



# Zytel® HTN52G35HSL BK083

## 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® HTN52G35HSL BK083 is a 35% glass reinforced, heat stabilized, lubricated high performance polyamide resin that can be molded in water heated molds. It is also a PPA resin.

### Product information

Resin Identification	PA6T/66-GF35	ISO 1043
Part Marking Code	>PA6T/66-GF35<	ISO 11469
Part Marking Code	>PPA-GF35<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF35,M1CGHR,S10-120	

### Rheological properties

	dry/cond.		
Viscosity number	110/* <sup>[1]</sup>	cm <sup>3</sup> /g	ISO 307, 1157, 1628
Moulding shrinkage, parallel	0.3/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.9/-	%	ISO 294-4, 2577
[1]: formic acid 90%			

### Typical mechanical properties

	dry/cond.		
Tensile Modulus	12000/12000	MPa	ISO 527-1/-2
Stress at break	200/180	MPa	ISO 527-1/-2
Strain at break	2.3/2.6	%	ISO 527-1/-2
Flexural Modulus	10300/10300	MPa	ISO 178
Charpy impact strength, 23°C	45/-	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength, -30°C	40/35	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	9/9	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	7/6	kJ/m <sup>2</sup>	ISO 179/1eA
Poisson's ratio	0.33/0.33	-	

### Thermal properties

	dry/cond.		
Melting temperature, first heat	310/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90/45	°C	ISO 11357-1/-2
Temp. of deflection under load, 1.8 MPa	285/*	°C	ISO 75-1/-2
CLTE, Parallel, -40-23°C	21/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	21/*	E-6/K	ISO 11359-1/-2
CLTE, Parallel, 55-160°C	11/*	E-6/K	ISO 11359-1/-2
CLTE, Normal, -40-23°C	61/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	67/*	E-6/K	ISO 11359-1/-2



# Zytel® HTN52G35HSL BK083

## HIGH PERFORMANCE POLYAMIDE RESIN

Coeff. of linear therm. expansion, Normal, 55-160°C	80/*	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	150	°C	UL 746B
RTI, electrical, 1.5mm	150	°C	UL 746B
RTI, electrical, 3mm	150	°C	UL 746B
RTI, impact, 0.75mm	125	°C	UL 746B
RTI, impact, 1.5mm	125	°C	UL 746B
RTI, impact, 3mm	125	°C	UL 746B
RTI, strength, 0.75mm	130	°C	UL 746B
RTI, strength, 1.5mm	125/*	°C	UL 746B
RTI, strength, 3mm	150	°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
Glow Wire Flammability Index, 0.75mm	750/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	700/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	850/-	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	775/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	725/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	775/-	°C	IEC 60695-2-13
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	44	mm/min	ISO 3795 (FMVSS 302)

### Electrical properties

	dry/cond.		
Volume resistivity	1E13/-	Ohm.m	IEC 62631-3-1
Electric strength	34/33	kV/mm	IEC 60243-1
Comparative tracking index	600/-	-	IEC 60112

### Other properties

	dry/cond.		
Humidity absorption, 2mm	2/*	%	Sim. to ISO 62
Density	1460/-	kg/m <sup>3</sup>	ISO 1183
Density of melt	1100	kg/m <sup>3</sup>	
Water Absorption, Immersion 24h	0.4/* <sup>[DS]</sup>	%	Sim. to ISO 62

