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Zytel® HTN54G35HSLR BK031

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® HTN54G35HSLR BK031 is a 35% glass reinforced, toughened, heat stabilized high performance polyamide resin. It is also a PPA resin.

Product information

Resin Identification	PA-IGF35	ISO 1043
Part Marking Code	>PA-IGF35<	ISO 11469
Part Marking Code	>PPA-IGF35<	SAE J1344
ISO designation	ISO 16396-PA-I,GF35,M1CGHRW,S10-100	

Rheological properties

	dry/cond.		
Viscosity number	105 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.5 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	10500 / 10800	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	180 / 166	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3 / 2.7	%	ISO 527-1/-2
Flexural modulus	9300 / 9500	MPa	ISO 178
Flexural strength	280 / -	MPa	ISO 178
Charpy impact strength, 23°C	85 / 70	kJ/m^2	ISO 179/1eU
Charpy impact strength, -40°C	75 / 65	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	12 / 11	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	10 / 9	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -40°C	9 / 9	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	12 / -	kJ/m^2	ISO 180/1A
Poisson's ratio	0.34 / 0.34		

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	255 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	283 / *	°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	17 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	65 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	68 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	103 / *	E-6/K	ISO 11359-1/-2

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RTI, electrical, 0.75mm	150	°C	UL 746B
RTI, electrical, 1.5mm	150	°C	UL 746B
RTI, electrical, 3.0mm	150	°C	UL 746B
RTI, impact, 0.75mm	105	°C	UL 746B
RTI, impact, 1.5mm	120	°C	UL 746B
RTI, impact, 3.0mm	130	°C	UL 746B
RTI, strength, 0.75mm	115	°C	UL 746B
RTI, strength, 1.5mm	130 / *	°C	UL 746B
RTI, strength, 3.0mm	140	°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
FMVSS Class	SE		ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Volume resistivity	1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	43 / 42	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.8 / *	%	Sim. to ISO 62
Density	1420 / -	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	95	°C
Min. mould temperature	85	°C
Max. mould temperature	105	°C
Ejection temperature	253	°C

Characteristics

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

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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.

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
Bosch	N28 BN05-OX089	
Ford	WSS-M98P14-A3	
General Motors	GMW18066P-PPA-GF35	Black
Hyundai	MS211-80 Type B	
Stellantis	B62 0300 / 61/213M/217E/13/C1B	01994_10_00120

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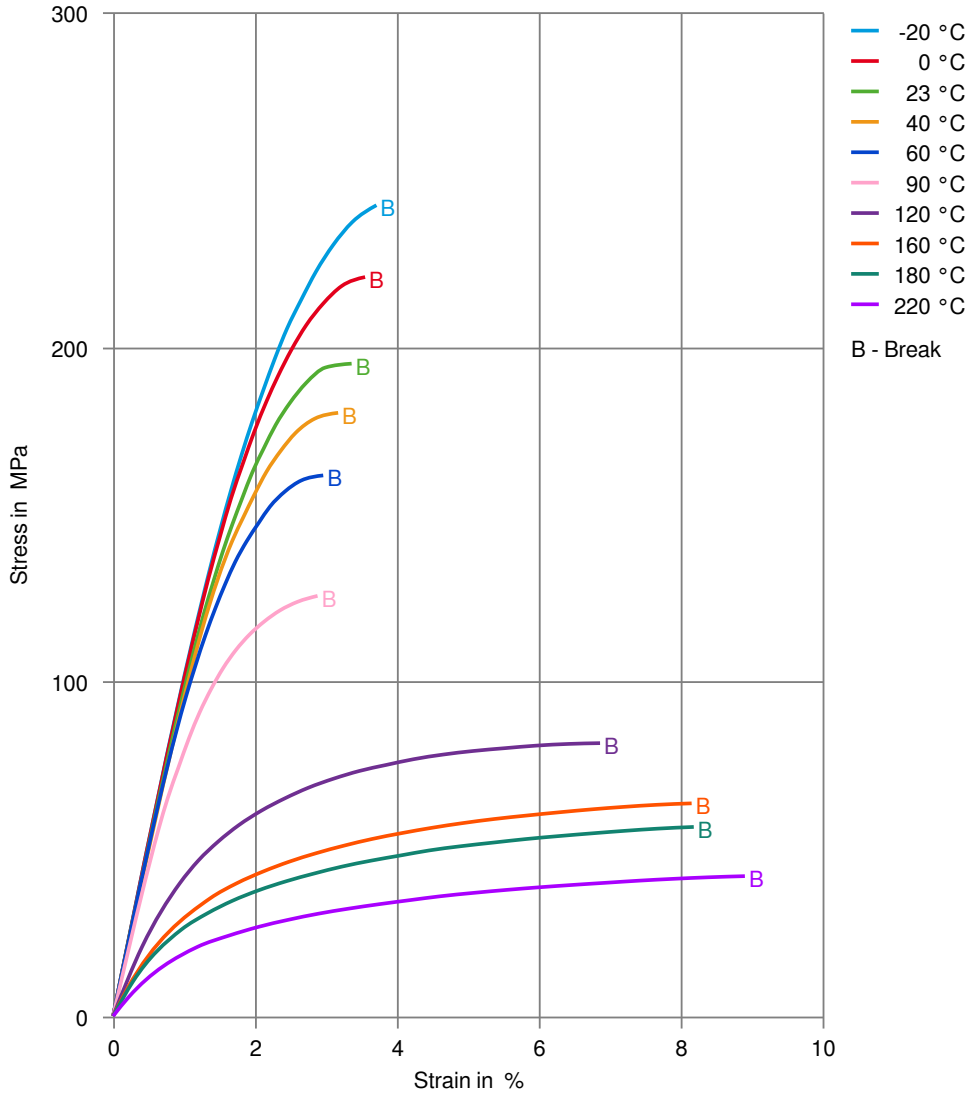
Stress-strain (dry)



