Celanese
The chemistry inside innovation™

Zytel® HTN54G35EF BK420

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® HTN54G35EF BK420 is a 35% glass reinforced, toughened, heat stabilised high performance polyamide resin, developed for electrical and electronics applications. 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,M1CGHR,S12-110	

Rheological properties

	dry/cond.		
Viscosity number	120 / *	cm^3/g	ISO 307, 1157, 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	11000 / -	MPa	ISO 527-1/-2
Stress at break, 5mm/min	190 / -	MPa	ISO 527-1/-2
Strain at break, 5mm/min	3 / -	%	ISO 527-1/-2
Flexural Modulus	10000 / -	MPa	ISO 178
Flexural Strength	270 / -	MPa	ISO 178
Charpy impact strength, 23°C	82 / -	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	11 / -	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.34 / -		

Thermal properties

	dry/cond.		
Melting temperature, first heat	300 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	120 / 65	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	260 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	19 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	55 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	60 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	108 / *	E-6/K	ISO 11359-1/-2
TGA curve	available		ISO 11359-1/-2

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Flammability

	dry/cond.		
Oxygen index	23 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 3mm	800 / -	°C	IEC 60695-2-13
FMVSS Class	SE		ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	4.3 / -		IEC 62631-2-1
Relative permittivity, 1MHz	3.9 / -		IEC 62631-2-1
Dissipation factor, 100Hz	50 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	155 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	32 / 31	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

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	Internal
Min. melt temperature	320	°C	
Max. melt temperature	330	°C	
Min. mould temperature	90	°C	
Max. mould temperature	130	°C	

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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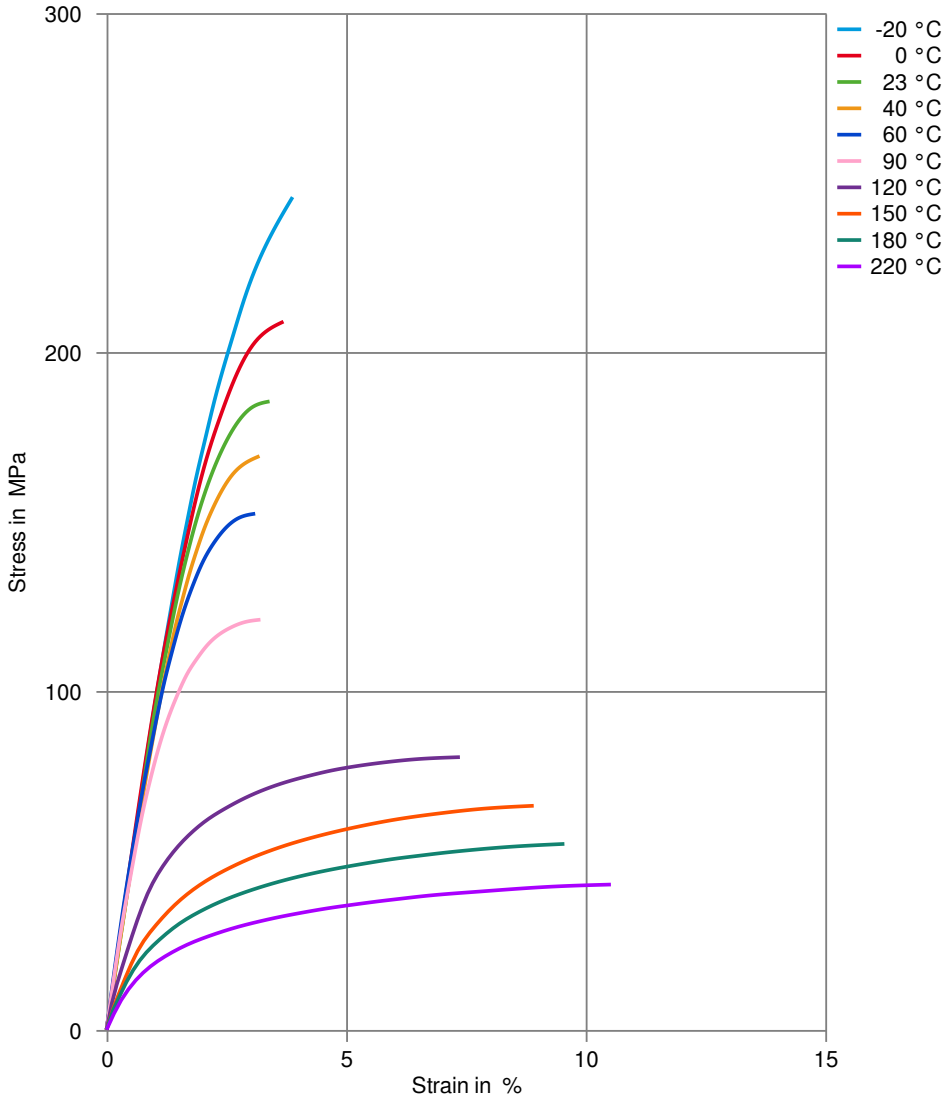
Stress-strain (dry)



