# Zytel® FG70G30HSR2 BK309

NYLON RESIN

Zytel® FG70G30HSR2 BK309 is a 30% Glass Reinforced, Heat Stabilized, Polyamide 66

## Product information

| | | |
|---|---|---|
| Resin Identification | PA66-GF30 | ISO 1043 |
| Part Marking Code | >PA66-GF30< | ISO 11469 |
| ISO designation | ISO 16396-PA66,GF30,M1CGHRW,S14-100 | |

## Rheological properties

| | dry/cond. | | |
|---|---|---|---|
| Viscosity number | 4370 / * | in³/lb | ISO 307, 1628 |
| Molding shrinkage, parallel | 0.2 / - | % | 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 | 29000 / 18900 | psi | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 3.3 / 5 | % | ISO 527-1/-2 |
| Charpy impact strength, 23°C | 33.3 / 38.1 | ftlb/in² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 5.71 / 7.14 | ftlb/in² | ISO 179/1eA |

## Thermal properties

| | dry/cond. | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 505 / * | °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 | 482 / * | °F | ISO 75-1/-2 |
| Temperature of deflection under load, 0.45 MPa | 500 / * | °F | ISO 75-1/-2 |
| Vicat softening temperature, 50°C/h 50N | 408 / * | °F | ISO 306 |
| Coefficient of linear thermal expansion (CLTE), parallel | 0.16 / * | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal | 0.528 / * | E-4/°F | ISO 11359-1/-2 |
| Thermal conductivity of melt | 0.22 | W/(m K) | ISO 22007-2 |
| Effective thermal diffusivity, flow | 6.85E-8 | m²/s | ISO 22007-4 |
| Specific heat capacity of melt | 2220 | J/(kg K) | ISO 22007-4 |
| RTI, electrical, 0.75mm | 266 | °F | UL 746B |
| RTI, electrical, 1.5mm | 266 | °F | UL 746B |
| RTI, electrical, 3.0mm | 266 | °F | UL 746B |
| RTI, impact, 0.75mm | 248 | °F | UL 746B |
| RTI, impact, 1.5mm | 248 | °F | UL 746B |
| RTI, impact, 3.0mm | 248 | °F | UL 746B |
| RTI, strength, 0.75mm | 266 | °F | UL 746B |
| RTI, strength, 1.5mm | 266 / * | °F | UL 746B |
| RTI, strength, 3.0mm | 266 | °F | UL 746B |

# Zytel® FG70G30HSR2 BK309

NYLON RESIN

## 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 | 0.0280 / * | in | IEC 60695-11-10 |
| UL recognition | yes / * | | UL 94 |
| Oxygen index | 24 / * | % | ISO 4589-1/-2 |
| FMVSS Class | B | | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | <80 | in/min | ISO 3795 (FMVSS 302) |

## Electrical properties

| | dry/cond. | | |
|---|---|---|---|
| Volume resistivity | >1E13 / - | Ohm.m | IEC 62631-3-1 |
| Surface resistivity | * / 1E13 | Ohm | IEC 62631-3-2 |

## Physical/Other properties

| | dry/cond. | | |
|---|---|---|---|
| Density | 0.0495 / - | lb/in³ | ISO 1183 |
| Density of melt | 74.9 | lb/ft³ | |

## 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 | 122 | °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 |
| Ejection temperature | 410 | °F |

