



# Zytel® HTNFR52G30BL BK337

## 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® HTNFR52G30BL BK337 is a 30% glass reinforced, flame retardant, lubricated high performance polyamide resin that has been developed for connector applications.

### Product information

Resin Identification	PA6T/66-GF30FR(16+72)	ISO 1043
Part Marking Code	>PA6T/66-GF30FR(16+72)<	ISO 11469
Part Marking Code	>PPA-GF30FR<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF30FR(16+72),M1CF1GR,S10-120	

### Rheological properties

	dry/cond.		
Molding shrinkage, parallel	0.3/-	%	ISO 294-4, 2577
Molding shrinkage, normal	0.8/-	%	ISO 294-4, 2577

### Typical mechanical properties

	dry/cond.		
Tensile Modulus	11800/-	MPa	ISO 527-1/-2
Stress at break	160/-	MPa	ISO 527-1/-2
Strain at break	2/-	%	ISO 527-1/-2
Flexural Modulus	10000/-	MPa	ISO 178
Flexural Strength	240/210	MPa	ISO 178
Charpy impact strength, 73°F	50/35	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -22°F	40/35	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 73°F	10/-	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -22°F	10/-	kJ/m <sup>2</sup>	ISO 179/1eA
Poisson's ratio	0.33/-	-	





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### Thermal properties

	dry/cond.		
Melting temperature, first heat	310/*	°C	ISO 11357-1/-3
Temp. of deflection under load, 260 psi	282/*	°C	ISO 75-1/-2
CLTE, 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
CLTE, Parallel, 55-160°C	10/*	E-6/K	ISO 11359-1/-2
CLTE, Normal, -40-23°C	57/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	63/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, Normal, 55-160°C	100/*	E-6/K	ISO 11359-1/-2
RTI, electrical, 60mil	140	°C	UL 746B
RTI, electrical, 120mil	140	°C	UL 746B
RTI, impact, 60mil	120	°C	UL 746B
RTI, impact, 120mil	120	°C	UL 746B
RTI, strength, 60mil	120/*	°C	UL 746B
RTI, strength, 120mil	130	°C	UL 746B

### Flammability

	dry/cond.		
Burning Behav. at 60mil nom. thickn.	V-0/*	class	IEC 60695-11-10
Thickness tested	1.5/*	mm	IEC 60695-11-10
UL recognition	yes/*	-	UL 94
Burning Behav. at thickness h	V-0/*	class	IEC 60695-11-10
Thickness tested	3/*	mm	IEC 60695-11-10
UL recognition	yes/*	-	UL 94
Burning Behav. 5V at thickness h	5VA/*	class	IEC 60695-11-20
Thickness tested	1.5/*	mm	IEC 60695-11-20
UL recognition	yes/*	-	UL 94
Oxygen index	42/*	%	ISO 4589-1/-2
Glow Wire Flammability Index, 30mil	960/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 60mil	960/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 120mil	960/-	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 30mil	925/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 60mil	925/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 120mil	960/-	°C	IEC 60695-2-13
FMVSS Class	DNI	-	ISO 3795 (FMVSS 302)



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### Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	3.5/-	-	IEC 62631-2-1
Relative permittivity, 1MHz	3.3/-	-	IEC 62631-2-1
Dissipation factor, 100Hz	50/-	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	135/-	E-4	IEC 62631-2-1
Volume resistivity	>1E13/-	Ohm*m	IEC 62631-3-1

### Other properties

	dry/cond.		
Density	1620/-	kg/m <sup>3</sup>	ISO 1183

### VDA Properties

	dry/cond.		
Emission of organic compounds	35	µgC/g	VDA 277
Odor test	4.5	class	VDA 270
Fogging, F-value (refraction)	95/*	%	ISO 6452

### 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
Min. mold temperature	90 °C
Max. mold temperature	110 °C

### Characteristics

Additives	Flame retardant
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### Processing

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.
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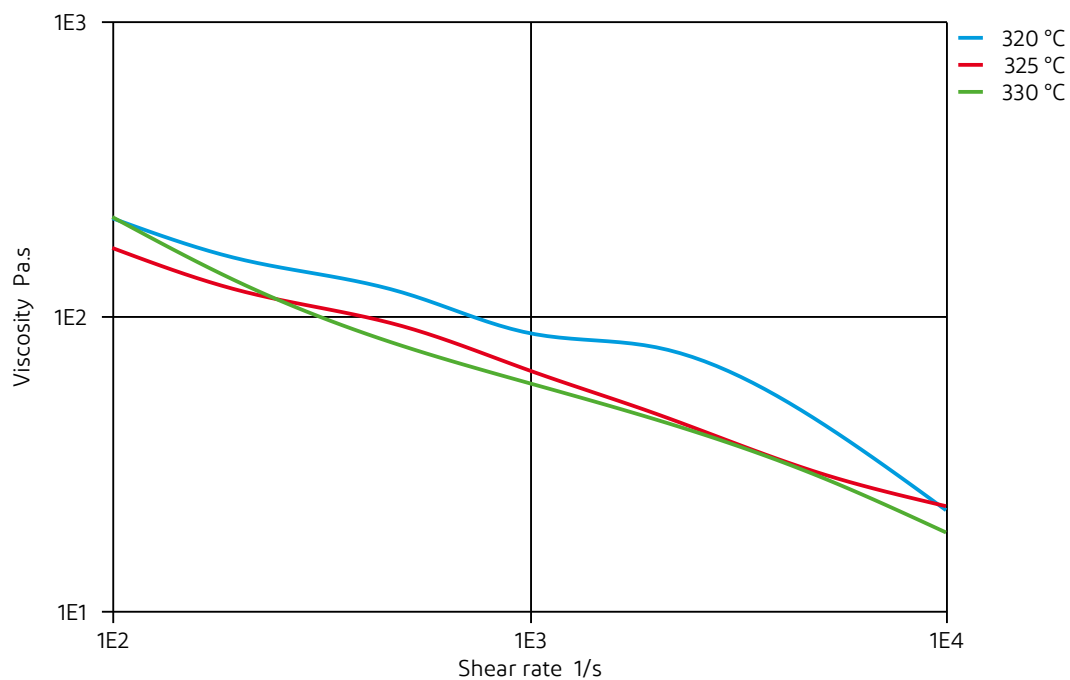
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## Viscosity-shear rate



