

## Product Texts

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-31 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

**Zytel® 80G33L NC010 is a 33% glass fiber reinforced polyamide 66 resin with outstanding impact resistance developed using our Super Tough technology.**

| Processing/Physical Characteristics         | dry / cond | Unit              | Test Standard   |
|---|------------|-------------------|-----------------|
| <b>ISO Data</b>                             |            |                   |                 |
| <sup>[C]</sup> Molding shrinkage, parallel  | 0.3 / *    | %                 | ISO 294-4, 2577 |
| <sup>[C]</sup> Molding shrinkage, normal    | 0.8 / *    | %                 | ISO 294-4, 2577 |
| <sup>[C]</sup> Density of melt              | 1120       | kg/m <sup>3</sup> | -               |
| <sup>[C]</sup> Thermal conductivity of melt | 0.22       | W/(m K)           | -               |
| <sup>[C]</sup> Spec. heat capacity of melt  | 2200       | J/(kg K)          | -               |
| <sup>[C]</sup> Eff. thermal diffusivity     | 8.5E-8     | m <sup>2</sup> /s | -               |
| <sup>[C]</sup> Ejection temperature         | 210        | °C                | -               |

[C]: CAMPUS

| Mechanical properties                                | dry / cond  | Unit              | Test Standard |
|--|-------------|-------------------|---------------|
| <b>ISO Data</b>                                      |             |                   |               |
| <sup>[C]</sup> Tensile Modulus                       | 8700 / 5800 | MPa               | ISO 527       |
| <sup>[C]</sup> Stress at break                       | 142 / 95    | MPa               | ISO 527       |
| <sup>[C]</sup> Strain at break                       | 4 / 5       | %                 | ISO 527       |
| <sup>[C]</sup> Charpy impact strength, +23°C         | 91 / 80     | kJ/m <sup>2</sup> | ISO 179/1eU   |
| <sup>[C]</sup> Charpy impact strength, -30°C         | 80 / 75     | kJ/m <sup>2</sup> | ISO 179/1eU   |
| <sup>[C]</sup> Charpy notched impact strength, +23°C | 20 / 22     | kJ/m <sup>2</sup> | ISO 179/1eA   |
| <sup>[C]</sup> Charpy notched impact strength, -30°C | 14 / 14     | kJ/m <sup>2</sup> | ISO 179/1eA   |
| <b>ASTM Data</b>                                     |             |                   |               |
| Tensile Strength                                     | 145 / -     | MPa               | ASTM D 638    |
| Elongation at Break                                  | 4 / -       | %                 | ASTM D 638    |
| Flexural Modulus                                     | 6900 / -    | MPa               | ASTM D 790    |
| Flexural Strength                                    | 205 / -     | MPa               | ASTM D 790    |
| Izod Impact notched, 1/8 in                          | 219 / -     | J/m               | ASTM D 256    |

[C]: CAMPUS

| Thermal properties   | dry / cond | Unit   | Test Standard        |
|--|------------|--------|----------------------|
| <b>ISO Data</b>  |            |        |                      |
| <sup>[C]</sup> Melting temperature, 10°C/min               | 262 / *    | °C     | ISO 11357-1/-3       |
| <sup>[C]</sup> Glass transition temperature, 10°C/min      | 75 / *     | °C     | ISO 11357-1/-2       |
| <sup>[C]</sup> Temp. of deflection under load, 1.80 MPa    | 247 / *    | °C     | ISO 75-1/-2          |
| <sup>[C]</sup> Temp. of deflection under load, 0.45 MPa    | 262 / *    | °C     | ISO 75-1/-2          |
| <sup>[C]</sup> Coeff. of linear therm. expansion, parallel | 15 / *     | E-6/K  | ISO 11359-1/-2       |
| <sup>[C]</sup> Coeff. of linear therm. expansion, normal   | 119 / *    | E-6/K  | ISO 11359-1/-2       |
| <sup>[C]</sup> Burning Behav. at 1.5 mm nom. thickn.       | HB / *     | class  | IEC 60695-11-10      |
| Thickness tested   | 1.5 / *    | mm     | -                    |
| Yellow Card available                                      | yes / *    | -      | -                    |
| <sup>[C]</sup> Burning Behav. at thickness h               | HB / *     | class  | IEC 60695-11-10      |
| Thickness tested   | 0.8 / *    | mm     | -                    |
| Yellow Card available                                      | yes / *    | -      | -                    |
| <sup>[C]</sup> Burning rate, FMVSS, Thickness 1 mm         | 23         | mm/min | ISO 3795 (FMVSS 302) |
| <sup>[C]</sup> Oxygen index                                | 23 / *     | %      | ISO 4589-1/-2        |

**ASTM Data**

|                     |            |    |             |
|---------------------|------------|----|-------------|
| UL 94 Flame rating  | <b>HB</b>  | -  | UL 94       |
| Thickness tested    | <b>1.5</b> | mm | -           |
| DTUL @ 264 psi      | <b>250</b> | °C | ASTM D 648  |
| Melting Temperature | <b>263</b> | °C | ASTM D 3418 |

[C]: CAMPUS

**Electrical properties**

dry / cond

Unit

Test Standard

**ISO Data**

|   |                |   |           |
|---|----------------|---|-----------|
| <sup>[C]</sup> Comparative tracking index | <b>- / 600</b> | - | IEC 60112 |
|---|----------------|---|-----------|

[C]: CAMPUS

**Other properties**

dry / cond

Unit

Test Standard

|                                    |                 |                   |                |
|------------------------------------|-----------------|-------------------|----------------|
| <sup>[C]</sup> Water absorption    | <b>4.5 / *</b>  | %                 | Sim. to ISO 62 |
| <sup>[C]</sup> Humidity absorption | <b>1.5 / *</b>  | %                 | Sim. to ISO 62 |
| <sup>[C]</sup> Density             | <b>1320 / -</b> | kg/m <sup>3</sup> | ISO 1183       |
| Density                            | <b>1330</b>     | kg/m <sup>3</sup> | ASTM D 792     |

[C]: CAMPUS

**Characteristics****Processing**

Injection Molding

**Special Characteristics**

High impact or impact modified

**Delivery form**

Pellets, Natural Color

**Applications**

Automotive, Sports Equipment

**Additives**

Lubricants, Release agent

**Regional Availability**

North America, Europe, Asia Pacific, South and Central America, Near East/Africa