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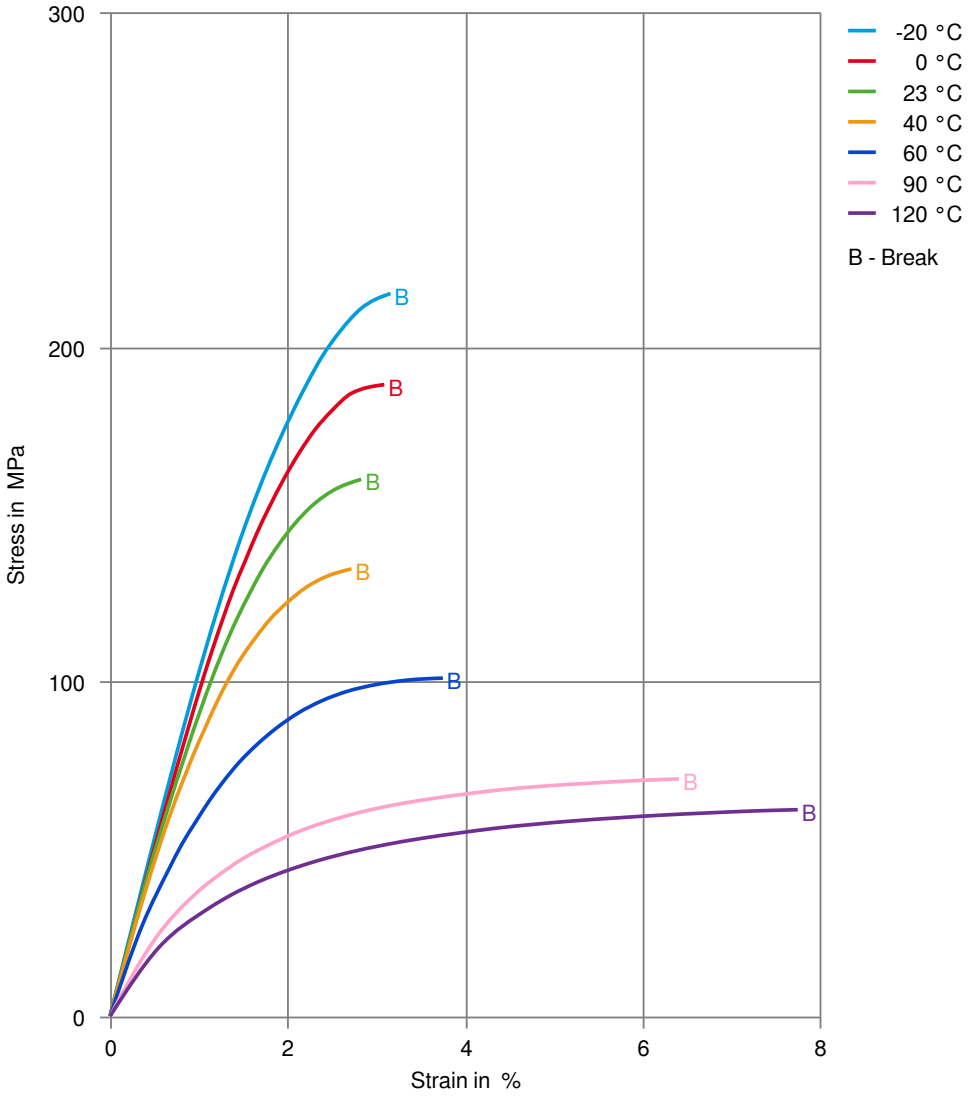
Stress-strain (cond.)



