



# Zytel® HTN51G35HSLR 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® HTN51G35HSLR BK420 is a 35% glass reinforced, heat stabilised, lubricated, hydrolysis resistant high performance polyamide resin. It is also a PPA resin.

### Product information

Resin Identification	PA6T/XT-GF35	ISO 1043
Part Marking Code	>PA6T/XT-GF35<	ISO 11469
Part Marking Code	>PPA-GF35<	SAE J1344
ISO designation	ISO 16396-PA6T/XT,GF35,M1CGHRW,S10-120	

### Rheological properties

	dry/cond.		
Melt volume-flow rate	19/*	cm <sup>3</sup> /10min	ISO 1133
Melt mass-flow rate	21/*	g/10min	ISO 1133
Temperature	617/*	°F	ISO 1133
Load	4.76/*	lb	ISO 1133
Melt mass-flow rate, Temperature	617/*	°F	ISO 1133
Melt mass-flow rate, Load	4.76/*	lb	ISO 1133
Moulding shrinkage, parallel	0.2/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577

### Typical mechanical properties

	dry/cond.		
Tensile Modulus	1.74E6/1.74E6	psi	ISO 527-1/-2
Stress at break	29000/27600	psi	ISO 527-1/-2
Strain at break	2.3/2	%	ISO 527-1/-2
Flexural Modulus	1.52E6/-	psi	ISO 178
Charpy impact strength, 23°C	23.8/19	ftlb/in <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	4.28/3.81	ftlb/in <sup>2</sup>	ISO 179/1eA
Ball indentation hardness, H 961/30	45000/-	psi	ISO 2039-1
Poisson's ratio	0.33/0.33	-	

### Thermal properties

	dry/cond.		
Melting temperature, first heat	572/*	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	275/203	°F	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	504/*	°F	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	529/*	°F	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	0.111/*	E-4/°F	ISO 11359-1/-2



# Zytel® HTN51G35HSLR BK420

## HIGH PERFORMANCE POLYAMIDE RESIN

Coeff. of linear therm. expansion, parallel	0.11/*	E-4/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	0.306/*	E-4/°F	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	0.322/*	E-4/°F	ISO 11359-1/-2
Spec. heat capacity of melt	1820	J/(kg K)	
TGA curve	available	-	ISO 11359-1/-2

### Flammability

FMVSS Class	B -	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	1.1 in/min	ISO 3795 (FMVSS 302)

### Electrical properties

	dry/cond.		
Volume resistivity	1E13/-	Ohm.m	IEC 62631-3-1
Electric strength	864/838	kV/in	IEC 60243-1

### Other properties

	dry/cond.		
Humidity absorption, 2mm	1.4/*	%	Sim. to ISO 62
Water absorption, 2mm	4/*	%	Sim. to ISO 62
Density	12.3/-	lb/gal	ISO 1183

### VDA Properties

Odour	4 class	VDA 270
-------	---------	---------

### Injection

Drying Recommended	yes
Drying Temperature	212 °F
Drying Time, Dehumidified Dryer	6 - 8 h
Processing Moisture Content	≤0.1 %
Melt Temperature Optimum	617 °F
Min. melt temperature	608 °F
Max. melt temperature	626 °F
Mold Temperature Optimum	302 °F
Min. mould temperature	284 <sup>[1]</sup> °F
Max. mould temperature	356 °F

[1]: Higher temperature needed for thinner sections.

