

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 Part Marking Code Part Marking Code ISO designation	PA6T/66-GF35 >PA6T/66-GF35- >PPA-GF35< ISO 16396-PA6T		ISO 1043 ISO 11469 SAE J1344 M1CGHR,S10-120
Rheological properties Viscosity number Moulding shrinkage, parallel Moulding shrinkage, normal [1]: formic acid 90%	dry/cond. 110 ^[1] /* 0.3 / - 0.9 / -	cm³/g % %	ISO 307, 1157, 1628 ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties Tensile Modulus Stress at break, 5mm/min Strain at break, 5mm/min Flexural Modulus Charpy impact strength, 23°C Charpy impact strength, -30°C Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Poisson's ratio	dry/cond. 12000/12000 200/180 2.3/2.6 10300/10300 45/- 40/35 9/9 7/6 0.33/0.33	MPa MPa % MPa kJ/m² kJ/m² kJ/m²	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 179/1eU ISO 179/1eU ISO 179/1eA ISO 179/1eA
Thermal properties Melting temperature, first heat Glass transition temperature, 10°C/min Temp. of deflection under load, 1.8 MPa Coeff. of linear therm. expansion, parallel, -40-23°C Coeff. of linear therm. expansion, parallel Coeff. of linear therm. expansion, parallel, 55-160°C Coeff. of linear therm. expansion, normal, -40-23°C Coeff. of linear therm. expansion, normal	dry/cond. 310/* 90/45 285/* 21/* 21/* 11/* 61/*	°C °C °C E-6/K E-6/K E-6/K E-6/K	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2 ISO 11359-1/-2 ISO 11359-1/-2 ISO 11359-1/-2 ISO 11359-1/-2 ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal, 55-160°C RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3mm	80/* 150 150 150 125 125 125 130 125/* 150	E-6/K ° C ° C ° C ° C ° C ° C ° C ° C ° C	ISO 11359-1/-2 UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Glow Wire Flammability Index, 0.75mm Glow Wire Flammability Index, 1.5mm Glow Wire Flammability Index, 3mm Glow Wire Ignition Temperature, 0.75mm Glow Wire Ignition Temperature, 1.5mm Glow Wire Ignition Temperature, 3mm FMVSS Class	HB/* 1.5/* yes/* HB/* 0.75/* yes/* 750/- 700/- 850/- 775/- 725/- 775/- B	class mm class mm °C °C °C °C °C	UL 94 UL 94 UL 94 UL 94 UL 94 UL 94 IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	44	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	dry/cond.		
Volume resistivity Electric strength Comparative tracking index	1E13/- 34/33 600/-	Ohm.m kV/mm	IEC 62631-3-1 IEC 60243-1 IEC 60112
Other properties Humidity absorption, 2mm Water absorption, Immersion 24h Density Density of melt [DS]: Derived from similar grade	dry/cond. 2/* 0.4/* ^[DS] 1460/- 1100	% % kg/m³ kg/m³	Sim. to ISO 62 Sim. to ISO 62 ISO 1183 Internal

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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	Internal
Min. melt temperature	320 °C	
Max. melt temperature	330 °C	
Min. mould temperature	90 °C	
Max. mould temperature	110 °C	

Additional information

Injection molding

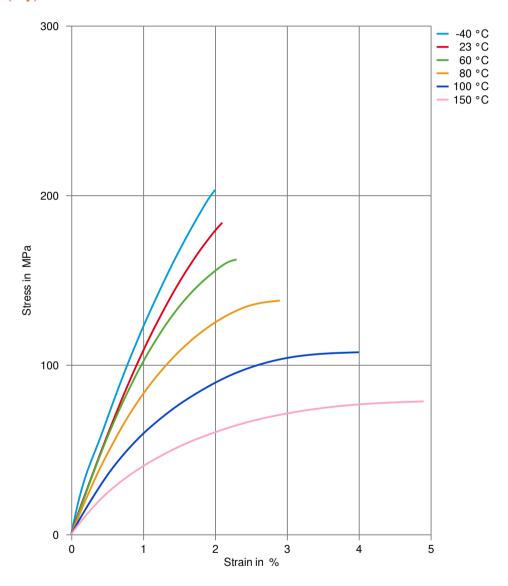
During molding, use proper protective equipment and adequate ventilation. Avoid exposure to fumes and limit the hold up time and temperature of the resin in the machine. Purge degraded resin carefully with HDPE.

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Stress-strain (dry)

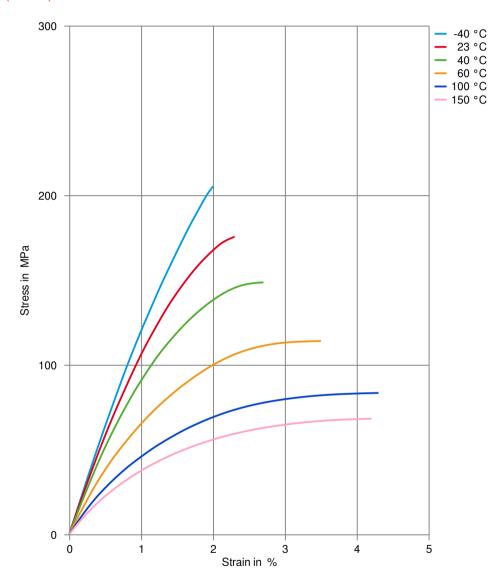


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HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (cond.)

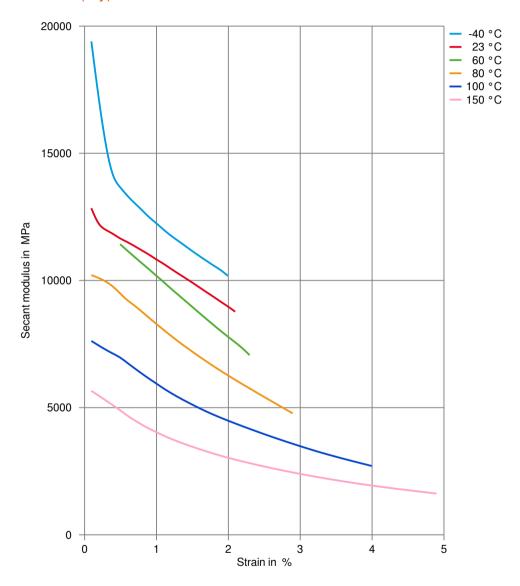


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Secant modulus-strain (dry)

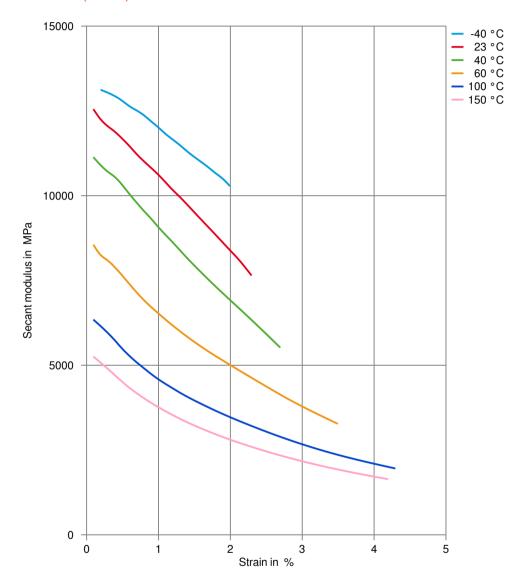


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Secant modulus-strain (cond.)



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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

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).

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Revised: 2022-06-28 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, pr

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