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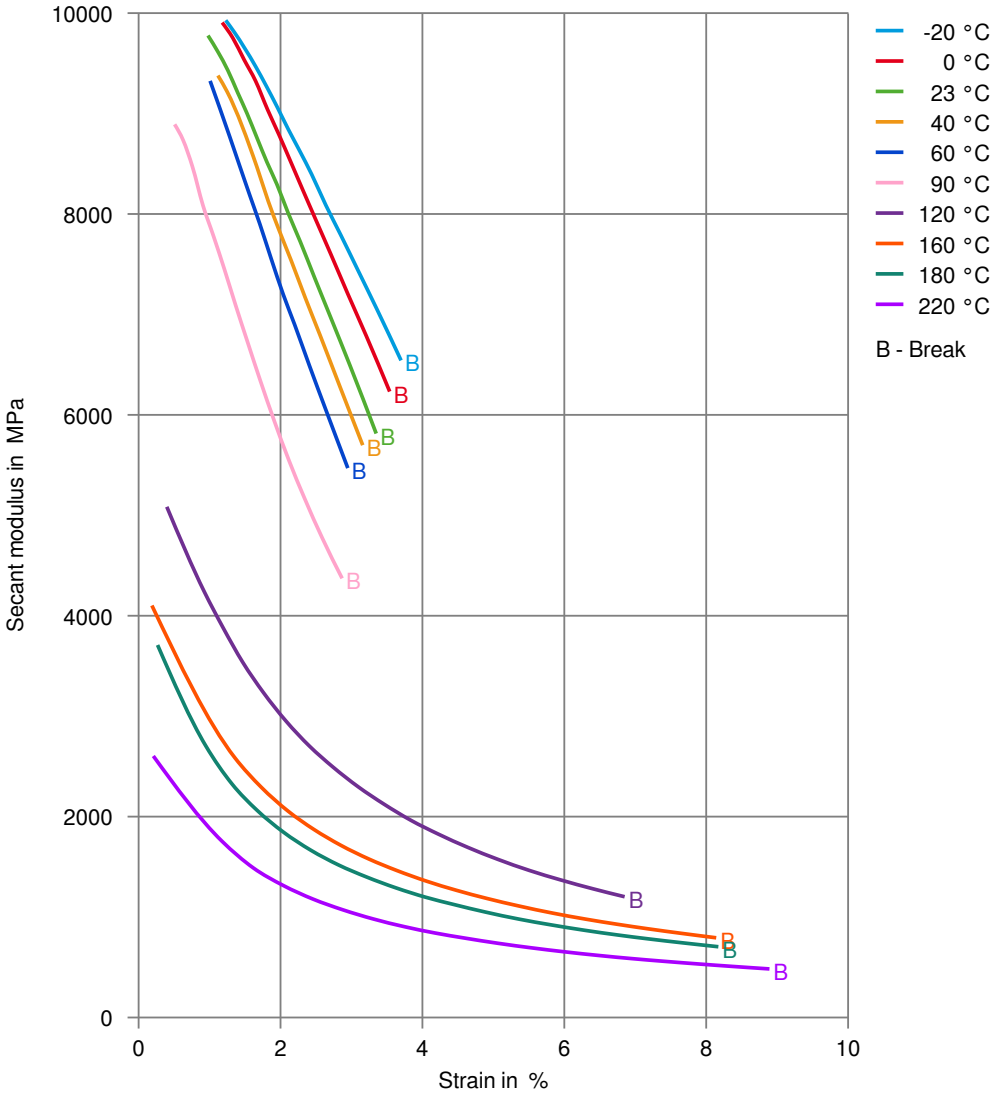
Secant modulus-strain (dry)