### Characteristics

Additives	Release agent
-----------	---------------



# Zytel® HTN51G35HSLR BK420

HIGH PERFORMANCE POLYAMIDE RESIN

## 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.

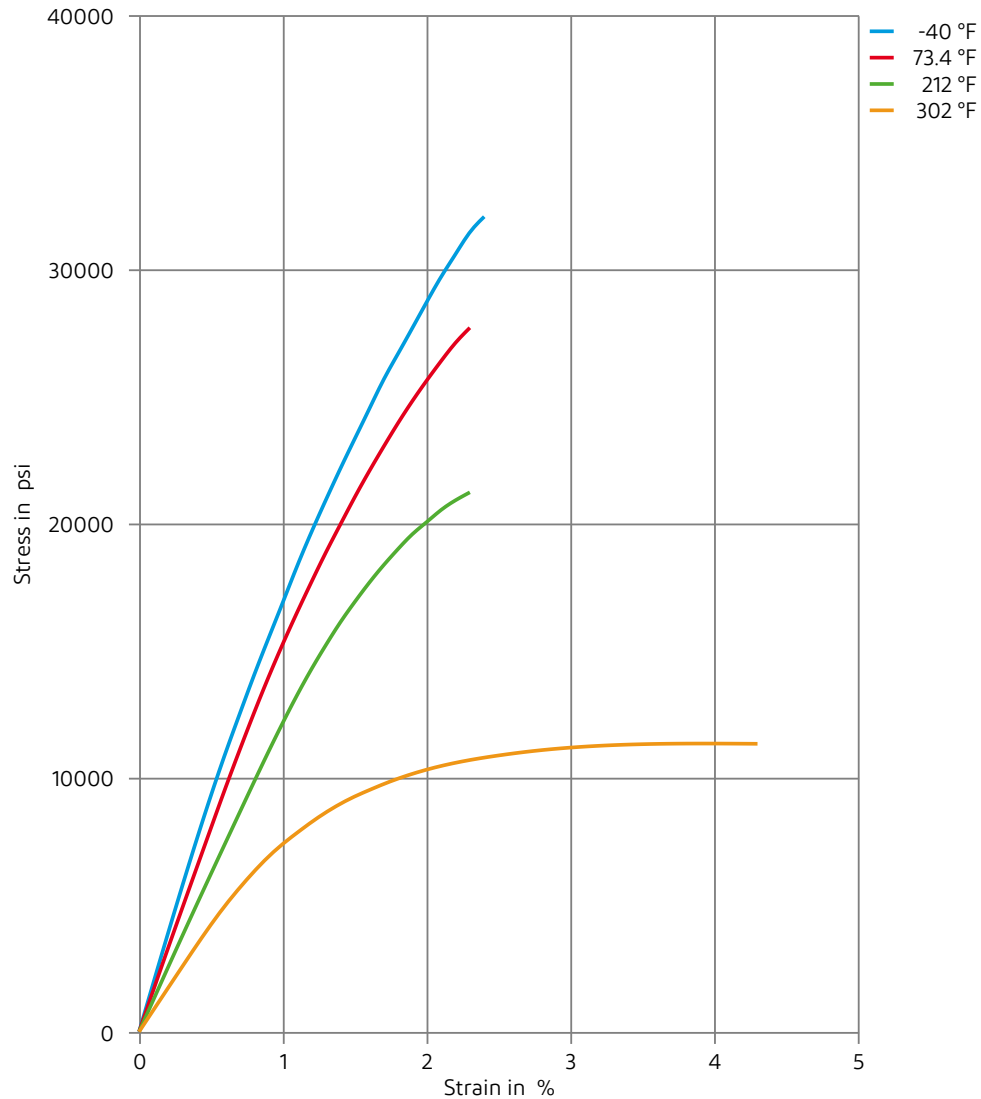
When lower mold temperatures are used, the initial warpage and shrinkage may be lower, but the surface appearance and chemical resistance may be reduced, and the dimensional change may be greater when parts are subsequently heated.