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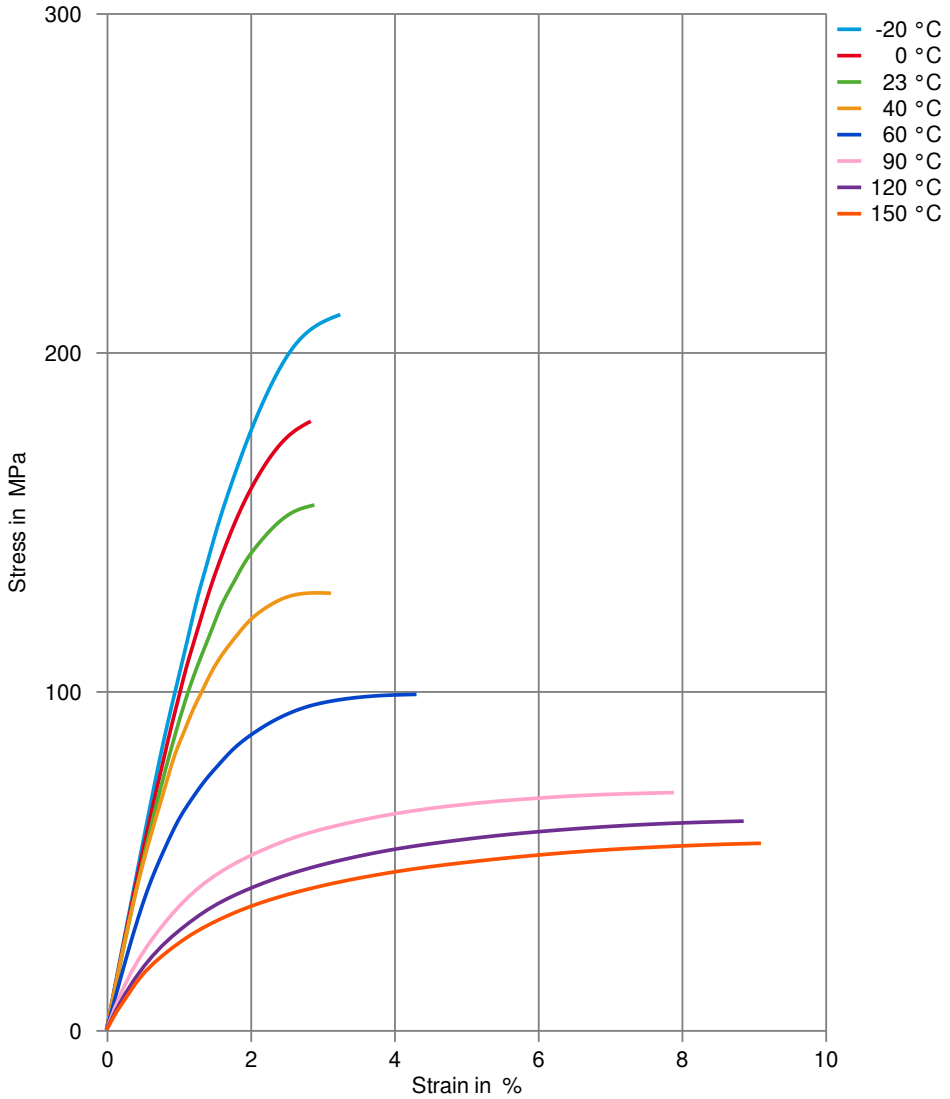
Stress-strain (cond.)



