

# Zytel® HTNLTFR52G30NH BL662 (PRELIMINARY)

## HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN high performance polyamide resins feature high retention of properties upon exposure to elevated temperature, to high moisture, and to harsh chemical environments. Polymer families and grades of Zytel® HTN are tailored to optimize performance as well as processability.

Typical applications with Zytel® HTN include demanding applications in the automotive, electrical and electronics, domestic appliances, and construction industries.

Zytel® HTNLTFR52G30NH BL662 is a 30% glass reinforced, flame retardant high performance polyamide resin developed for laser welding applications. It is also a PPA resin and it uses a non-halogenated flame retardant.

### Product information

|                      |                                              |           |
|----------------------|----------------------------------------------|-----------|
| Resin Identification | PA6T/66-GF30FR(40)                           | ISO 1043  |
| Part Marking Code    | >PA6T/66-GF30FR(40)<                         | ISO 11469 |
| Part Marking Code    | >PPA-GF30FR<                                 | SAE J1344 |
| ISO designation      | ISO 16396-PA6T/66,GF30 FR(40),M1CF1G,S10-110 |           |

### Rheological properties

|                              | dry/cond. |   |                 |
|------------------------------|-----------|---|-----------------|
| Moulding shrinkage, parallel | 0.3 / -   | % | ISO 294-4, 2577 |
| Moulding shrinkage, normal   | 0.8 / -   | % | ISO 294-4, 2577 |

### Typical mechanical properties

|                                       | dry/cond.     |                   |              |
|---------------------------------------|---------------|-------------------|--------------|
| Tensile Modulus                       | 11000 / 10000 | MPa               | ISO 527-1/-2 |
| Stress at break, 5mm/min              | 150 / 120     | MPa               | ISO 527-1/-2 |
| Strain at break, 5mm/min              | 2.2 / 2.2     | %                 | ISO 527-1/-2 |
| Flexural Modulus                      | 10000 / 10000 | MPa               | ISO 178      |
| Flexural Strength                     | 220 / 190     | MPa               | ISO 178      |
| Charpy impact strength, 23°C          | 46 / 40       | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy impact strength, -30°C         | 40 / 40       | kJ/m <sup>2</sup> | ISO 179/1eU  |
| Charpy notched impact strength, 23°C  | 6 / 6         | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Charpy notched impact strength, -30°C | 6 / 5         | kJ/m <sup>2</sup> | ISO 179/1eA  |
| Poisson's ratio                       | 0.34 / 0.34   |                   |              |

### Thermal properties

|                                                       | dry/cond. |       |                |
|-------------------------------------------------------|-----------|-------|----------------|
| Melting temperature, first heat                       | 310 / *   | °C    | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min                | 90 / 45   | °C    | ISO 11357-1/-3 |
| Temp. of deflection under load, 1.8 MPa               | 280 / *   | °C    | ISO 75-1/-2    |
| Coeff. of linear therm. expansion, parallel, -40-23°C | 21 / *    | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, parallel           | 25 / *    | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, parallel, 55-160°C | 27 / *    | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal, -40-23°C   | 57 / *    | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal             | 68 / *    | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal, 55-160°C   | 118 / *   | E-6/K | ISO 11359-1/-2 |
| RTI, electrical, 0.4mm                                | 140       | °C    | UL 746B        |
| RTI, electrical, 1.5mm                                | 140       | °C    | UL 746B        |

Printed: 2023-09-21



# Zytel® HTNLTFR52G30NH BL662 (PRELIMINARY)

## HIGH PERFORMANCE POLYAMIDE RESIN

|                      |       |    |         |
|----------------------|-------|----|---------|
| RTI, electrical, 3mm | 140   | °C | UL 746B |
| RTI, impact, 1.5mm   | 115   | °C | UL 746B |
| RTI, impact, 3mm     | 120   | °C | UL 746B |
| RTI, strength, 1.5mm | 125/* | °C | UL 746B |
| RTI, strength, 3mm   | 130   | °C | UL 746B |

### Flammability

|                                      |           |       |       |
|--------------------------------------|-----------|-------|-------|
|                                      | dry/cond. |       |       |
| Burning Behav. at 1.5mm nom. thickn. | V-0/*     | class | UL 94 |
| UL recognition                       | yes/*     |       | UL 94 |
| Burning Behav. at thickness h        | V-0/*     | class | UL 94 |
| Thickness tested                     | 0.4/*     | mm    | UL 94 |
| UL recognition                       | yes/*     |       | UL 94 |

### Electrical properties

|                                    |           |       |             |
|------------------------------------|-----------|-------|-------------|
|                                    | dry/cond. |       |             |
| Comparative tracking index         | 600/-     |       | IEC 60112   |
| Electric Strength, Short Time, 2mm | 27/-      | kV/mm | IEC 60243-1 |

### Other properties

|                          |           |       |                |
|--------------------------|-----------|-------|----------------|
|                          | dry/cond. |       |                |
| Humidity absorption, 2mm | 1.6/*     | %     | Sim. to ISO 62 |
| Water absorption, 2mm    | 3.9/*     | %     | Sim. to ISO 62 |
| Density                  | 1450/-    | kg/m³ | ISO 1183       |

### Injection

|                                 |         |
|---------------------------------|---------|
| Drying Recommended              | yes     |
| Drying Temperature              | 100 °C  |
| Drying Time, Dehumidified Dryer | 6 - 8 h |
| Processing Moisture Content     | ≤0.1 %  |
| Min. melt temperature           | 320 °C  |
| Max. melt temperature           | 325 °C  |
| Min. mould temperature          | 90 °C   |
| Max. mould temperature          | 130 °C  |

### Characteristics

|           |                                                                       |
|-----------|-----------------------------------------------------------------------|
| Additives | Flame retardant, Non-halogenated/Red phosphorous free flame retardant |
|-----------|-----------------------------------------------------------------------|

### Additional information

|                   |                                                                                                                                                                                                                                                  |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Injection molding | For molding machine components, use corrosion resistant and wear resistant steel. For details please contact our representative. Limit the residence time of the resin in the machine. Use proper protective equipment and adequate ventilation. |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

