



HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN51G45HSL NC010 is a 45% glass reinforced, heat stabilized, lubricated, hydrolysis resistant high performance polyamide resin. It is also a PPA resin.

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Resin Identification	PA6T/XT-GF45	ISO 1043
Part Marking Code	>PA6T/XT-GF45<	ISO 11469
Part Marking Code	>PPA-GF45<	SAE J1344
ISO designation	ISO 16396-PA6T/XT.GF45.M1GHNR.S10-140	

Rheological properties

3 1 1	,		
Moulding shrinkage, parallel	0.1/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577
Moulding shrinkage, parallel, annealed	0.2 ^[1] /*	%	ISO 294-4
Moulding shrinkage, normal, annealed	0.75/*	%	ISO 294-4
[1]: annealing 2h at 170°C			

dry/cond.

Typical mechanical properties

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Tensile modulus	15500/15000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	260/230	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.4/2.1	%	ISO 527-1/-2
Flexural modulus	15000/15000	MPa	ISO 178
Flexural strength	370/-	MPa	ISO 178
Tensile creep modulus, 1h	*/14000	MPa	ISO 899-1
Tensile creep modulus, 1000h	*/12000	MPa	ISO 899-1
Charpy impact strength, 23°C	90/75	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	85/-	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	12/11	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	12/-	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	13/-	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	12/12	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	13.0/-	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	87/-	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	109/-		ISO 2039-2
Hardness, Rockwell, R-scale	125/-		ISO 2039-2
Poisson's ratio	0.33/0.33		

Thermal properties

Thermal properties	ary/coria.		
Melting temperature, 10 ° C/min	300/*	°C	ISO 11357-1/-3
Melting temperature, first heat	300/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	140/95	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	265/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	286/*	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	15/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion	15/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel			

dry/cond

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Coeff. of linear therm. expansion, parallel, 55-160°C Coeff. of linear therm. expansion, normal, -40-23°C Coefficient of linear thermal expansion (CLTE),	13/* 50/* 54/*	E-6/K E-6/K E-6/K	ISO 11359-1/-2 ISO 11359-1/-2 ISO 11359-1/-2
normal Thermal conductivity of melt Specific heat capacity of melt RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 0.75mm	0.28 1610 150 150 150 120 125 150 130 140/*	W/(m K) J/(kg K) °C °C °C °C °C °C	ISO 22007-2 ISO 22007-4 UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
RTI, strength, 3.0mm	130	O	OL 740B
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index FMVSS Class Burning rate, Thickness 1 mm	HB/* 1.5/* yes/* HB/* 0.85/* yes/* 24/* B 29	class mm class mm %	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
Electrical properties			,
Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index	dry/cond. 4.2/- 3.9/- 90/- 150/- >1E13/1E13 */1E14 35/34 600/600	E-4 E-4 Ohm.m Ohm kV/mm	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1 IEC 60112
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm Water absorption, 2mm Density [C]: Calculated	1.5/* ^[C] 3.4/* ^[C] 1570/-	% % kg/m³	Sim. to ISO 62 Sim. to ISO 62 ISO 1183

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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
Min. melt temperature	320	°C
Max. melt temperature	330	°C
Mold Temperature Optimum	145	_
Min. mould temperature	130 ^[2]	°C
Max. mould temperature	160	°C
Ejection temperature	265	°C

[2]: 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

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.

Automotive

OEM STANDARD ADDITIONAL INFORMATION

Bosch N28 BN05-OX036

General Motors GMW16356P-PPA-GF45 Natural General Motors GMW16360P-PPA-GF45 Natural

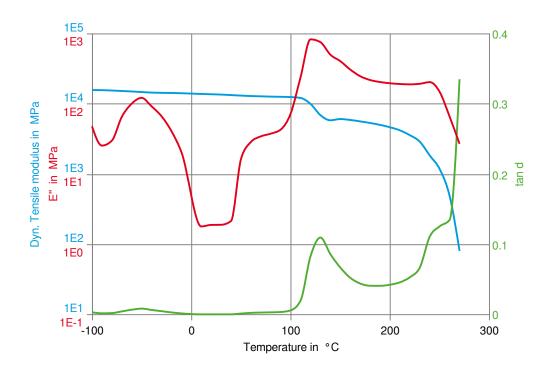
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Dynamic Tensile modulus-temperature (dry)



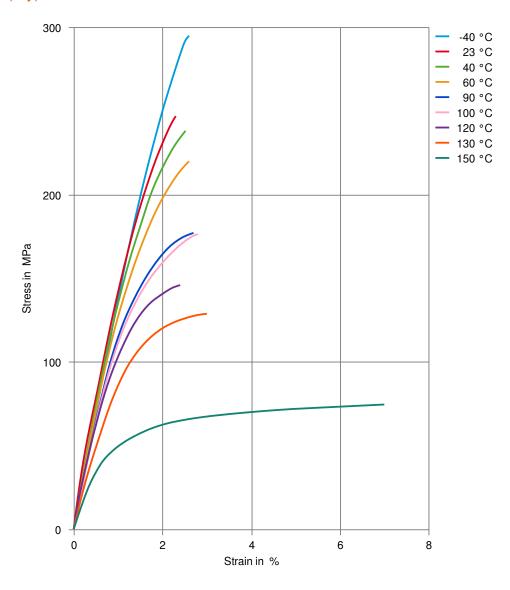
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HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (dry)



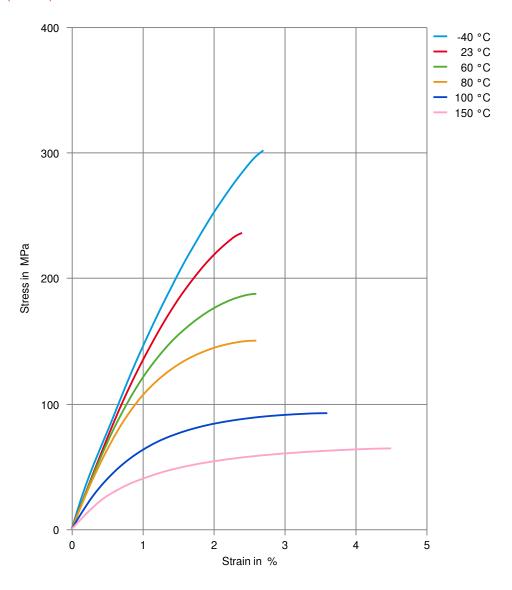
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Stress-strain (cond.)



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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

- ✓ 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: 2025-04-18 Source: Celanese Materials Database

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