



HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN51G45HSL BK083 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-PA61	T/XT,GF45,M1CGHR,S10-140	
Rheological properties	dry/cond.		
Moulding shrinkage, parallel	0.1/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577
Moulding shrinkage, parallel, annealed	0.2/*	%	ISO 294-4
Moulding shrinkage, normal, annealed	0.7/*	%	ISO 294-4
Typical mechanical properties	dry/cond.		
Tensile modulus	16000/16000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	260/250	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.3/2	%	ISO 527-1/-2
Flexural modulus	14000/-	MPa	ISO 178
Flexural strength	370/-	MPa	ISO 178
Charpy impact strength, 23°C	85/65	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	75/55 ^[A]	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	12/11	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	12/10 ^[A]	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	12/-	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	13.0/-	kJ/m²	ISO 180/1A
Poisson's ratio	0.33/0.33		
[A]: Assessed			
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
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	285/*	°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, parallel, 55-160°C	15/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	45/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	50/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	69/*	E-6/K	ISO 11359-1/-2
DTI 1' 0.75	450	20	LU 740D

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150

°C

UL 746B

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RTI, electrical, 0.75mm





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RTI, electrical, 1.5mm	150	°C	UL 746B
RTI, electrical, 3.0mm	150	°C	UL 746B
RTI, impact, 0.75mm	120	°C	UL 746B
RTI, impact, 1.5mm	125	°C	UL 746B
RTI, impact, 3.0mm	150	°C	UL 746B
RTI, strength, 0.75mm	130	°C	UL 746B
RTI, strength, 1.5mm	140/*	°C	UL 746B
RTI, strength, 3.0mm	150	°C	UL 746B

Flammability

Burning Behav. at 1.5mm nom. thickn.	HB/*	class	IEC 60695-11-10
Thickness tested	1.5/*	mm	IEC 60695-11-10
UL recognition	yes/*		UL 94
Burning Behav. at thickness h	HB/*	class	IEC 60695-11-10
Thickness tested	0.85/*	mm	IEC 60695-11-10
UL recognition	yes/*		UL 94
FMVSS Class	SE		ISO 3795 (FMVSS 302)

dry/cond.

dry/cond.

dry/cond.

Electrical properties

Physical/Other properties

Humidity absorption, 2mm	1.5/* ^[C]	%	Sim. to ISO 62
Water absorption, 2mm	3.4/* ^[C]	%	Sim. to ISO 62
Density	1570/-	kg/m³	ISO 1183
[C]: Calculated			

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

Special characteristics Heat stabilised or stable to heat, Hydrolysis resistant, Laser Markable

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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

Bosch N28 BN05-OX036

General Motors GMW16356P-PPA-GF45 Black
General Motors GMW16360P-PPA-GF45 Black

Renault-Nissan UB01b, No Spec, Special Part Approval, See

Your CE Account Manager.

Stellantis B62 0300 / 61/213M/215E+/13/C1B Technical Black

Stellantis MS.50156 / PPA.GF45-50.14000T.12C.HS CPN4749, 01994_10_00170

Stellantis - Chrysler MS.50103 / CPN-4749 Black

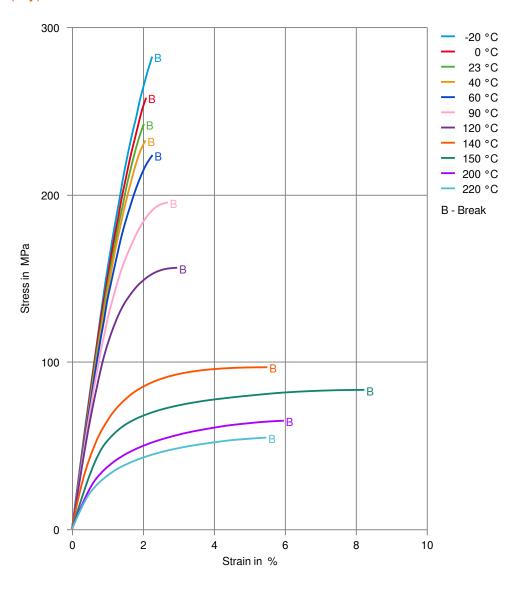
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HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (dry)



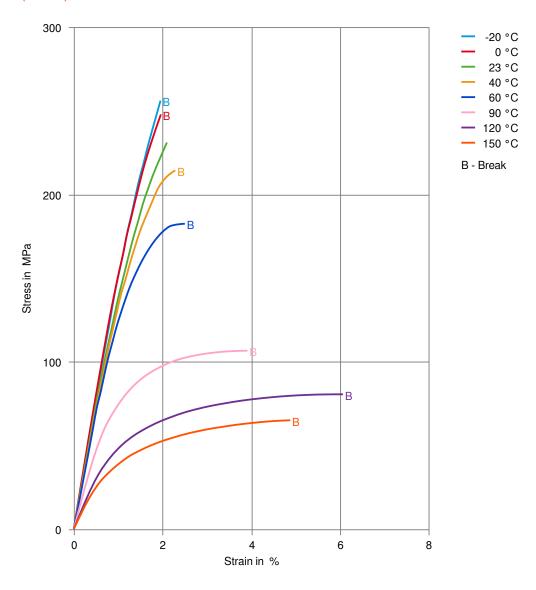
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HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (cond.)



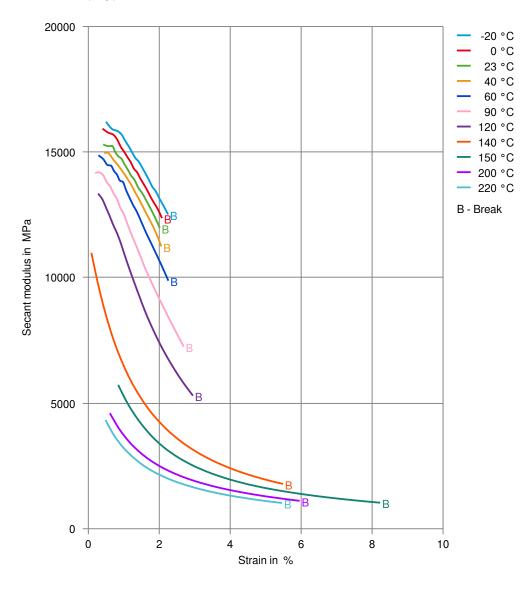
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HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)



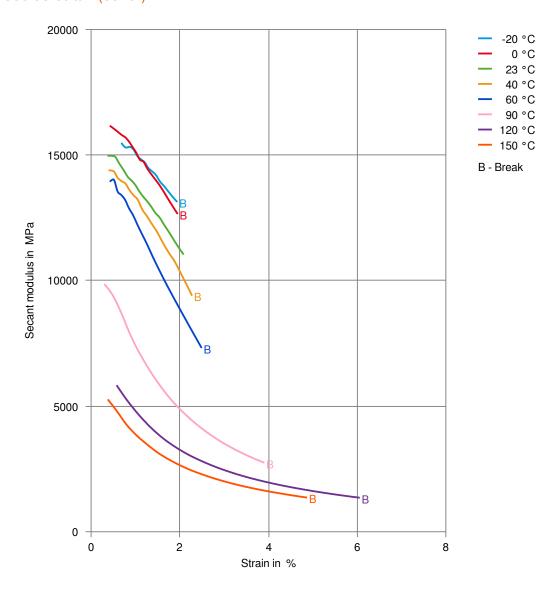
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HIGH PERFORMANCE POLYAMIDE RESIN

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

- ✓ 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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