

# Zytel® HTN51G35EF BK236LT

## HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN51G35EF BK236LT is a 35% glass reinforced, heat stabilized, lubricated, hydrolysis resistant, laser transparent, 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

### Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.2/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577

### Typical mechanical properties

	dry/cond.		
Tensile modulus	12200/-	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	230/-	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.4/2.2	%	ISO 527-1/-2
Charpy impact strength, 23°C	65/-	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength, 23°C	11/-	kJ/m <sup>2</sup>	ISO 179/1eA
Poisson's ratio	0.33/-		

### Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	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	263/*	°C	ISO 75-1/-2
Specific heat capacity of melt	1820	J/(kg K)	ISO 22007-4
Specific heat capacity solid	610 <sup>[DS]</sup>	J/(kg K)	ISO 22007-4

[DS]: Derived from similar grade

### 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/m <sup>3</sup>	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 <sup>[1]</sup> °C
Max. mould temperature	180 °C

[1]: Higher temperature needed for thinner sections.

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### Characteristics

Processing	Injection Moulding
Delivery form	Pellets, Granules
Special characteristics	Heat stabilised or stable to heat, Hydrolysis resistant

### Additional information

Injection molding	<p>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.</p> <p>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.</p>
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### Automotive

OEM	ADDITIONAL INFORMATION
General Motors	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.

### 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

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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).