

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® HTN52G35EF BK420 is a 35% glass reinforced, heat stabilised, lubricated high performance polyamide resin that can be moulded in water heated molds, developed for electrical and electronics applications. It is also a PPA resin.

Product information

Resin Identification Part Marking Code Part Marking Code ISO designation	PA6T/66-GF35 >PA6T/66-GF35 >PPA-GF35- ISO 16396-PA6	ISO 1043 ISO 11469 SAE J1344	
Rheological properties	dry/cond.		
Viscosity number	120/*	cm³/g	ISO 307, 1628
Moulding shrinkage, parallel	0.3/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.9/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	12000 / 1 2000 ^{[D}	MPa ^{sj}	ISO 527-1/-2
Tensile stress at break, 5mm/min	210/180	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.6/2.6	%	ISO 527-1/-2
Flexural modulus	10400/-	MPa	ISO 178
Flexural strength	290/-	MPa	ISO 178
Charpy impact strength, 23°C	60/-	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	10/-	kJ/m ²	ISO 179/1eA
Poisson's ratio	0.33/0.33		
[DS]: Derived from similar grade			
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	314/*	°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	285/*	°C	ISO 75-1/-2
Coefficient of linear thermal expansion	20/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel	0F /*		
Coefficient of linear thermal expansion (CLTE), normal	65/*	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.24	W/(m K)	ISO 22007-2
TGA curve	available		ISO 11359-1/-2



HIGH PERFORMANCE POLYAMIDE RESIN

Flammability		dry/cond.		
Oxygen index		23/*	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3.0mm		960/- 800/-	°C °C	IEC 60695-2-12 IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0m FMVSS Class	1(1)	8007- B	-0	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm		44	mm/min	ISO 3795 (FMVSS 302)
Electrical properties		dry/cond.		
Relative permittivity, 100Hz		4.3/-		IEC 62631-2-1
Relative permittivity, 1MHz		4.2/-	F 4	IEC 62631-2-1
Dissipation factor, 1MHz Volume resistivity		147/- >1E13/-	E-4 Ohm.m	IEC 62631-2-1 IEC 62631-3-1
Surface resistivity		*/>1E15/-		IEC 62631-3-1
Electric strength		31/30	kV/mm	IEC 60243-1
Comparative tracking index		600/-	KV /11111	IEC 60112
Dielectric Constant, 1 GHz		3.82/- ^[OT]		ASTM D 2520 B
Dielectric Constant, 23°C, 10 GHz		3.92/- ^[OT]		ASTM D 2520 B / IPC-
				TM-650
Dissipation Factor, 1 GHz		124/- ^[OT]	E-4	ASTM D 2520 B
Dissipation Factor, 23°C, 10 GHz		113/- ^[OT]	E-4	ASTM D 2520 B / IPC-
				TM-650
[OT]: One time tested				
Physical/Other properties		dry/cond.		
Humidity absorption, 2mm		2/*	%	Sim. to ISO 62
Water absorption, Immersion 24h		0.4/* ^[DS]	%	Sim. to ISO 62
Density		1450/-	kg/m ³	ISO 1183
Density of melt		1100	kg/m³	
[DS]: Derived from similar grade				
Injection				
Drying Recommended		yes		
Drying Temperature		100	°C	
Drying Time, Dehumidified Dryer		6 - 8		
Processing Moisture Content		≤0.1		
Melt Temperature Optimum		325		
Min. melt temperature		320		
Max. melt temperature		330		
Mold Temperature Optimum Min. mould temperature			°C °C	
Max. mould temperature		105		
Ejection temperature		262		
		202	Ũ	
Characteristics				
Processing	Injection Moulding	9		
Delivery form	Pellets			
Additives	Release agent			

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Special characteristics

Heat stabilised or stable to heat

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 Hyundai Renault-Nissan

Stellantis

STANDARD MS941-03 Type N-4 UB23, No Spec, Special Part Approval, See Your CE Account Manager.

B62 0300 / 61/223E-217M

ADDITIONAL INFORMATION

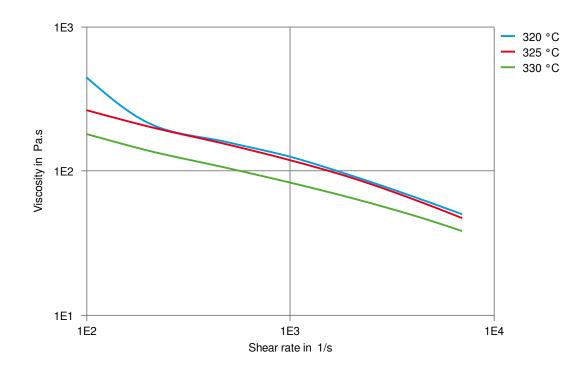
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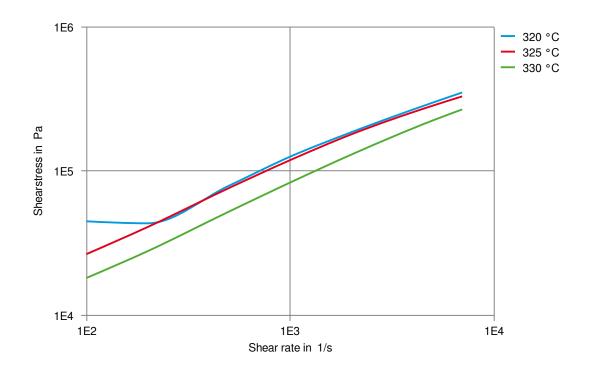
Viscosity-shear rate







