

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
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, 1628 ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties Tensile modulus Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min Flexural modulus Charpy impact strength, 23°C Charpy impact strength, -30°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/m ² kJ/m ² kJ/m ²	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, 10°C/min Melting temperature, first heat Glass transition temperature, 10°C/min Temperature of deflection under load, 1.8 MPa Coeff. of linear therm. expansion, parallel, -40-23°C Coefficient of linear thermal expansion (CLTE), parallel Coeff. of linear therm. expansion, parallel, 55-160°C Coeff. of linear therm. expansion, normal, -40-23°C Coefficient of linear thermal expansion (CLTE), normal Coeff. of linear therm. expansion, normal, 55-160°C RTI, electrical, 0.75mm RTI, electrical, 1.5mm	dry/cond. 314/* 310/* 90/45 285/* 21/* 21/* 11/* 61/* 67/* 80/* 150	°C °C °C E-6/K E-6/K E-6/K E-6/K E-6/K °C °C	ISO 11357-1/-3 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 UL 746B UL 746B

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Zytel[®] HTN52G35HSL BK083

HIGH PERFORMANCE POLYAMIDE RESIN

RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm	150 125 125 125 130 125/* 150	0° 0° 0° 0° 0° 0° 0°	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, 3.0mm Glow Wire Ignition Temperature, 0.75mm Glow Wire Ignition Temperature, 1.5mm Glow Wire Ignition Temperature, 3.0mm FMVSS Class Burning rate, Thickness 1 mm	HB/* 1.5/* yes/* HB/* 0.75/* yes/* 750/- 700/- 850/- 775/- 725/- 775/- B 44	class mm class mm °C °C °C °C °C °C °C °C	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13
	44	11111/11111	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
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm Water absorption, 2mm Water absorption, Immersion 24h Density Density of melt [A]: Assessed [DS]: Derived from similar grade	2/* 4.5/* ^[A] 0.4/* ^[DS] 1460/- 1100	% % kg/m ³ kg/m ³	Sim. to ISO 62 Sim. to ISO 62 Sim. to ISO 62 ISO 1183
Injection			
Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Mold Temperature Optimum Min. mould temperature	6 - 8 ≤0.1 325 320 330 100	O°C	

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Max. mould temperature	110 °C
Ejection temperature	268 °C

Characteristics

Processing	Injection Moulding
Special characteristics	Heat stabilised or stable to heat, Laser Markable

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.

Automotive

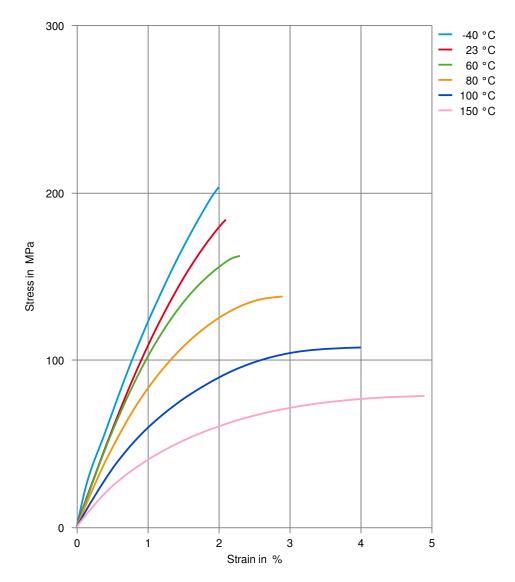
OEM	STANDARD	ADDITIONAL INFORMATION
Bosch	N28 BN05-OX049	
Ford	WSS-M4D861-A4	
General Motors	GMW16357P-PPA-GF35	
Stellantis	B62 0300 / 61/213M+/217E+/13/C1B	CPN4178, CPN3972, 01994_10_00121
Stellantis - Chrysler	MS.50091 / CPN-4178	Black

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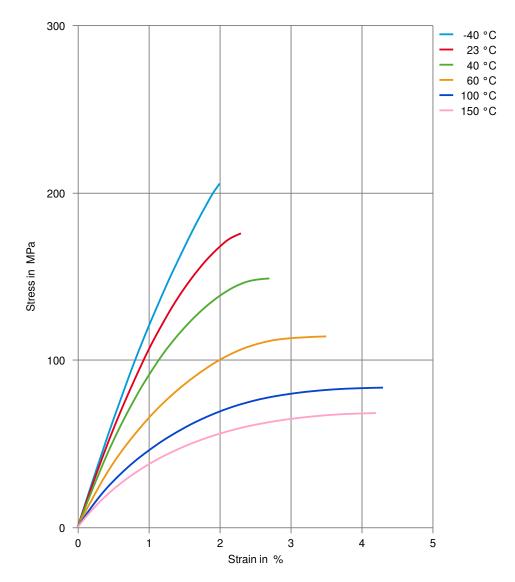
Stress-strain (dry)





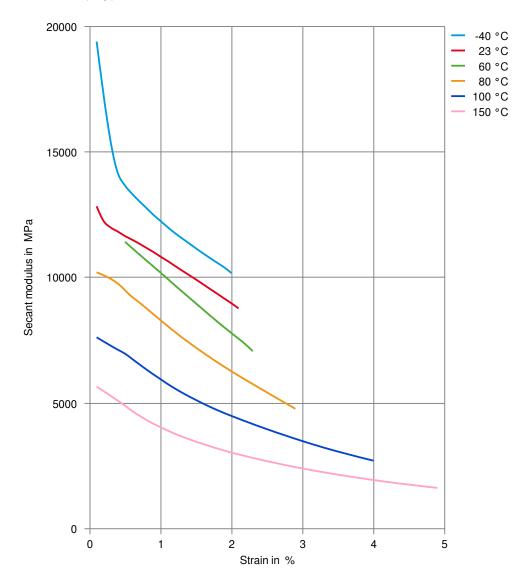


Stress-strain (cond.)



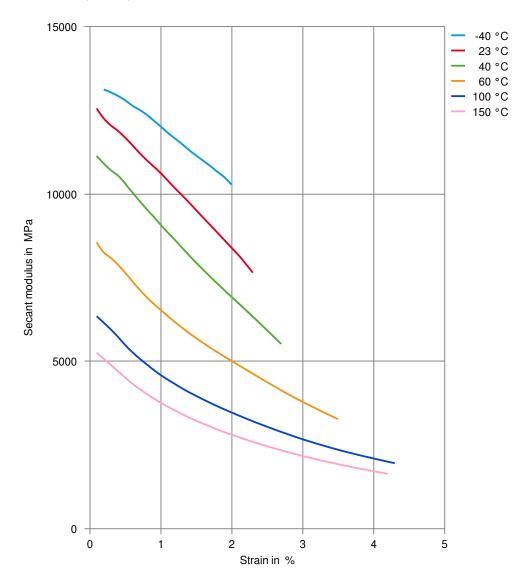


Secant modulus-strain (dry)





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).

X 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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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, processing conditions and environmental exposure. Other than those product 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 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 the lowest that texist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufact

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