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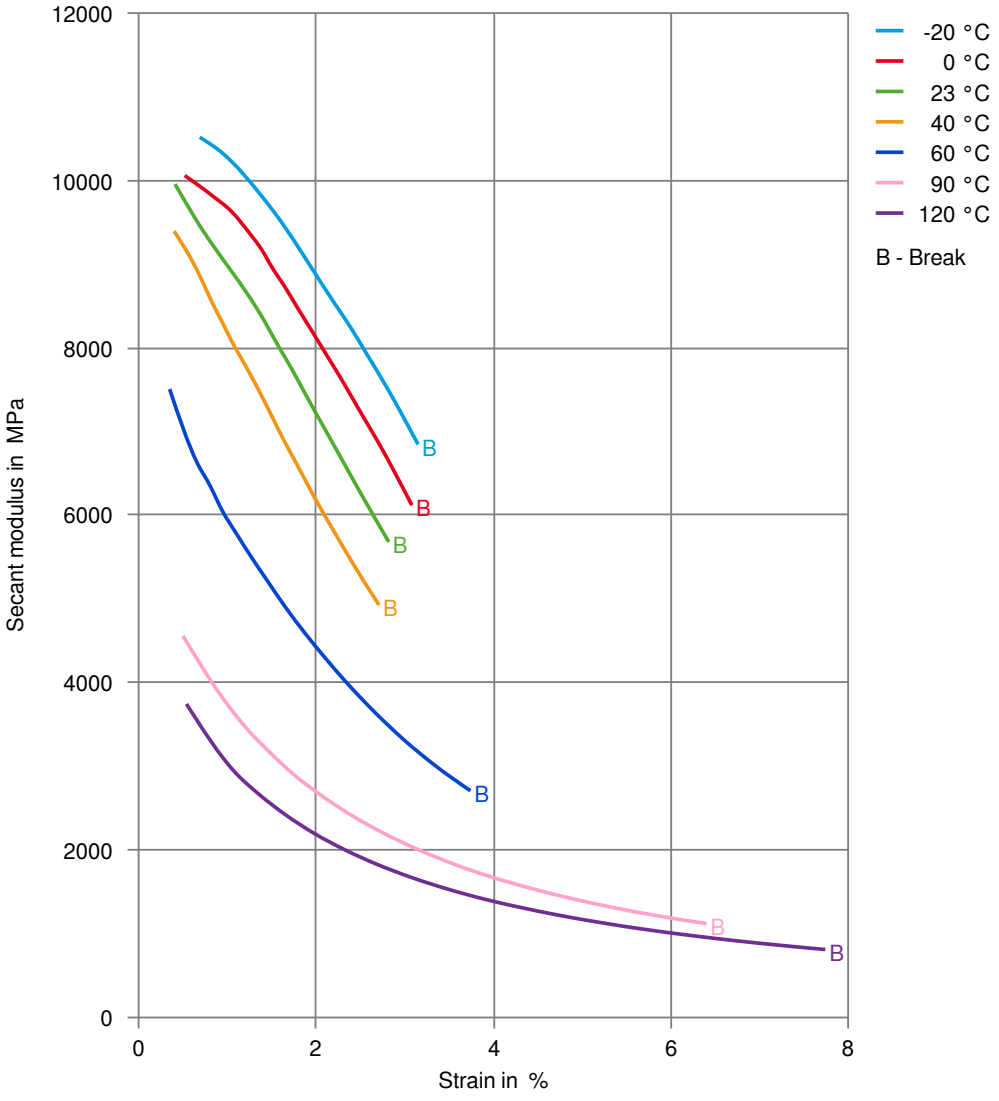
Secant modulus-strain (cond.)



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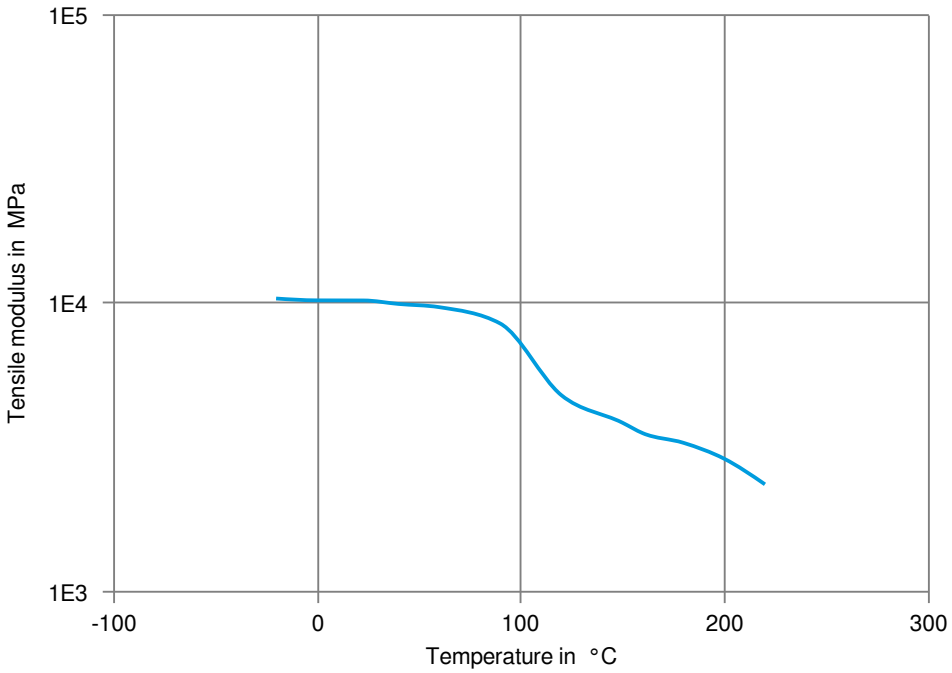
Tensile modulus-temperature (dry)



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HIGH PERFORMANCE POLYAMIDE RESIN

Tensile modulus-temperature (cond.)