Shearstress-shear rate

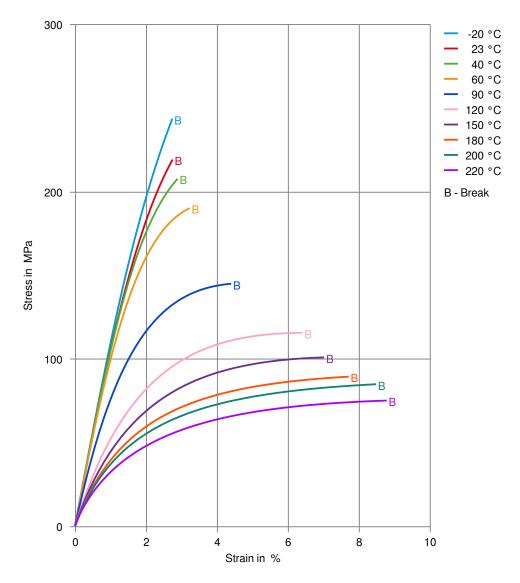






HIGH PERFORMANCE POLYAMIDE RESIN

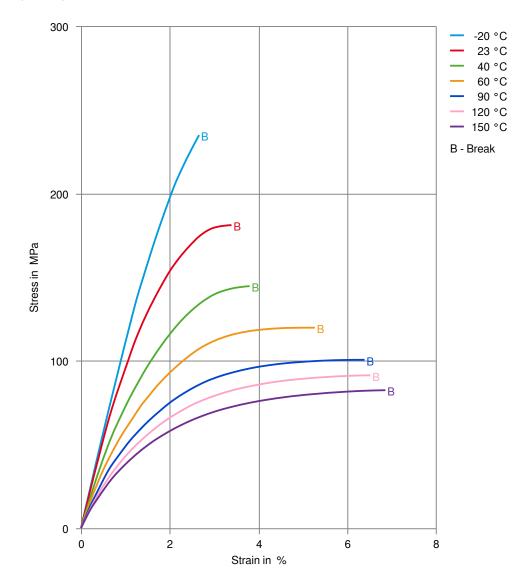
Stress-strain (dry)







Stress-strain (cond.)

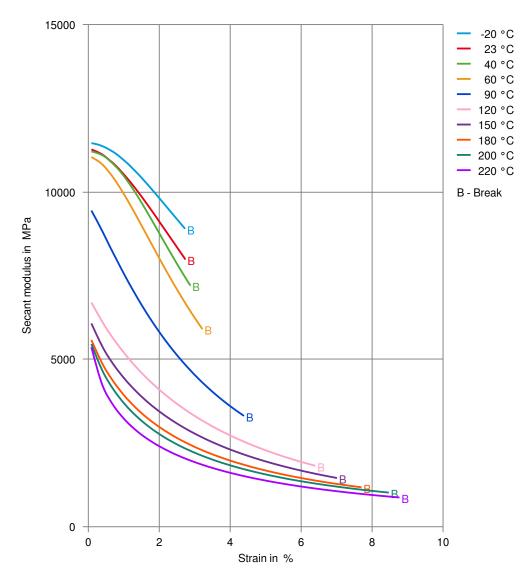






HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)

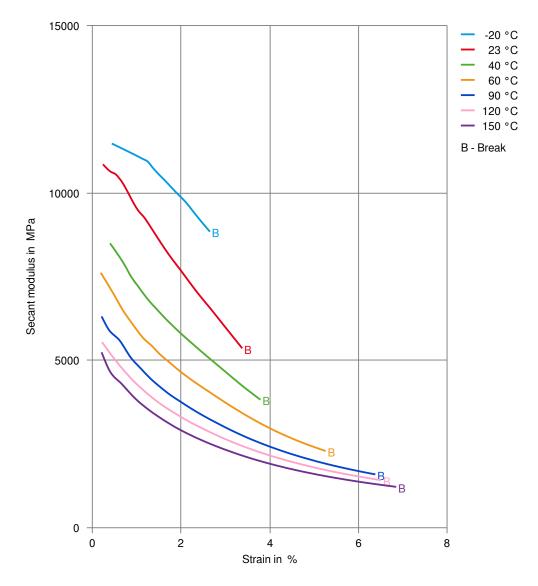






HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (cond.)

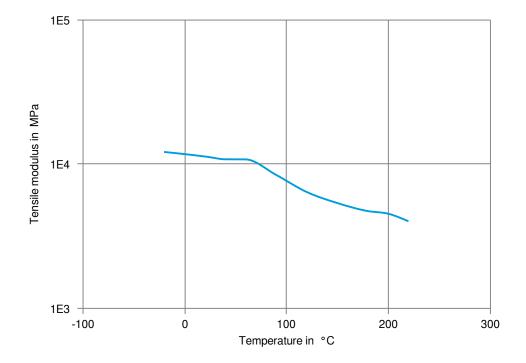






HIGH PERFORMANCE POLYAMIDE RESIN

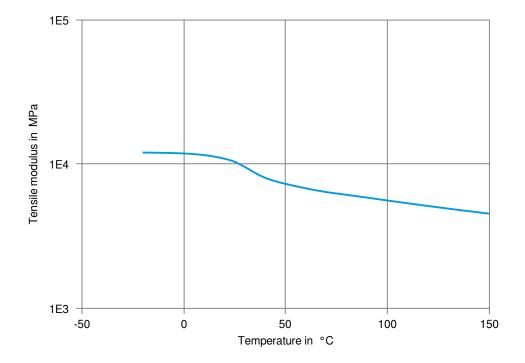
Tensile modulus-temperature (dry)







Tensile modulus-temperature (cond.)







HIGH PERFORMANCE POLYAMIDE RESIN

Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C

Other

- ✓ Ethylene Glycol (50% by mass) in water, 108°C
- ✓ Water, 23°C
- ✓ Water, 90°C
- ✓ Coolant Glysantin G48, 1:1 in water, 125°C
- ✓ 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).

X 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).

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