

# DuPont™ Zytel® 8018HS BKB085

## NYLON RESIN

### Product Information

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, DuPont recommends, as the preferred option, incineration with energy recovery (-31kJ/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® 8018HS BKB085 is a 14% glass reinforced heat stabilized, toughened polyamide 66 resin.**

| General information                         | Value       | Unit              | Test Standard   |
|---|-------------|-------------------|-----------------|
| Resin Identification                        | PA66-IGF14  | -                 | ISO 1043        |
| Part Marking Code                           | PA66-IGF14  | -                 | ISO 11469       |
| Rheological properties                      | dry / cond  | Unit              | Test Standard   |
| Molding shrinkage, parallel                 | 0.4 / -     | %                 | ISO 294-4, 2577 |
| Molding shrinkage, normal                   | 0.8 / -     | %                 | ISO 294-4, 2577 |
| Mechanical properties                       | dry / cond  | Unit              | Test Standard   |
| Tensile Modulus                             | 4200 / 2300 | MPa               | ISO 527-1/-2    |
| Stress at break                             | 85 / 55     | MPa               | ISO 527-1/-2    |
| Strain at break                             | 6 / 13      | %                 | ISO 527-1/-2    |
| Flexural Modulus                            | 3600 / 2000 | MPa               | ISO 178         |
| Charpy impact strength, 73°F                | 80 / 100    | kJ/m <sup>2</sup> | ISO 179/1eU     |
| Charpy notched impact strength              |             |                   | ISO 179/1eA     |
| 73°F  | 14 / 18     | kJ/m <sup>2</sup> |                 |
| -22°F                                       | 6 / 6       | kJ/m <sup>2</sup> |                 |
| -40°F                                       | 4 / 4       | kJ/m <sup>2</sup> |                 |
| Izod notched impact strength                |             |                   | ISO 180/1A      |
| 73°F  | 13 / 18     | kJ/m <sup>2</sup> |                 |
| -22°F                                       | 10 / 5      | kJ/m <sup>2</sup> |                 |
| -40°F                                       | 7 / 5       | kJ/m <sup>2</sup> |                 |
| Izod impact strength                        |             |                   | ISO 180/1U      |
| 73°F  | 90 / 100    | kJ/m <sup>2</sup> |                 |
| -22°F                                       | 90 / 70     | kJ/m <sup>2</sup> |                 |
| Hardness, Rockwell, M-scale                 | 70 / -      | -                 | ISO 2039-2      |
| Hardness, Rockwell, R-scale                 | 110 / -     | -                 | ISO 2039-2      |
| Thermal properties                          | dry / cond  | Unit              | Test Standard   |
| Melting temperature, 18°F/min               | 263 / *     | °C                | ISO 11357-1/-3  |
| Temp. of deflection under load              |             |                   | ISO 75-1/-2     |
| 260 psi                                     | 220 / *     | °C                |                 |
| 65 psi                                      | 246 / *     | °C                |                 |
| Coeff. of linear therm. expansion, parallel | 50 / *      | E-6/K             | ISO 11359-1/-2  |
| Coeff. of linear therm. expansion           |             |                   | ISO 11359-1/-2  |
| normal                                      | 118 / *     | E-6/K             |                 |
| Normal, -40-23°C                            | 96 / *      | E-6/K             |                 |
| Normal, 55-160°C                            | 123 / *     | E-6/K             |                 |
| Parallel, -40-23°C                          | 52 / *      | E-6/K             |                 |
| Parallel, 55-160°C                          | 46 / *      | E-6/K             |                 |
| RTI, electrical                             |             |                   | UL 746B         |
| 30mil                                       | 120 / *     | °C                |                 |
| 60mil                                       | 120 / *     | °C                |                 |
| 120mil                                      | 120         | °C                |                 |

