	UL 746B
RTI, electrical, 1.5mm	65	°C	UL 746B
RTI, electrical, 3.0mm	65	°C	UL 746B

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RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	65	°C	UL 746B
RTI, impact, 3.0mm	65	°C	UL 746B
RTI, strength, 0.75mm	65	°C	UL 746B
RTI, strength, 1.5mm	65 / *	°C	UL 746B
RTI, strength, 3.0mm	65	°C	UL 746B

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	0.75 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	27 / *	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	26	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Volume resistivity	1E13 / -	Ohm.m	IEC 62631-3-1
Comparative tracking index	600 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Density	1590 / -	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	290	°C
Min. melt temperature	280	°C
Max. melt temperature	300	°C
Min. mould temperature	90	°C
Max. mould temperature	110	°C

Characteristics

Processing	Injection Moulding
Special characteristics	Heat stabilised or stable to heat, Hydrolysis resistant

Additional 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.

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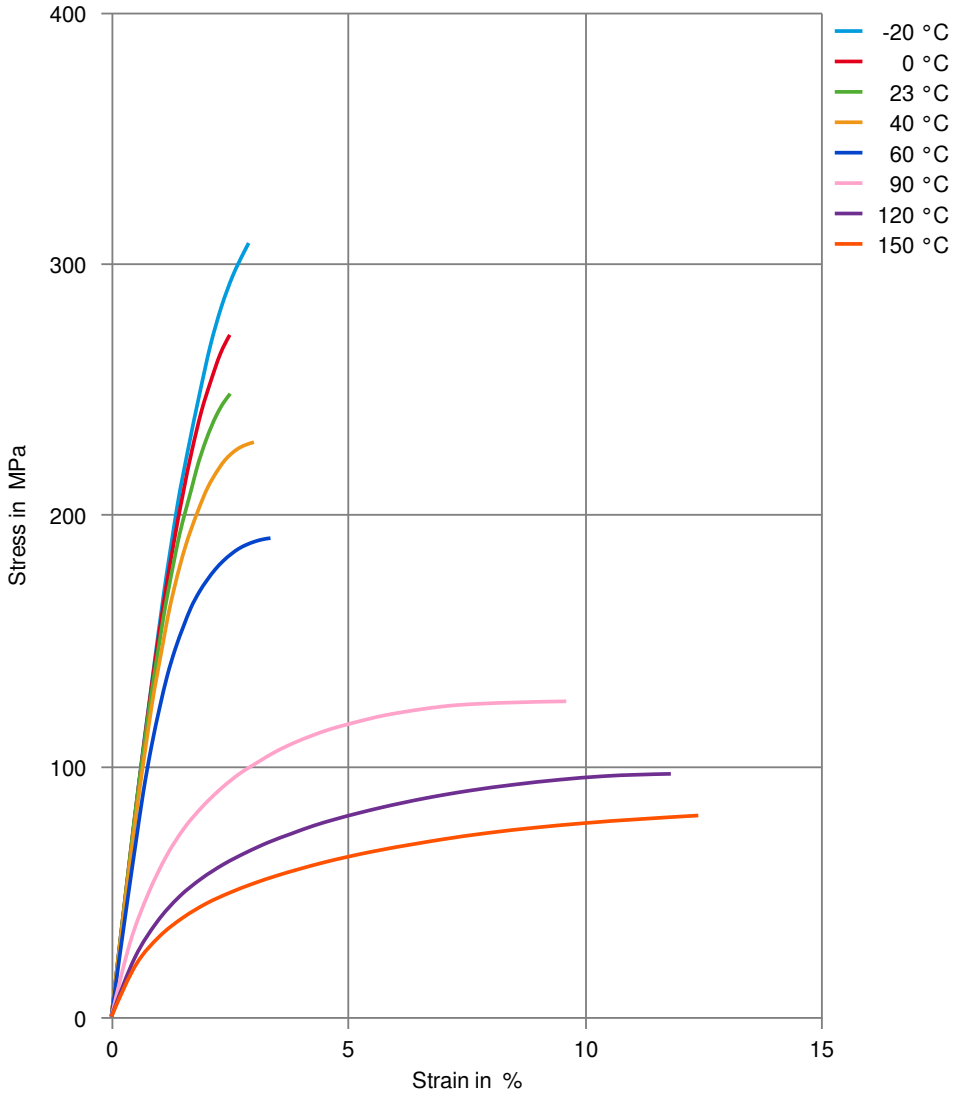
Automotive

