



HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN51G15HSL NC010 is a 15% glass reinforced, heat stabilized, lubricated, hydrolysis resistant high performance polyamide resin. It is also a PPA resin.

Product information

Resin Identification	PA6T/XT-GF15	ISO 1043
Part Marking Code	>PA6T/XT-GF15<	ISO 11469
Part Marking Code	>PPA-GF15<	SAE J1344
ISO designation	ISO 16396-PA6T/XT,GF15,M1GHNR,S	10-060

Rneological properties	
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Moulding shrinkage, parallel	0.4/- %	ISO 294-4, 2577
Moulding shrinkage, normal	0.7/- %	ISO 294-4, 2577

dry/cond.

dry/cond.

dry/cond.

Typical mechanical properties

Tensile modulus	6500/-	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	120/-	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.1/-	%	ISO 527-1/-2
Flexural modulus	5700/-	MPa	ISO 178
Charpy impact strength, 23°C	25/-	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	20/- ^[DS]	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	6/-	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	6/-	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	6/-	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	6.0/-	kJ/m²	ISO 180/1A
Poisson's ratio	0.35/-		

[DS]: Derived from similar grade

Thermal properties

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	254/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	276/*	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	30/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion	30/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coeff. of linear therm. expansion, normal, -40-23°C	57/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),	64/*	E-6/K	ISO 11359-1/-2
normal			
Coeff. of linear therm. expansion, normal, 55-160°C	77/*	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	150	°C	UL 746B
RTI, electrical, 1.5mm	150	°C	UL 746B
RTI, electrical, 3.0mm	150	°C	UL 746B
RTI, impact, 0.75mm	125	°C	UL 746B
RTI, impact, 1.5mm	125	°C	UL 746B

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RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm	130 130 140/* 150	°C °C °C	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 Oxygen index FMVSS Class Burning rate, Thickness 1 mm	HB/* 1.5/* yes/* HB/* 0.75/* yes/* 23/* B 18	class mm class mm % mm/min	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 Volume resistivity Surface resistivity Comparative tracking index	dry/cond. >1E13/- */>1E15 600/-	Ohm.m Ohm	IEC 62631-3-1 IEC 62631-3-2 IEC 60112
Physical/Other properties Humidity absorption, 2mm Density	dry/cond. 2.5/* 1300/-	% kg/m³	Sim. to ISO 62 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 °C
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

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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

General Motors GMW16356P-PPA-GF15 General Motors GMW16356P-PPA-GF15 Mercedes-Benz DBL5408.25 PA6 GF15

Natural Black

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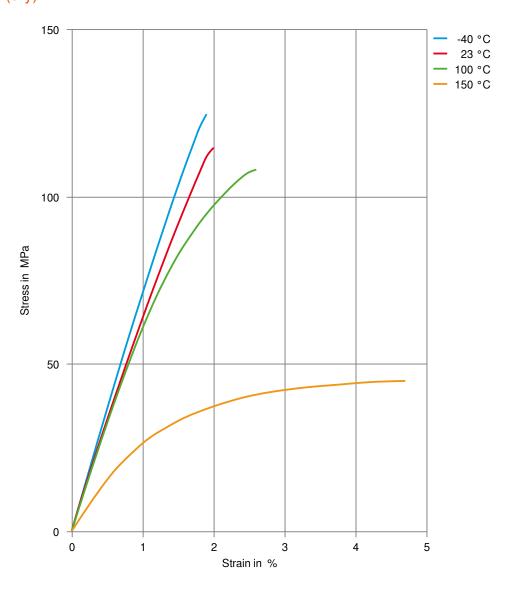
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Stress-strain (dry)



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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

Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- ✓ Insulating Oil, 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).

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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