[DS]: Derived from similar grade



# Zytel® HTN52G35HSL BK083

HIGH PERFORMANCE POLYAMIDE RESIN

## 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. mould temperature	90 °C
Max. mould temperature	110 °C

## Additional Information

Injection molding

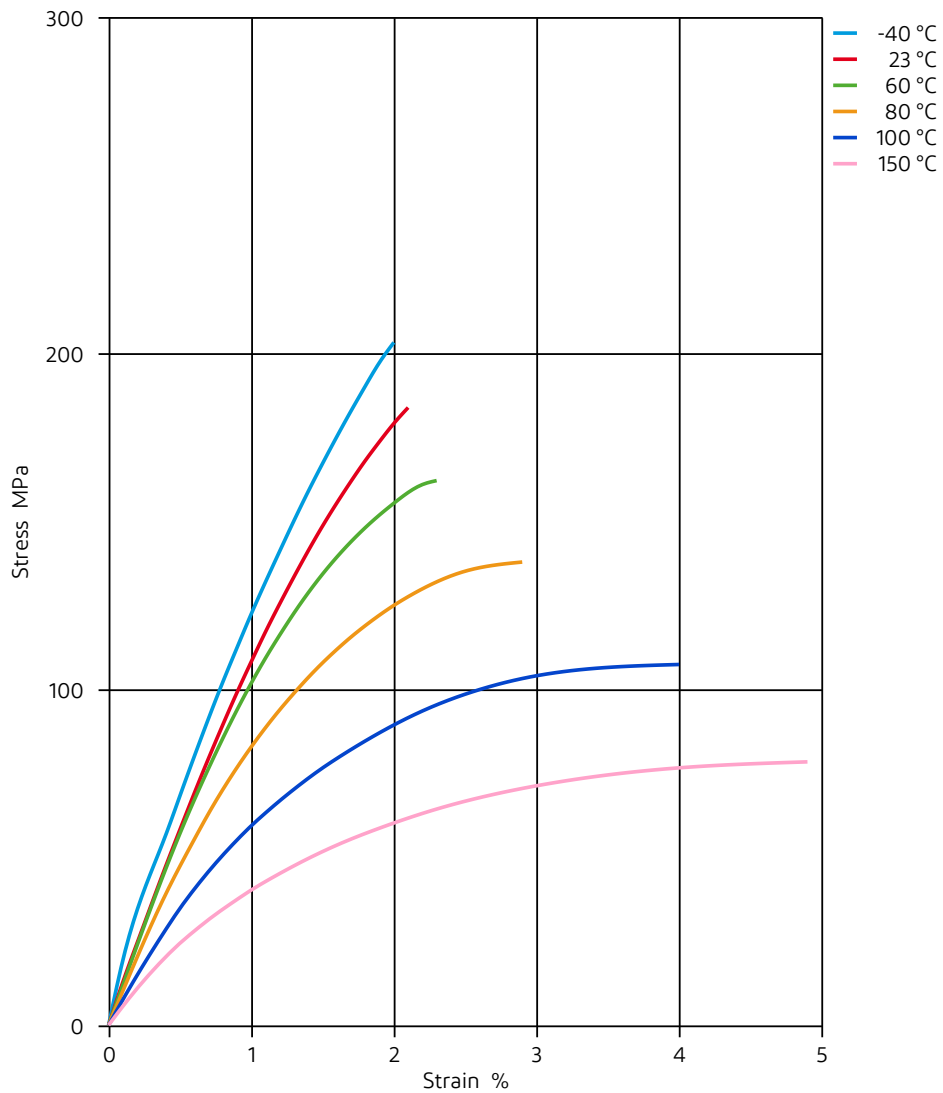
During molding, use proper protective equipment and adequate ventilation. Avoid exposure to fumes and limit the hold up time and temperature of the resin in the machine. Purge degraded resin carefully with HDPE.



# Zytel® HTN52G35HSL BK083

HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (dry)

