

Zytel® HTN51G35EF BK083 is a 35% glass reinforced, heat stabilized, lubricated, hydrolysis resistant high performance polyamide resin developed for electrical and electronics applications. It is also a PPA resin.

Product information **Resin Identification** PA6T/XT-GF35 ISO 1043 Part Marking Code >PA6T/XT-GF35< ISO 11469 Part Marking Code >PPA-GF35< **SAE J1344** ISO designation ISO 16396-PA*, GF35,M1CGHR,S10-120 Rheological properties dry/cond. Moulding shrinkage, parallel 0.2/-% ISO 294-4, 2577 ISO 294-4, 2577 Moulding shrinkage, normal 0.6/-% Typical mechanical properties dry/cond. **Tensile Modulus** 12100/11100 MPa ISO 527-1/-2 Stress at break. 5mm/min 230/204 MPa ISO 527-1/-2 % Strain at break. 5mm/min 2.4/2.2ISO 527-1/-2 Flexural Modulus 11200/11600 MPa **ISO 178** Flexural Strength 297/283 MPa **ISO 178** Charpy impact strength, 23°C 57/kJ/m² ISO 179/1eU Charpy notched impact strength, 23°C 10/kJ/m² 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 °C Temp. of deflection under load, 1.8 MPa 264/* ISO 75-1/-2 Coeff, of linear therm, expansion, parallel, -40-23°C 18/* E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, parallel 18/*E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, parallel, 55-160°C 13/*E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, normal, -40-23°C 50/*E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, normal 55/* E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion, normal, 55-160°C 80/* E-6/K ISO 11359-1/-2 Spec. heat capacity of melt 1820 J/(kg K)Internal Spec. heat capacity solid 610 J/(kg K) Internal TGA curve available ISO 11359-1/-2 Flammability dry/cond. Oxygen index 23/* % ISO 4589-1/-2 750/-°C Glow Wire Flammability Index, 1mm IEC 60695-2-12 Glow Wire Ignition Temperature, 1mm 750/-°C IFC 60695-2-13 800/-Glow Wire Ignition Temperature, 3mm °C IEC 60695-2-13 **FMVSS Class** В ISO 3795 (FMVSS 302) Burning rate, Thickness 1 mm <80 mm/min ISO 3795 (FMVSS 302)

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HIGH PERFORMANCE POLYAMIDE RESIN

Electrical properties	dry/cond.		
Relative permittivity, 100Hz	4.4/-		IEC 62631-2-1
Relative permittivity, 1MHz	4.3/-		IEC 62631-2-1
Dissipation factor, 100Hz	160/-	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	190/-	E-4	IEC 62631-2-1
Volume resistivity	>1E13/>1E13	Ohm.m	IEC 62631-3-1
Electric strength	32/31	kV/mm	IEC 60243-1
Comparative tracking index	525/-		IEC 60112
Other properties	dry/cond.		
Humidity absorption, 2mm	1.4/*	%	Sim, to ISO 62
Water absorption, 2mm	4/*	%	Sim. to ISO 62
Density	1470/-	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	Internal
Min. melt temperature	320	°C	
Max. melt temperature	330	°C	
Mold Temperature Optimum	150		
Min. mould temperature	140 ^[1]		
Max. mould temperature	180	°C	
[1]: Higher temperature needed for thinner sections.			

Additional information

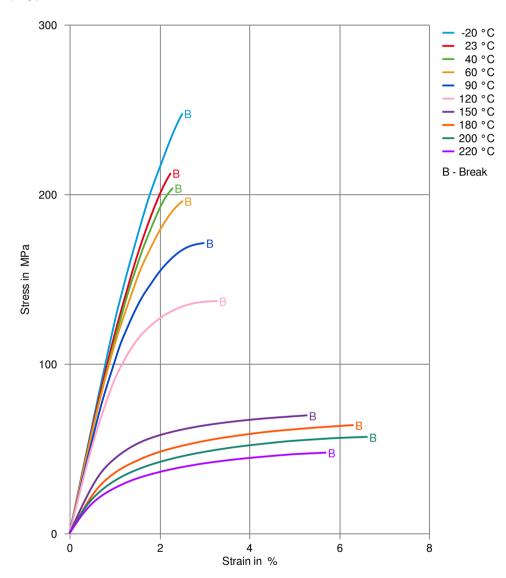
Injection molding

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.