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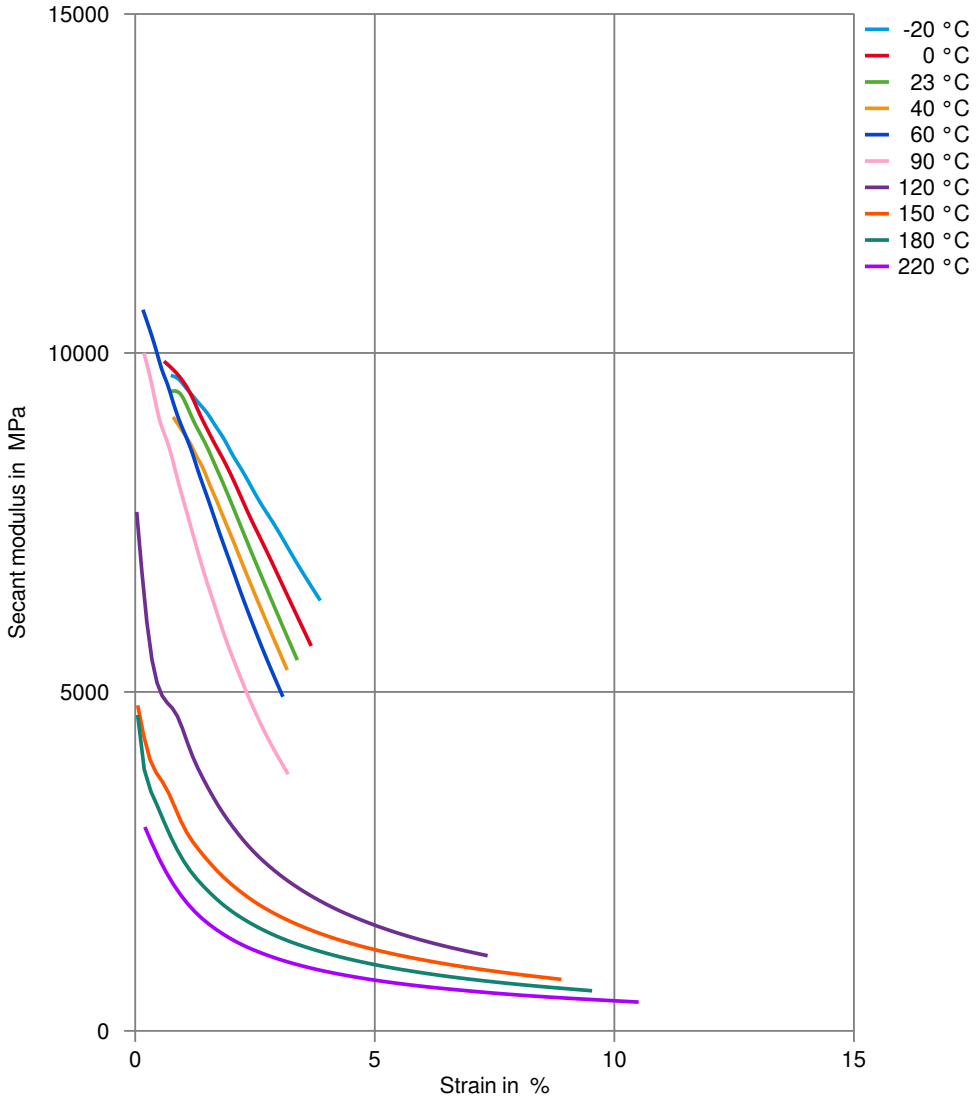
Secant modulus-strain (dry)