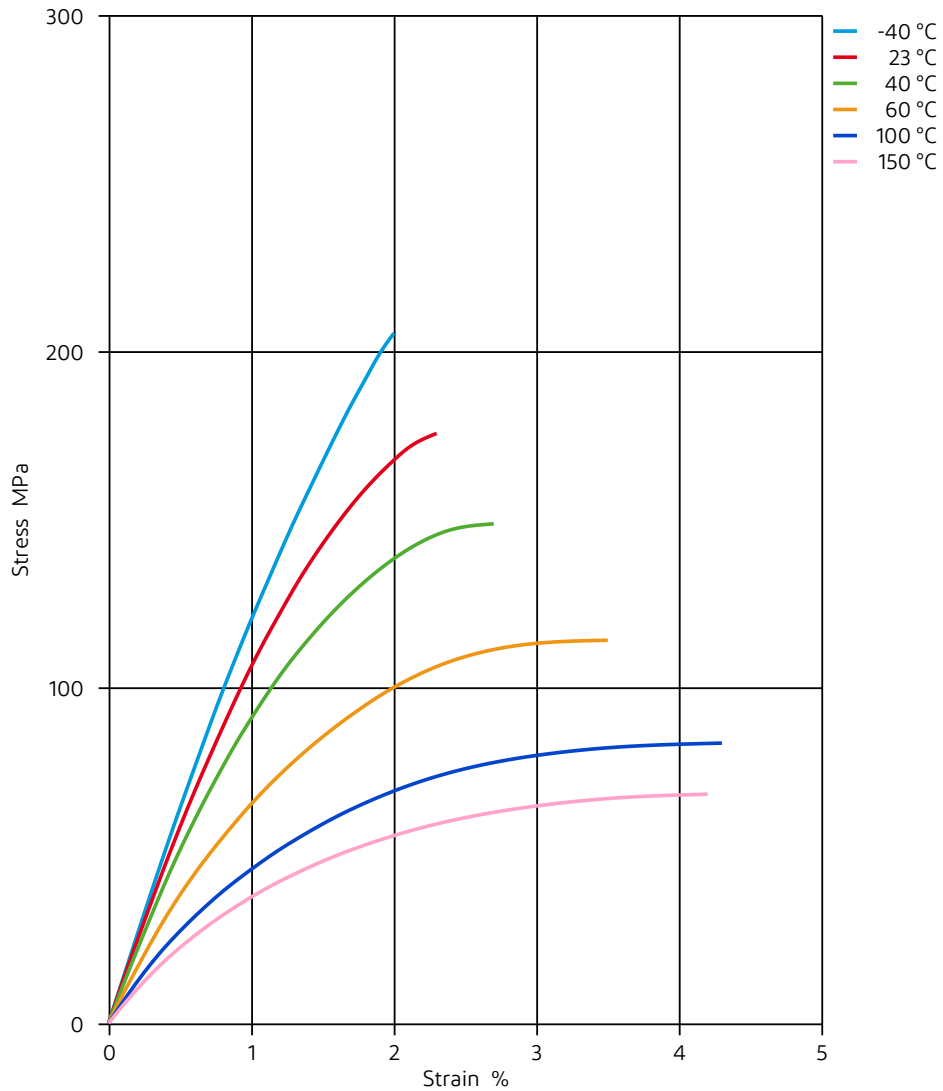




# Zytel® HTN52G35HSL BK083

HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (cond.)

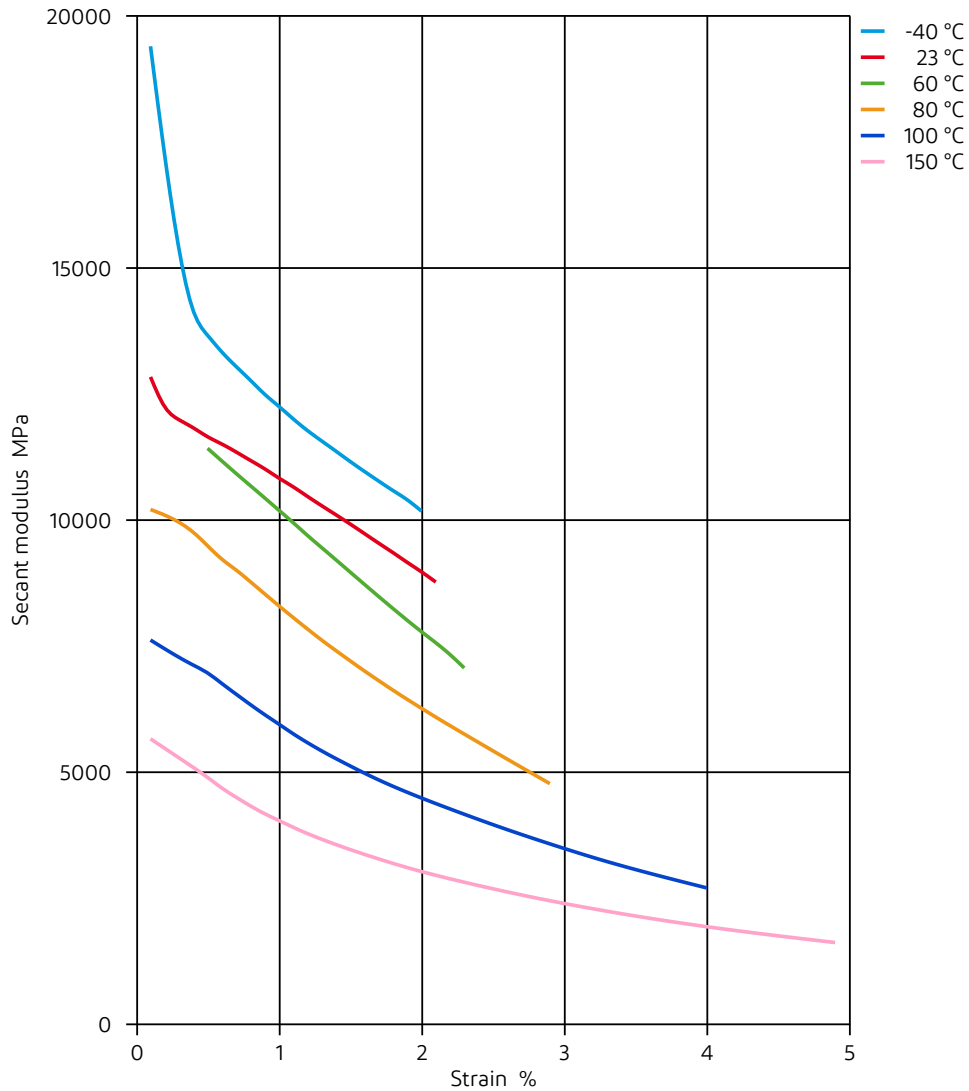




# Zytel® HTN52G35HSL BK083

HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)