OEM	STANDARD
VW Group	VW 50127 PA66-10

Stress-strain (dry)



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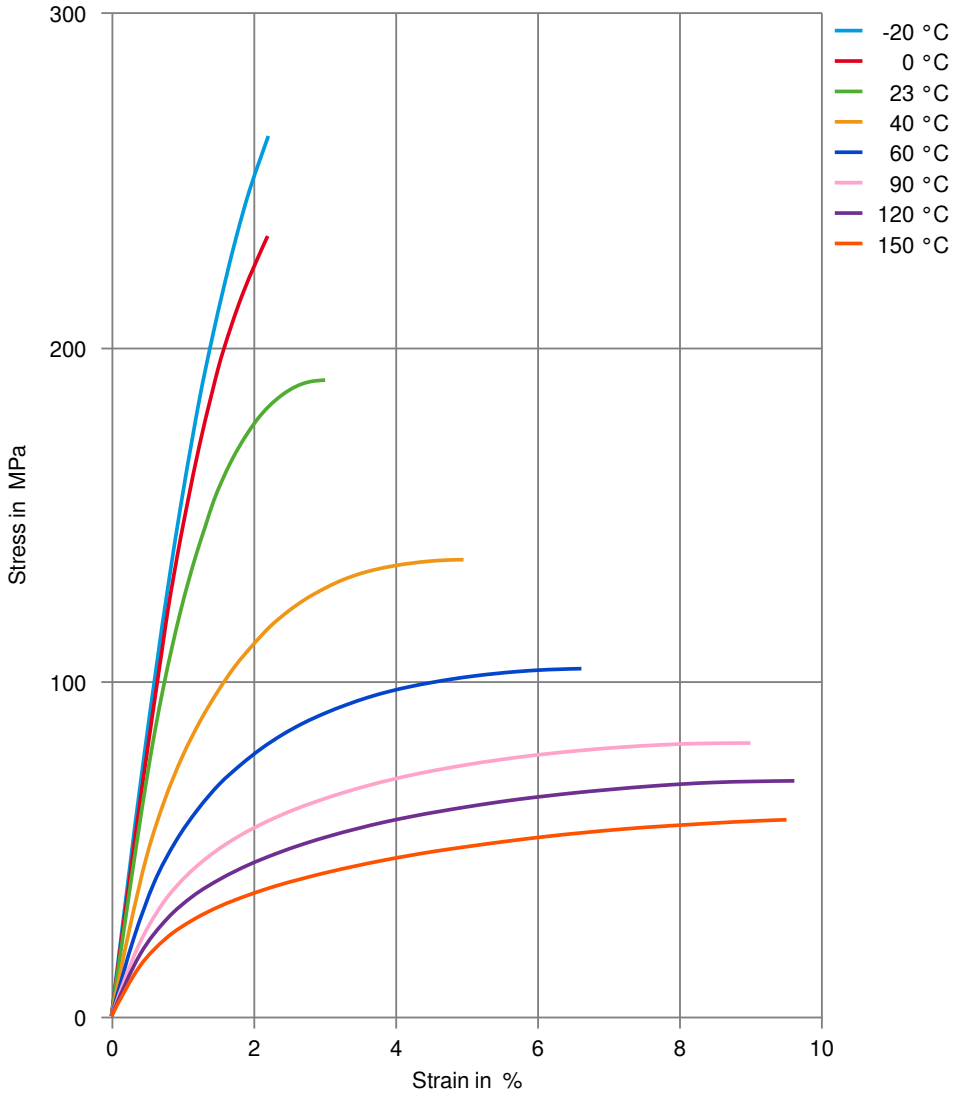
Stress-strain (cond.)



