

### HIGH PERFORMANCE POLYAMIDE RESIN

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 Part Marking Code	PA6T/XT-GF35 >PA6T/XT-GF35	<	ISO 1043 ISO 11469
	Part Marking Code	>PPA-GF35<		SAE J1344
	ISO designation		GF35,M1CGHR,S10-120	
	Rheological properties	dry/cond.		
	Moulding shrinkage, parallel	0.2/-	%	ISO 294-4, 2577
	Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577
ŀ	Typical mechanical properties	dry/cond.		
	Tensile modulus	12100/11100	MPa	ISO 527-1/-2
	Tensile stress at break, 5mm/min	230/204	MPa	ISO 527-1/-2
	Tensile strain at break, 5mm/min	2.4/2.2	%	ISO 527-1/-2
	Flexural modulus	11200/11600	MPa	ISO 178
	Flexural strength	300/280	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
	Temperature of deflection under load, 1.8 MPa	264/*	°C	ISO 75-1/-2
	Coeff. of linear therm. expansion, parallel, -40-23°C	18/*	E-6/K	ISO 11359-1/-2
	Coefficient of linear thermal expansion	18/*	E-6/K	ISO 11359-1/-2
	(CLTE), parallel			
	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
	Coefficient of linear thermal expansion (CLTE),	55/*	E-6/K	ISO 11359-1/-2
	normal Coeff. of linear therm. expansion, normal, 55-160°C	80/*	E-6/K	ISO 11359-1/-2
	Specific heat capacity of melt	1820	J/(kg K)	ISO 22007-4
	Specific heat capacity solid	610	J/(kg K)	ISO 22007-4
	TGA curve	available	( 0 )	ISO 11359-1/-2
	Flammability	dry/cond.		
	•	HB/* <sup>[DS]</sup>	class	IEC 60695-11-10
	Burning Behav. at 1.5mm nom. thickn. Thickness tested	1.5/* <sup>[DS]</sup>	mm	IEC 60695-11-10
	Burning Behav. at thickness h	HB/* <sup>[DS]</sup>	class	IEC 60695-11-10
	Thickness tested	0.85/* <sup>[DS]</sup>	mm	IEC 60695-11-10
	Oxygen index	23/*	%	ISO 4589-1/-2
	Glow Wire Flammability Index, 1.0mm	750/-	°C	IEC 60695-2-12
	Glow Wire Ignition Temperature, 1.0mm	750/-	°C	IEC 60695-2-13
	Glow Wire Ignition Temperature, 3.0mm	800/-	°C	IEC 60695-2-13
	. ,			

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ISO 3795 (FMVSS 302)

## Zytel® HTN51G35EF BK083

### HIGH PERFORMANCE POLYAMIDE RESIN

Burning rate, Thickness 1 mm [DS]: Derived from similar grade	<80 mm/min	ISO 3795 (FMVSS 302)
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
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Dissipation factor, 100Hz

Dissipation factor, 10Hz

Dissipation factor, 1MHz

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Physical/Other properties dry/cond.

Humidity absorption, 2mm	1.4/*	%	Sim. to ISO 62
Water absorption, 2mm	4/*	%	Sim. to ISO 62
Water absorption, Immersion 24h	1/*	%	Sim. to ISO 62
Density	1470/-	kg/m³	ISO 1183

[1]: 2mm thickness

**FMVSS Class** 

#### 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 <sup>[2]</sup>	°C
Max. mould temperature	160	°C
Ejection temperature	262	°C

[2]: Higher temperature needed for thinner sections.

#### Characteristics

Processing Injection Moulding

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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### HIGH PERFORMANCE POLYAMIDE RESIN

#### **Automotive**

OEM STANDARD ADDITIONAL INFORMATION

General Motors Black; Part Specific Approval, Please Contact

Your CE Representative For More Details.

Hyundai MS941-12 Type B

Renault-Nissan UB23, No Spec, Special Part Approval, See

Your CE Account Manager.

Stellantis B62 0300 / 61/U4/AD1/225E/218M/H708(Adbl 01378\_20\_04244

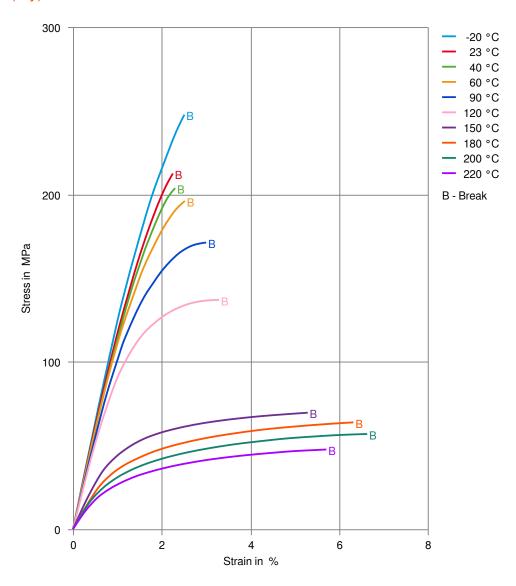
ue)/H412(Glysantin G48)/11/C2B/C5

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### HIGH PERFORMANCE POLYAMIDE RESIN

