# Zytel® 70G30HSLR BK186LM

## NYLON RESIN

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 (-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® 70G30HSLR BK186LM is a 30% Glass Reinforced, Heat Stabilized, Hydrolysis Resistant and Laser Markable Polyamide 66

## Product information

| | | |
|---|---|---|
| Resin Identification | PA66-GF30 | ISO 1043 |
| Part Marking Code | >PA66-GF30< | ISO 11469 |
| ISO designation | ISO 16396-PA66,GF30,M1CGHO2RW,S14-100 | |

## Rheological properties

| | dry/cond. | | |
|---|---|---|---|
| Viscosity number | 4150 / * | in³/lb | ISO 307, 1628 |
| Molding shrinkage, parallel | 0.3 / - | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 1.0 / - | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | dry/cond. | | |
|---|---|---|---|
| Tensile modulus | 1.45E6 / 1.02E6 | psi | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 27600 / 18900 | psi | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 3 / 5 | % | ISO 527-1/-2 |
| Flexural modulus | 1.31E6 / 943000 | psi | ISO 178 |
| Flexural strength | 40600 / 29000 | psi | ISO 178 |
| Charpy impact strength, 23°C | 30.9 / 38.1 | ftlb/in² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 4.76 / 5.71 | ftlb/in² | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 3.81 / - | ftlb/in² | ISO 179/1eA |
| Izod notched impact strength, 23°C | 4.76 / 5.71 | ftlb/in² | ISO 180/1A |

## Thermal properties

| | dry/cond. | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 504 / * | °F | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | 167 / 68 | °F | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 487 / * | °F | ISO 75-1/-2 |
| Thermal conductivity of melt | 0.22 | W/(m K) | ISO 22007-2 |
| Specific heat capacity of melt | 2220 | J/(kg K) | ISO 22007-4 |
| RTI, electrical, 0.75mm | 284 | °F | UL 746B |
| RTI, electrical, 1.5mm | 284 | °F | UL 746B |
| RTI, electrical, 3.0mm | 284 | °F | UL 746B |
| RTI, impact, 0.75mm | 257 | °F | UL 746B |
| RTI, impact, 1.5mm | 257 | °F | UL 746B |
| RTI, impact, 3.0mm | 257 | °F | UL 746B |

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| | | | |
|---|---|---|---|
| RTI, strength, 0.75mm | 284 | °F | UL 746B |
| RTI, strength, 1.5mm | 284 / * | °F | UL 746B |
| RTI, strength, 3.0mm | 284 | °F | UL 746B |

## Flammability

| | dry/cond. | | |
|---|---|---|---|
| Burning Behav. at 1.5mm nom. thickn. | HB / * | class | IEC 60695-11-10 |
| Thickness tested | 0.0591 / * | in | IEC 60695-11-10 |
| UL recognition | yes / * | | UL 94 |
| Burning Behav. at thickness h | HB / * | class | IEC 60695-11-10 |
| Thickness tested | 0.0295 / * | in | IEC 60695-11-10 |
| UL recognition | yes / * | | UL 94 |
| Oxygen index | 24 / * | % | ISO 4589-1/-2 |
| Hot Wire Ignition, 0.75mm | 7 / * | s | UL 746A |
| Hot Wire Ignition, 1.5mm | 7 / * | s | UL 746A |
| Hot Wire Ignition, 3mm | 60 / * | s | UL 746A |
| FMVSS Class | B | | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | <80 | in/min | ISO 3795 (FMVSS 302) |

## Electrical properties

| | dry/cond. | | |
|---|---|---|---|
| Comparative tracking index | 400 / - | | IEC 60112 |
| High Amperage Arc Ignition Resistance, 0.75 mm | 120 / * | arcs | UL 746A |
| High Amperage Arc Ignition Resistance, 1.5 mm | 120 / * | arcs | UL 746A |
| High Amperage Arc Ignition Category, 1.5 mm | 120 / * | class | UL 746A |

## Physical/Other properties

| | dry/cond. | | |
|---|---|---|---|
| Density | 0.0495 / - | $lb/in^3$ | ISO 1183 |
| Density of melt | 74.9 | $lb/ft^3$ | |

## Injection

| | | |
|---|---|---|
| Drying Recommended | yes | |
| Drying Temperature | 176 | °F |
| Drying Time, Dehumidified Dryer | 2 - 4 | h |
| Processing Moisture Content | ≤0.2 | % |
| Melt Temperature Optimum | 563 | °F |
| Min. melt temperature | 545 | °F |
| Max. melt temperature | 581 | °F |
| Max. screw tangential speed | ≤0.2 | m/s |
| Mold Temperature Optimum | 212 | °F |
| Min. mold temperature | 158 | °F |
| Max. mold temperature | 248 | °F |
| Hold pressure range | 7250 - 14500 | psi |
| Hold pressure time | 0.0762 | s/mil |
| Hold Pressure Time<br>(h is the max. wall thickness of the part in mm) | $h^2+2$ | s |

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## Automotive

| OEM | STANDARD |
|---|---|
| Bosch | N28 BN02-GF053 |
| Ford | WSS-M4D752-B1 |
| Geely | Q/JL J124010-2019 |
| Hyundai | MS211-47 Type A-2-3 |
| Mercedes-Benz | DBL5406.21 PA66 GF30 |
| Mercedes-Benz | DBL5406.22 PA66 GF30 |
| Mercedes-Benz | DBL5408.45 PA66 GF30 |
| Mercedes-Benz | DBL5409.24 PA66 GF30 |
| Renault-Nissan | UB20a, No Spec, Special Part Approval, See Your CE Account Manager. |
| VW Group | TL 520 62 PA66-GF30 |
| VW Group | TL 526 82 PA66-GF30 |
| VW Group | VW 50127 PA66-7 |
| VW Group | VW 50133 PA66-6-A |