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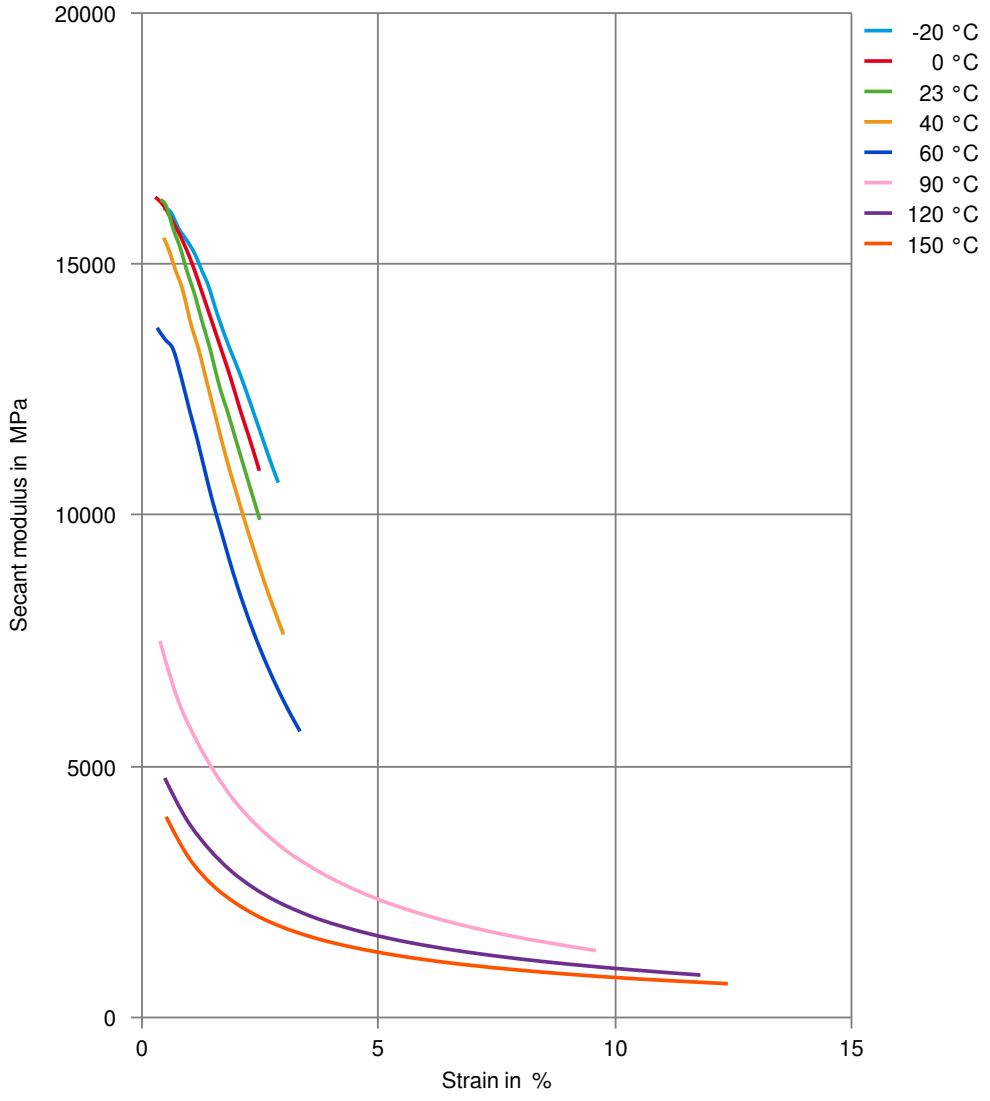
HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)



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Secant modulus-strain (cond.)