

DuPont™ Zytel® HTN51G35HSLR BK420

HIGH PERFORMANCE POLYAMIDE RESIN

Product Information

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	Value	Unit	Test Standard
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/X T,GF35,M1CGHRW ,S10-120	-	-
Rheological properties	dry / cond	Unit	Test Standard
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	12000 / 12000	MPa	ISO 527-1/-2
Stress at break	200 / 190	MPa	ISO 527-1/-2
Strain at break	2.3 / 2	%	ISO 527-1/-2
Flexural Modulus	10500 / -	MPa	ISO 178
Charpy impact strength, 23°C	50 / 40	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	9 / 8	kJ/m ²	ISO 179/1eA
Ball indentation hardness, H 961/30	310 / -	MPa	ISO 2039-1
Poisson's ratio	0.33 / 0.33	-	-
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, first heat	300 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	135 / 95	°C	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	262 / *	°C	
0.45 MPa	276 / *	°C	
Coeff. of linear therm. expansion, parallel	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal	58 / *	E-6/K	
Normal, -40-23°C	55 / *	E-6/K	
Parallel, -40-23°C	20 / *	E-6/K	
Flammability	Value	Unit	Test Standard
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	28	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	1E13 / -	Ohm*m	IEC 62631-3-1
Electric strength	34 / 33	kV/mm	IEC 60243-1
Other properties	dry / cond	Unit	Test Standard
Density	1470 / -	kg/m ³	ISO 1183
VDA Properties	Value	Unit	Test Standard
Odour	4	class	VDA 270
Injection	Value	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature**	100	°C	-

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Tel: +1 302 999-4592

Toll-Free (USA): 800 441-0575

Asia Pacific

Tel: +81 3 5521 8600

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Tel: +41 22 717 51 11



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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	-
Mold Temperature Optimum	150	°C	-
Min. mould temperature	140 ⁽¹⁾	°C	-
Max. mould temperature	180	°C	-

1: Higher temperature needed for thinner sections.

Characteristics

Regional Availability	<ul style="list-style-type: none">• North America• Europe	<ul style="list-style-type: none">• Asia Pacific• South and Central America	<ul style="list-style-type: none">• Near East/Africa• Global
Processing	<ul style="list-style-type: none">• Injection Moulding		
Delivery form	<ul style="list-style-type: none">• Pellets		
Additives	<ul style="list-style-type: none">• Lubricants	<ul style="list-style-type: none">• Release agent	
Special characteristics	<ul style="list-style-type: none">• Heat stabilised or stable to heat	<ul style="list-style-type: none">• Hydrolysis resistant	

Processing Texts

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.

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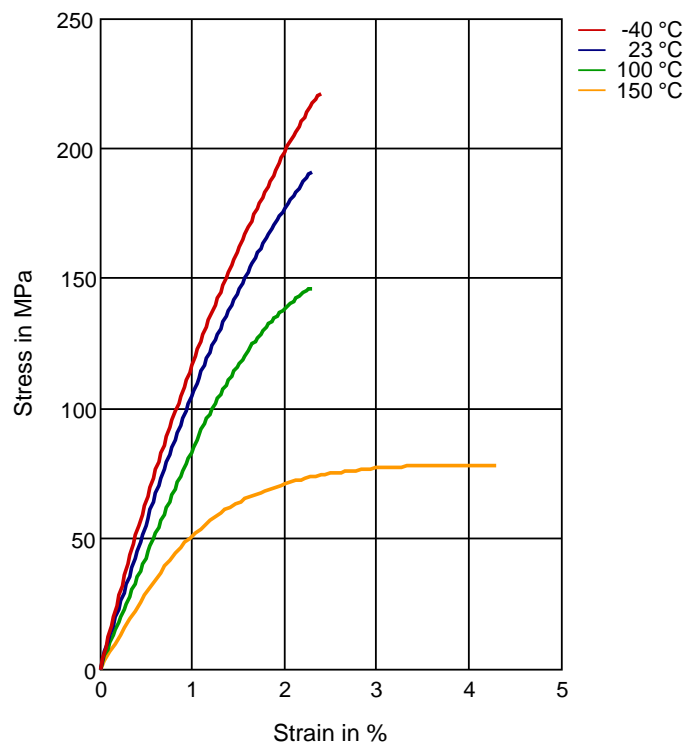


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Diagrams

Stress-strain (dry)



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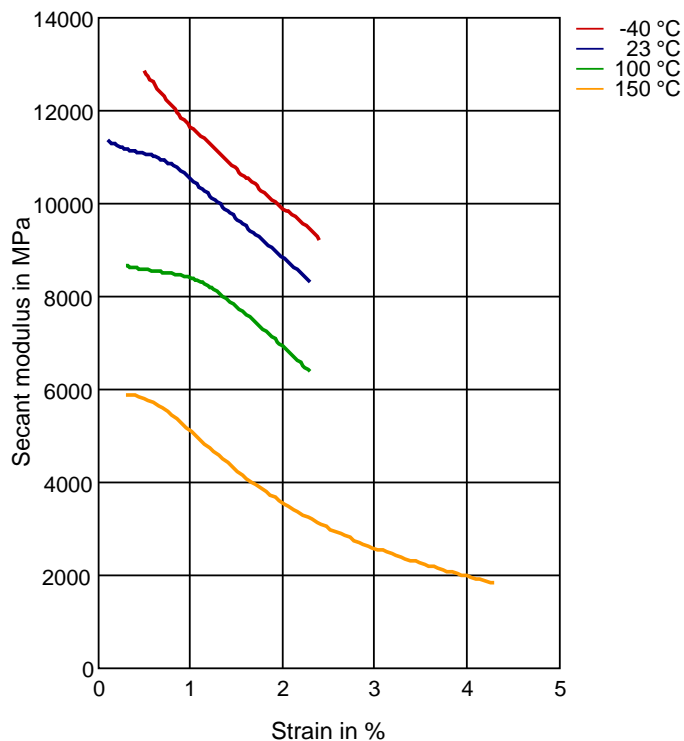
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Secant modulus-strain (dry)



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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)

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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 4mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23 °C unless otherwise stated.

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