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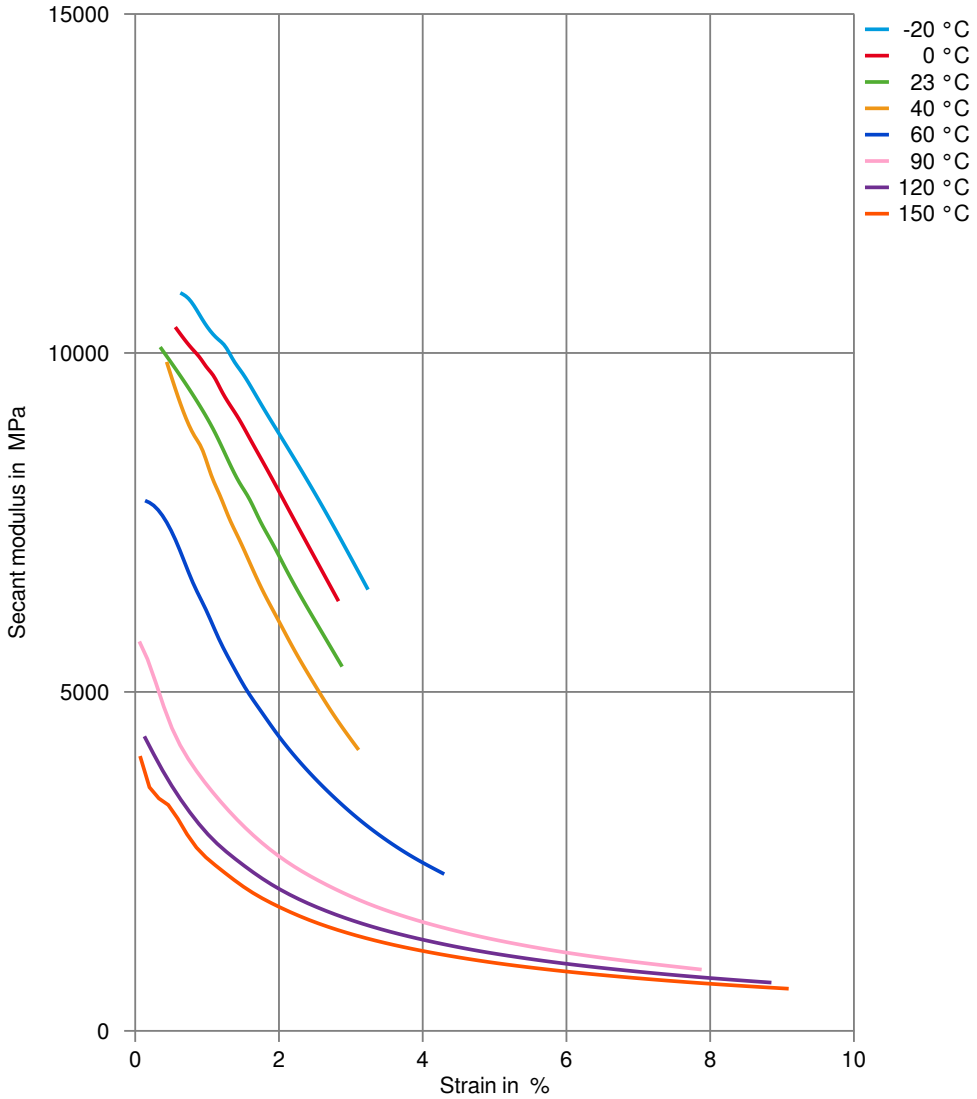
Secant modulus-strain (cond.)



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Chemical Media Resistance

Other

- ✔ Urea solution (32.5% by mass), 23 °C

Symbols used:

- ✔ possibly resistant
  Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✘ not recommended - see explanation
  Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).