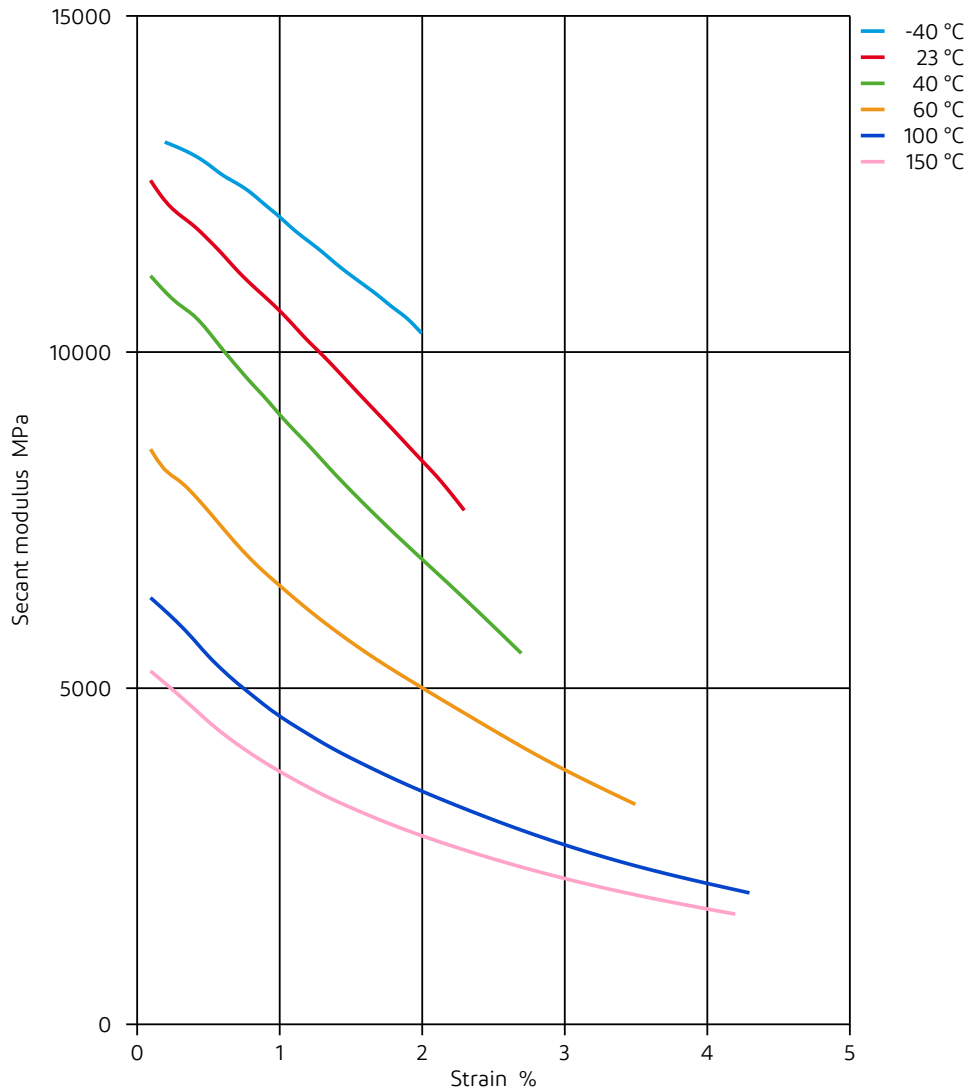




# Zytel® HTN52G35HSL BK083

HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (cond.)





# Zytel® HTN52G35HSL BK083

## 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

- ✓ 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).

The information set forth herein is furnished free of charge, is based on technical data that DuPont believes to be reliable, and represents typical values that fall within the normal range of properties. This information relates only to the specific material designated and may not be valid for such material used in combination with other materials or in other processes. It is intended for use by persons having technical skill, at their own discretion and risk. This information should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards and comply with applicable law. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

CAUTION: Do not use DuPont materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless the material has been provided from DuPont under a written contract or other acknowledgement that is consistent with the DuPont policy regarding medical applications and expressly acknowledges the contemplated use. For further information, please contact your DuPont representative.

DuPont's sole warranty is that our products will meet our standard sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. TO THE FULLEST EXTENT PERMITTED BY APPLICABLE LAW, DUPONT SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, OR NON-INFRINGEMENT. DUPONT DISCLAIMS LIABILITY FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.