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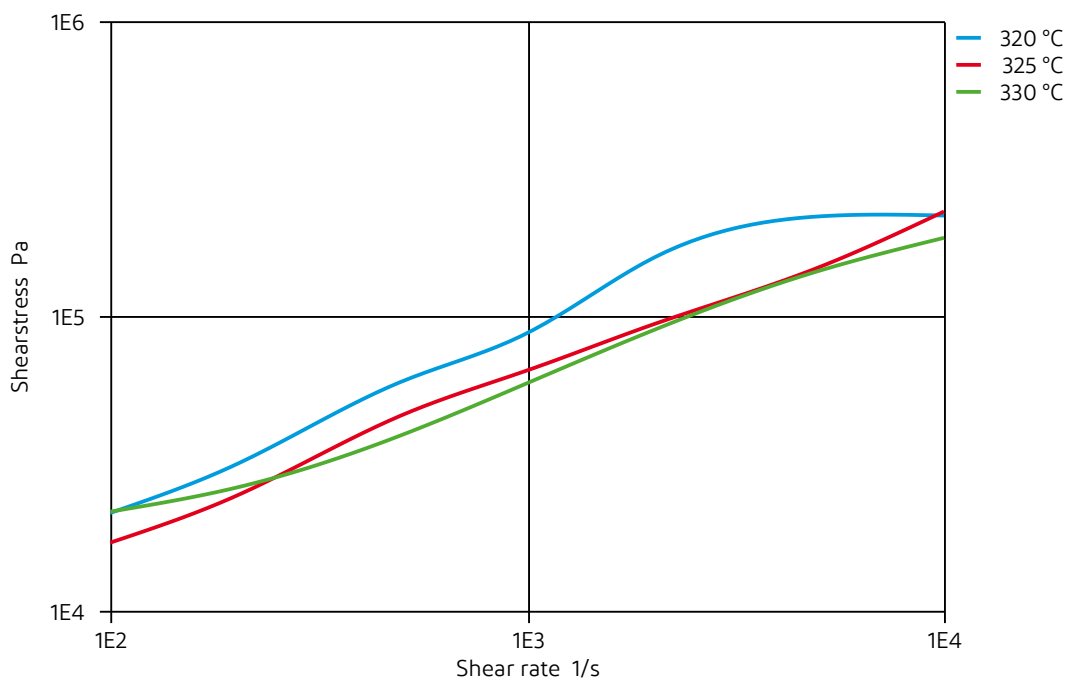
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## Shearstress-shear rate



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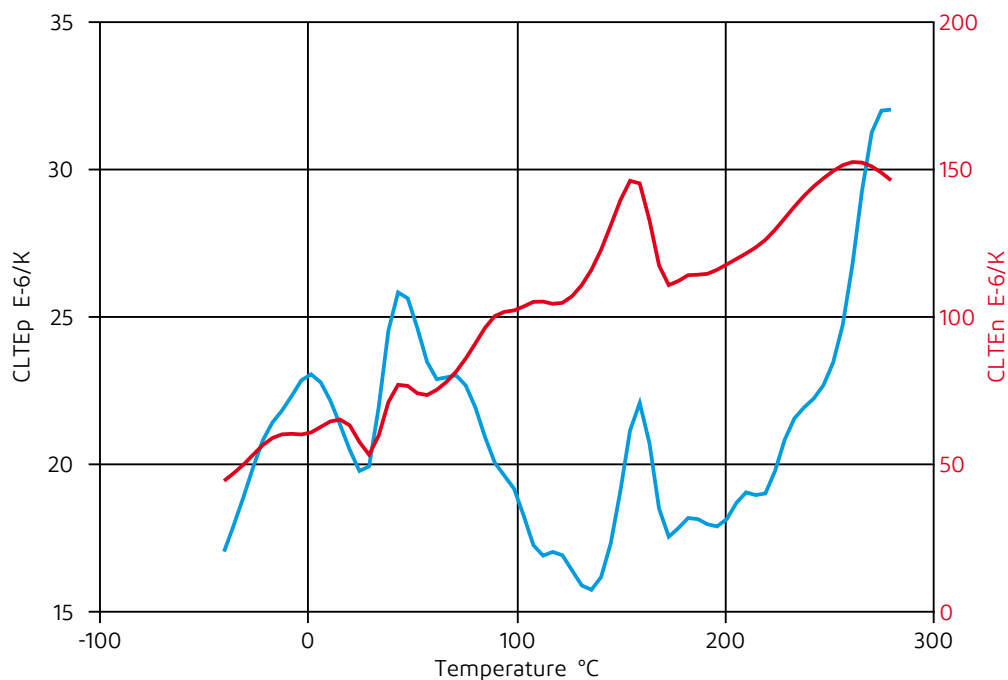
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Coeff. of linear thermal expansion



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