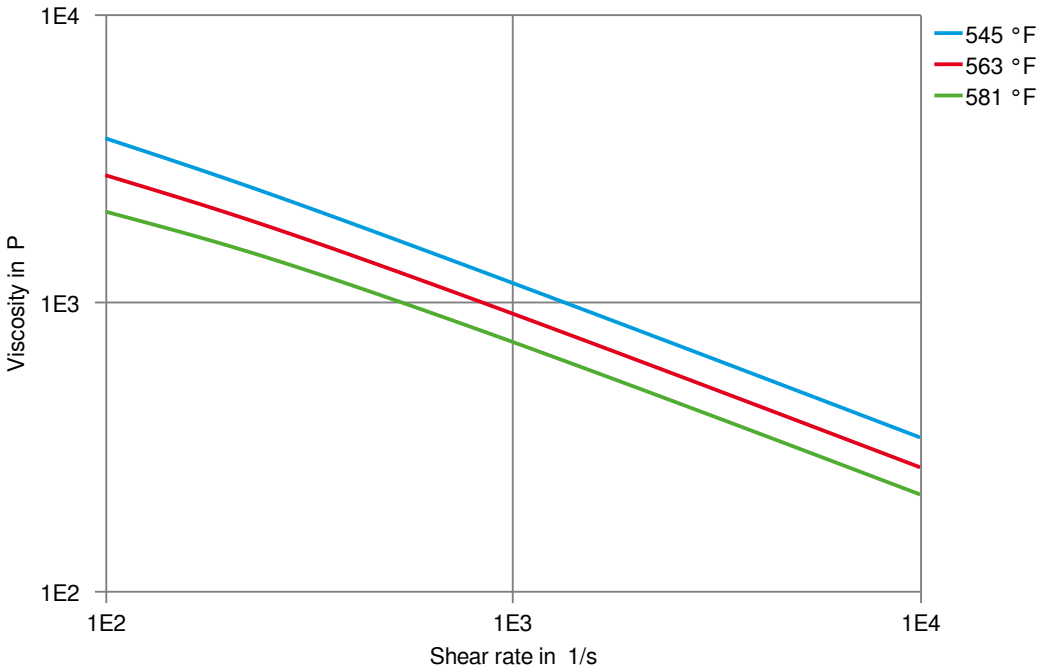
## Characteristics

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

# Zytel® FG70G30HSR2 BK309

NYLON RESIN

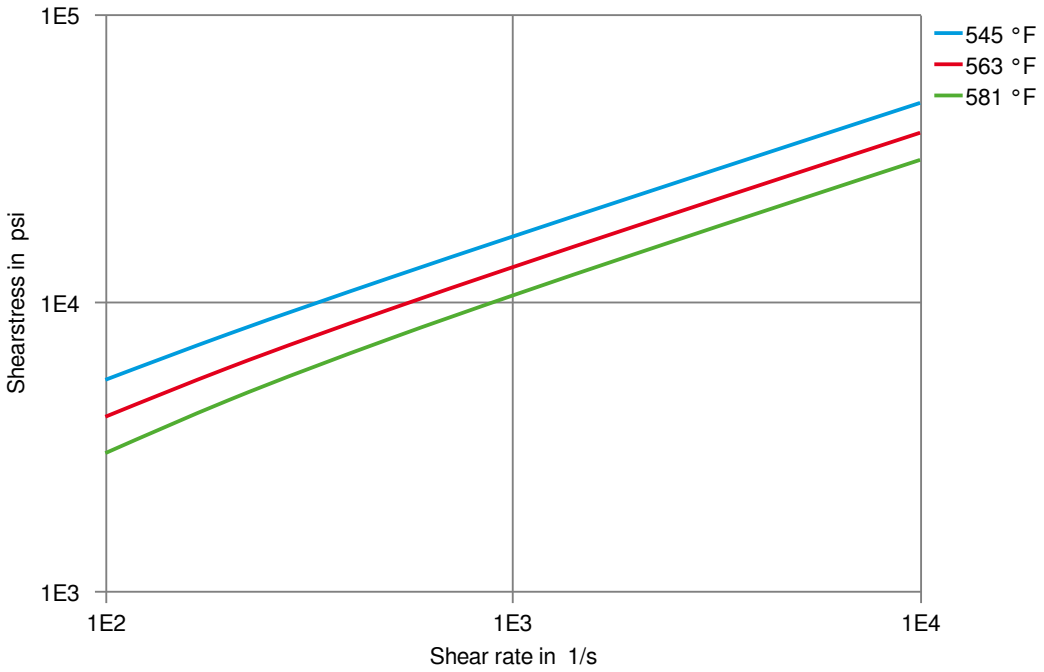
## Viscosity-shear rate



# Zytel® FG70G30HSR2 BK309

NYLON RESIN