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

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|                                      |                                     |                             |                      |
|--------------------------------------|-------------------------------------|-----------------------------|----------------------|
| RTI, impact                          |                                     |                             | UL 746B              |
| 30mil                                | 65                                  | °C                          |                      |
| 60mil                                | 95 / *                              | °C                          |                      |
| 120mil                               | 105                                 | °C                          |                      |
| RTI, strength                        |                                     |                             | UL 746B              |
| 30mil                                | 85                                  | °C                          |                      |
| 60mil                                | 105 / *                             | °C                          |                      |
| 120mil                               | 105                                 | °C                          |                      |
| <b>Flammability</b>                  | <b>dry / cond</b>                   | <b>Unit</b>                 | <b>Test Standard</b> |
| Burning Behav. at 60mil nom. thickn. | HB / *                              | class                       | IEC 60695-11-10      |
| Thickness tested                     | 1.5 / *                             | mm                          | IEC 60695-11-10      |
| UL recognition                       | yes / *                             | -                           | UL 94                |
| Burning Behav. at thickness h        | HB / *                              | class                       | IEC 60695-11-10      |
| Thickness tested                     | 0.75 / *                            | mm                          | IEC 60695-11-10      |
| UL recognition                       | yes / *                             | -                           | UL 94                |
| Flammability, 3.0mm                  | HB / *                              | -                           | IEC 60695-11-10      |
| FMVSS Class                          | B                                   | -                           | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm         | <100                                | mm/min                      | ISO 3795 (FMVSS 302) |
| <b>Electrical properties</b>         | <b>dry / cond</b>                   | <b>Unit</b>                 | <b>Test Standard</b> |
| Comparative tracking index           | 580 / -                             | -                           | IEC 60112            |
| <b>Other properties</b>              | <b>dry / cond</b>                   | <b>Unit</b>                 | <b>Test Standard</b> |
| Density                              | 1190 / -                            | kg/m <sup>3</sup>           | ISO 1183             |
| <b>Injection</b>                     | <b>dry / cond</b>                   | <b>Unit</b>                 | <b>Test Standard</b> |
| Drying Recommended                   | yes                                 | -                           | -                    |
| Drying Temperature                   | ≥80                                 | °C                          | -                    |
| Drying Time, Dehumidified Dryer      | 2 - 4                               | h                           | -                    |
| Processing Moisture Content          | ≤0.2                                | %                           | -                    |
| Melt Temperature Optimum             | 295                                 | °C                          | -                    |
| Min. melt temperature                | 285                                 | °C                          | -                    |
| Max. melt temperature                | 305                                 | °C                          | -                    |
| Max. screw tangential speed          | 0.2 / *                             | m/s                         | -                    |
| Mold Temperature Optimum             | 80                                  | °C                          | -                    |
| Min. mold temperature                | 50                                  | °C                          | -                    |
| Max. mold temperature                | 100                                 | °C                          | -                    |
| Hold pressure range                  | 50 - 100                            | MPa                         | -                    |
| Hold pressure time                   | 3                                   | s/mm                        | -                    |
| Ejection temperature                 | 210                                 | °C                          | -                    |
| <b>Characteristics</b>               |                                     |                             |                      |
| Processing                           | • Injection Molding                 |                             |                      |
| Special characteristics              | • Heat stabilized or stable to heat |                             |                      |
| Regional Availability                | • North America                     | • South and Central America |                      |



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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)
- ✗ Hydrochloric Acid (36% by mass) (23 °C)
- ✗ Nitric Acid (40% by mass) (23 °C)
- ✗ Sulfuric Acid (38% by mass) (23 °C)
- ✗ Sulfuric Acid (5% by mass) (23 °C)
- ✗ Chromic Acid solution (40% by mass) (23 °C)

#### Bases

- ✗ Sodium Hydroxide solution (35% by mass) (23 °C)
- ✓ Sodium Hydroxide solution (1% by mass) (23 °C)
- ✓ Ammonium Hydroxide solution (10% by mass) (23 °C)

#### Alcohols

- ✓ Isopropyl alcohol (23 °C)
- ✓ Methanol (23 °C)
- ✓ Ethanol (23 °C)

#### Hydrocarbons

- ✓ n-Hexane (23 °C)
- ✓ Toluene (23 °C)
- ✓ iso-Octane (23 °C)

#### Ketones

- ✓ Acetone (23 °C)

#### Ethers

- ✓ Diethyl ether (23 °C)

#### Mineral oils

- ✓ SAE 10W40 multigrade motor oil (23 °C)
- ✓ SAE 10W40 multigrade motor oil (130 °C)
- ✓ SAE 80/90 hypoid-gear oil (130 °C)
- ✓ Insulating Oil (23 °C)

#### Standard Fuels

- ✓ ISO 1817 Liquid 1 - E5 (60 °C)
- ✓ ISO 1817 Liquid 2 - M15E4 (60 °C)
- ✓ ISO 1817 Liquid 3 - M3E7 (60 °C)
- ✓ ISO 1817 Liquid 4 - M15 (60 °C)
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23 °C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23 °C)

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- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)

### Salt solutions

- ✓ Sodium Chloride solution (10% by mass) (23°C)
- ✗ Sodium Hypochlorite solution (10% by mass) (23°C)
- ✓ Sodium Carbonate solution (20% by mass) (23°C)
- ✓ Sodium Carbonate solution (2% by mass) (23°C)
- ✗ Zinc Chloride solution (50% by mass) (23°C)

### Other

- ✓ Ethyl Acetate (23°C)
- ✗ Hydrogen peroxide (23°C)
- ✓ DOT No. 4 Brake fluid (130°C)
- ✓ Ethylene Glycol (50% by mass) in water (108°C)
- ✓ 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C)
- ✓ 50% Oleic acid + 50% Olive Oil (23°C)
- ✓ Water (23°C)
- ✗ Water (90°C)
- ✗ Phenol solution (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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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