# Zytel® HTN51G35HSLR BK420

HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (dry)

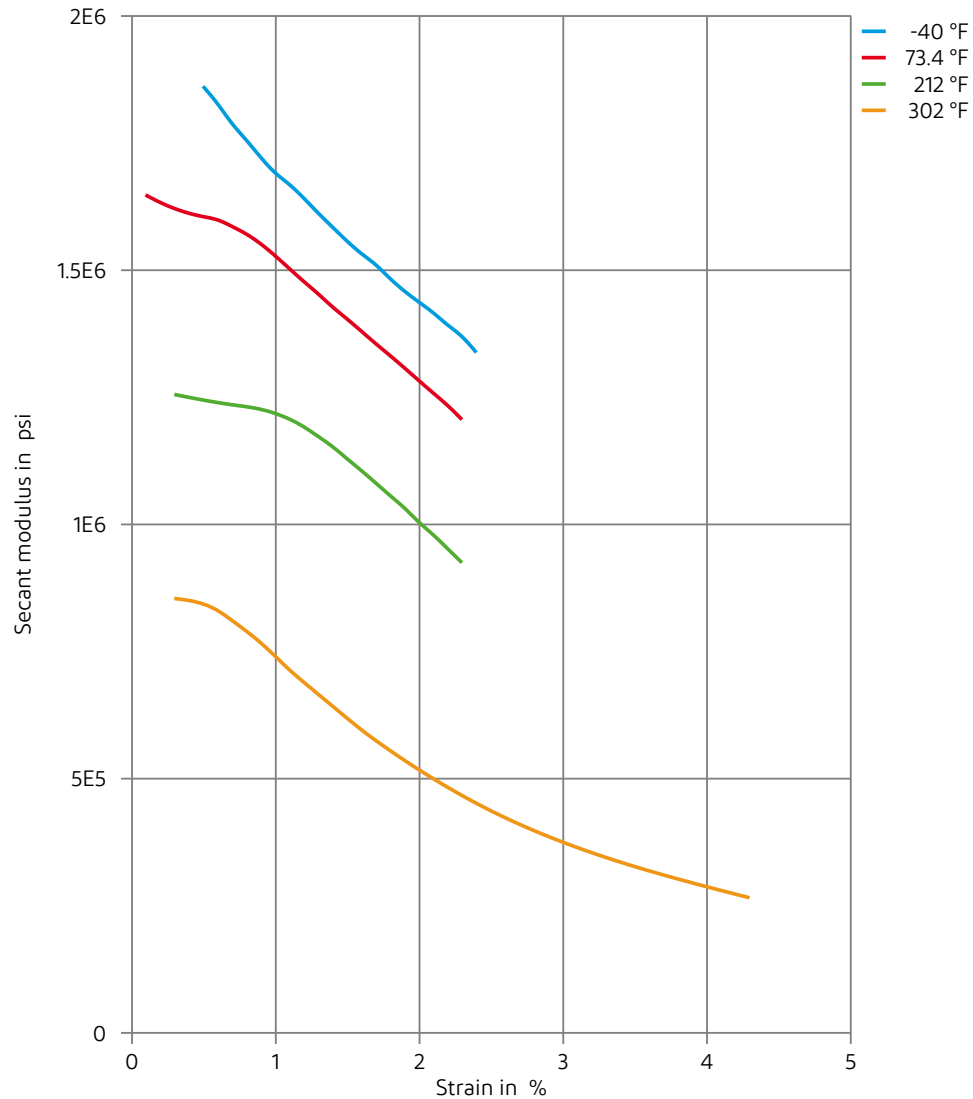




# Zytel® HTN51G35HSLR BK420

HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)





# Zytel® HTN51G35HSLR BK420

## 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

#### Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- ✓ Insulating Oil, 23°C

#### Standard Fuels

- ✓ ISO 1817 Liquid 1 - E5, 60°C
- ✓ ISO 1817 Liquid 2 - M15E4, 60°C
- ✓ ISO 1817 Liquid 3 - M3E7, 60°C
- ✓ ISO 1817 Liquid 4 - M15, 60°C
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), >90°C
- ✓ Diesel EN 590, 100°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

#### 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).

Revised: 2022-07-14

Page: 6 of 6

[dupont.com](https://dupont.com)

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.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted.

© 2022 DuPont. All rights reserved.