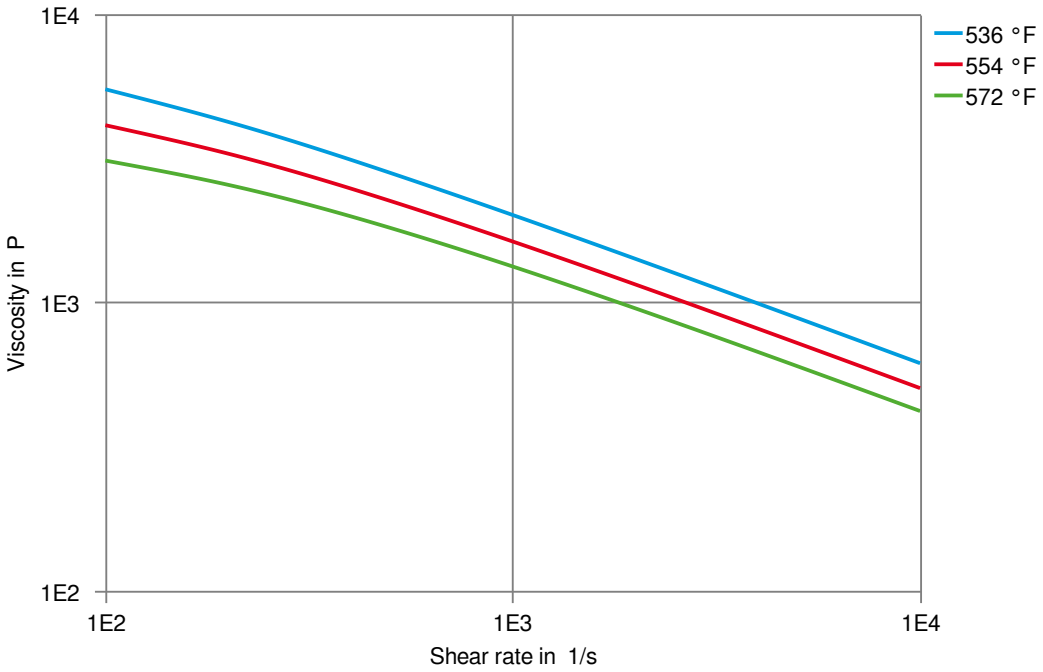
## Characteristics

| | |
|---|---|
| Processing | Injection Molding |
| Additives | Release agent |
| Special characteristics | Heat stabilized or stable to heat, Hydrolysis resistant, Laser Markable |

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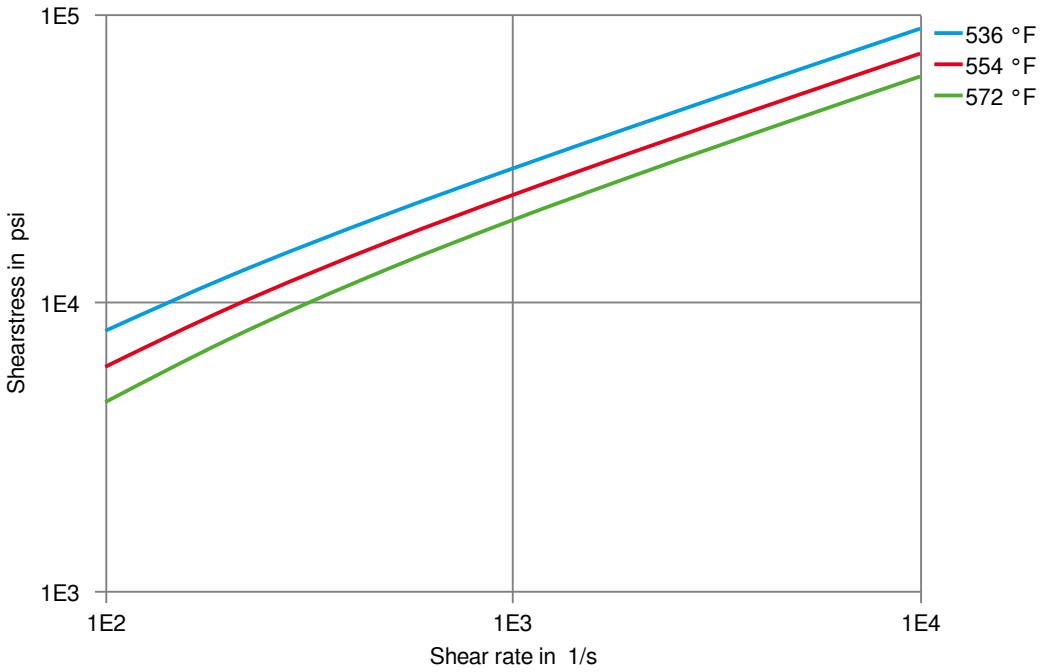
## Viscosity-shear rate



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## Shearstress-shear rate



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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
- ✔ Motor oil OS206 304 Ref.Eng.Oil, ISP, 135°C
- ✔ Automatic hypoid-gear oil Shell Donax TX, 135°C
- ✔ Hydraulic oil Pentosin CHF 202, 125°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
- ✔ 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

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## 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
- ✔ DOT No. 4 Brake fluid, 120°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
- ✔ Coolant Glysantin G48, 1:1 in water, 125°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).



Revised: 2025-06-11 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. Colorants or other additives may cause significant variations in data values. Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing 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, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.
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