



HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN51G50HSL BK083 is a 50% glass reinforced, heat stabilized, lubricated, hydrolysis resistant high performance polyamide resin. It is also a PPA resin.

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Resin Identification Part Marking Code Part Marking Code ISO designation	PA6T/XT-GF50 >PA6T/XT-GF50< >PPA-GF50< ISO 16396-PA6T/XT,GF50,M1CGHR,S10-190		ISO 1043 ISO 11469 SAE J1344 190
Rheological properties	dry/cond.		
Moulding shrinkage, parallel Moulding shrinkage, normal	0.2/- 0.5/-	%	ISO 294-4, 2577 ISO 294-4, 2577
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Typical mechanical properties	dry/cond.		
Tensile modulus	17800/17800	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	262/245	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.1/2.1	%	ISO 527-1/-2
Flexural modulus	16400/-	MPa	ISO 178
Charpy impact strength, 23°C	80/-	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	15/-	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	15/-	kJ/m ²	ISO 179/1eA
Poisson's ratio	0.33/0.33		
Thermal properties	dry/cond.		
Melting temperature, 10 ° C/min	300/*	°C	ISO 11357-1/-3
Melting temperature, first heat	300/*	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	265/*	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	14/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion	14/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coeff. of linear therm. expansion, normal, -40-23°C	45/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),	48/*	E-6/K	ISO 11359-1/-2
normal			
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
Burning Behav. at thickness h	HB/*	class	IEC 60695-11-10
Thickness tested	0.85/*	mm	IEC 60695-11-10
Oxygen index	24/*	%	ISO 4589-1/-2
Glow Wire Flammability Index, 0.75mm	800/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	775/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960/-	°C	IEC 60695-2-12
FMVSS Class	В	IS	SO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	29	mm/min IS	SO 3795 (FMVSS 302)

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Physical/Other properties

dry/cond.

Density 1640/- kg/m³ ISO 1183

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
Mold Temperature Optimum	150	_
Min. mould temperature	140 ^[1]	°C
Max. mould temperature	180	°C

[1]: Higher temperature needed for thinner sections.

Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

Special characteristics Heat stabilised or stable to heat, Hydrolysis resistant, 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.

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

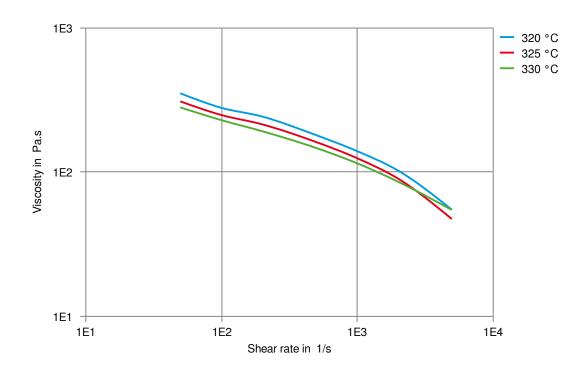
heated.

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Viscosity-shear rate

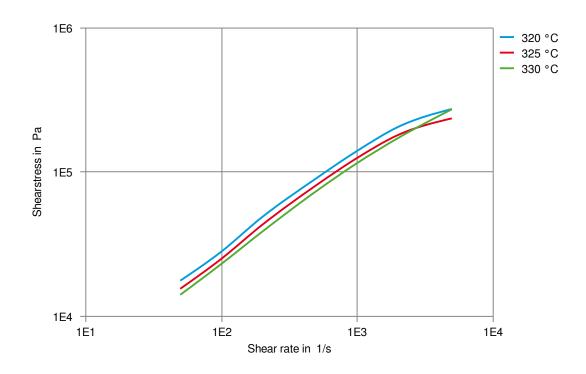


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Shearstress-shear rate



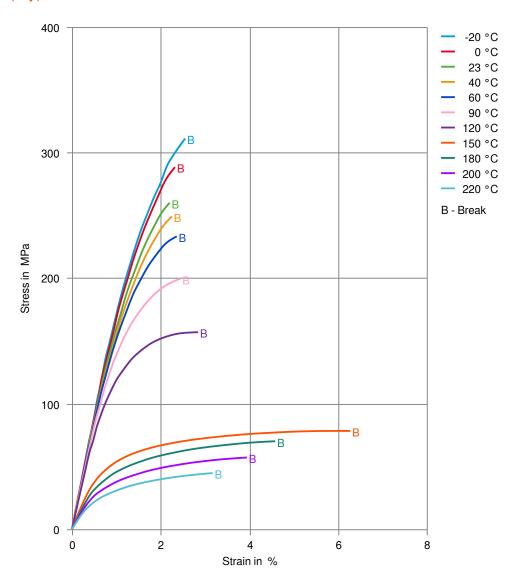
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Stress-strain (dry)



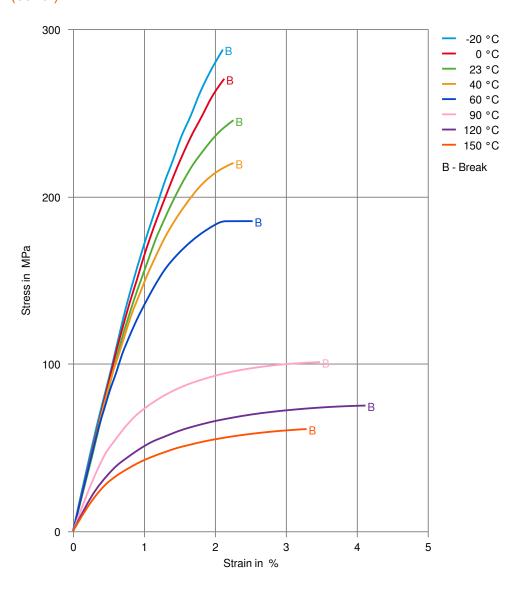
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HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (cond.)



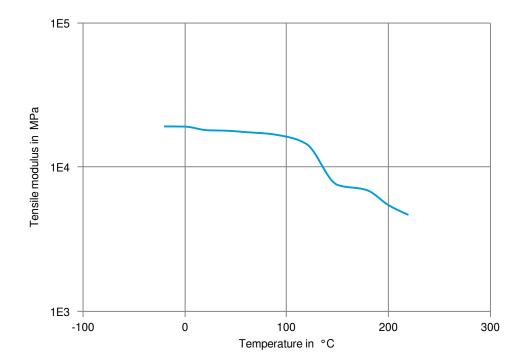
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Zytel® HTN51G50HSL BK083 HIGH PERFORMANCE POLYAMIDE RESIN

Tensile modulus-temperature (dry)

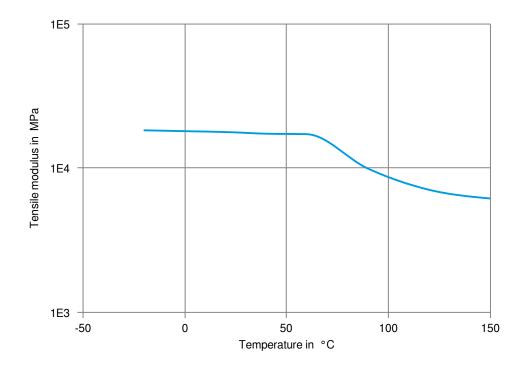


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Tensile modulus-temperature (cond.)



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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

- ✓ 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).

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Revised: 2025-04-30 Source: Celanese Materials Database

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