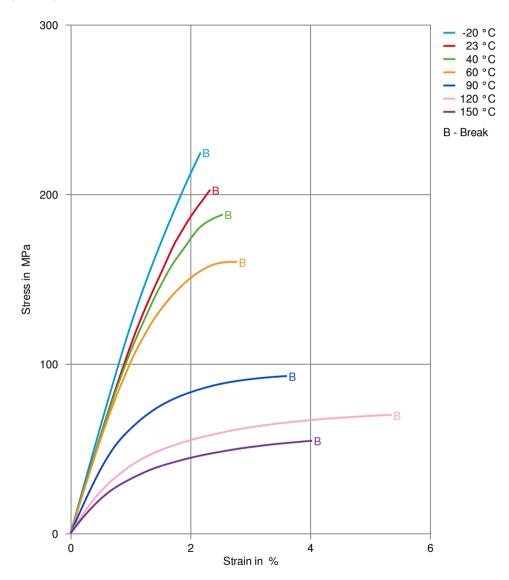


Stress-strain (dry)



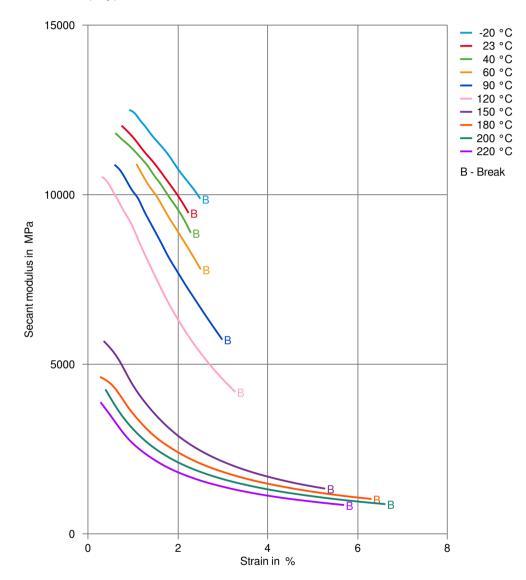


Stress-strain (cond.)



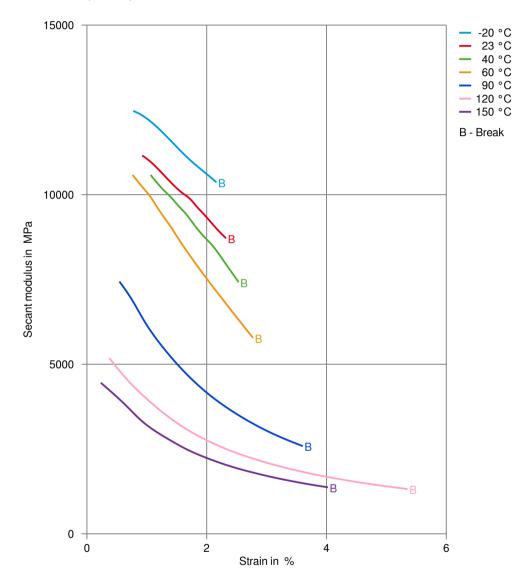


Secant modulus-strain (dry)





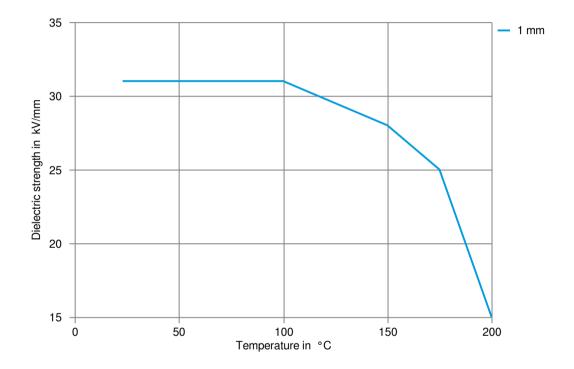
Secant modulus-strain (cond.)





Zytel[®] HTN51G35EF BK083 HIGH PERFORMANCE POLYAMIDE RESIN

Dielectric strength - temperature (dry)





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
- 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).

★ 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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Page: 8 of 8

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