Stress-strain (dry)

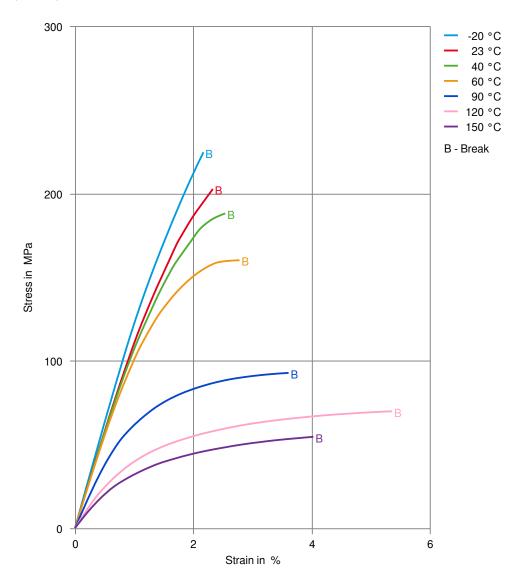


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### HIGH PERFORMANCE POLYAMIDE RESIN

### Stress-strain (cond.)

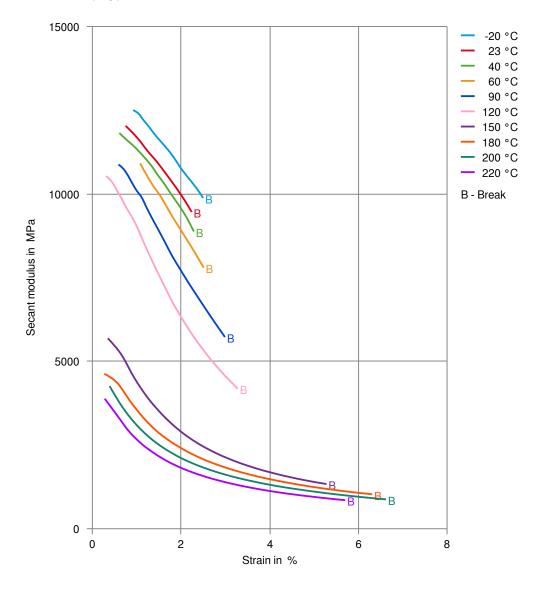


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### HIGH PERFORMANCE POLYAMIDE RESIN

### Secant modulus-strain (dry)

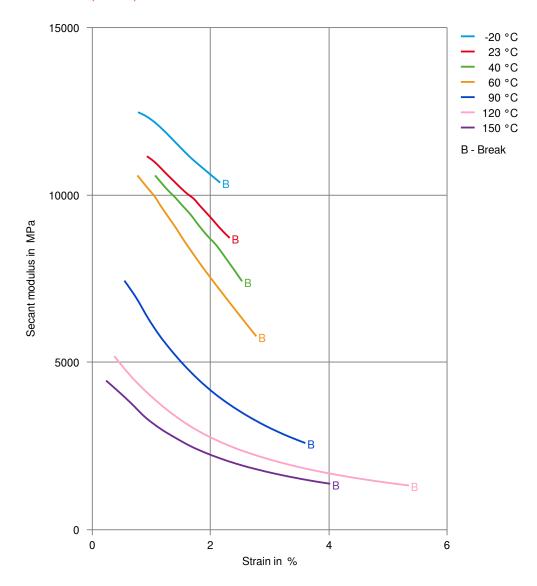


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### HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (cond.)

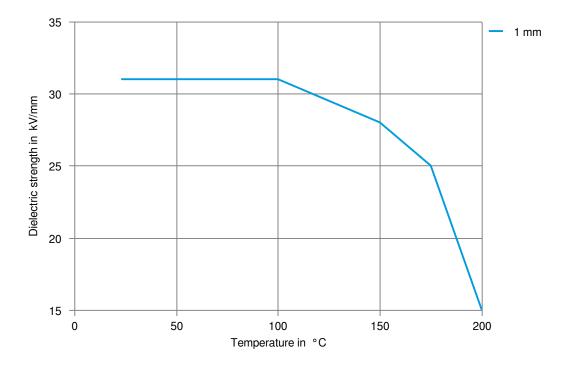


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### HIGH PERFORMANCE POLYAMIDE RESIN

Dielectric strength - temperature (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
- ✓ 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).

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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Revised: 2025-01-06 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, pr

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