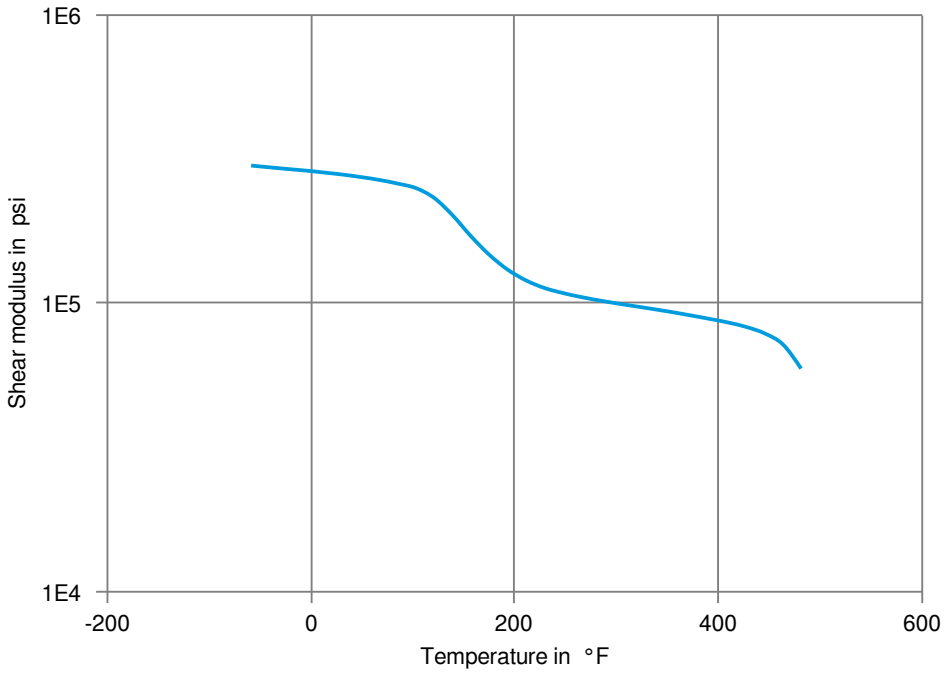
## Shearstress-shear rate



# Zytel® FG70G30HSR2 BK309

NYLON RESIN

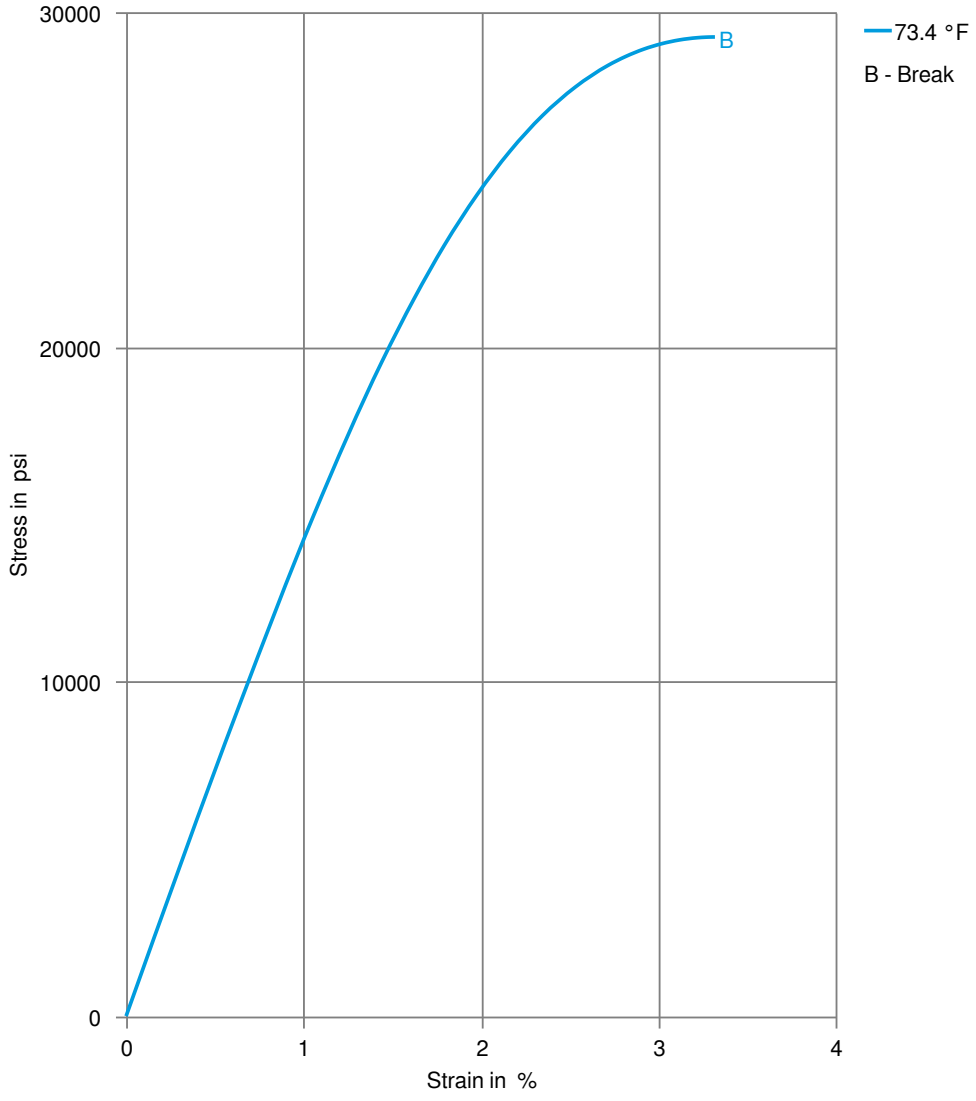
## Dynamic Shear modulus-temperature (dry)



# Zytel® FG70G30HSR2 BK309

NYLON RESIN

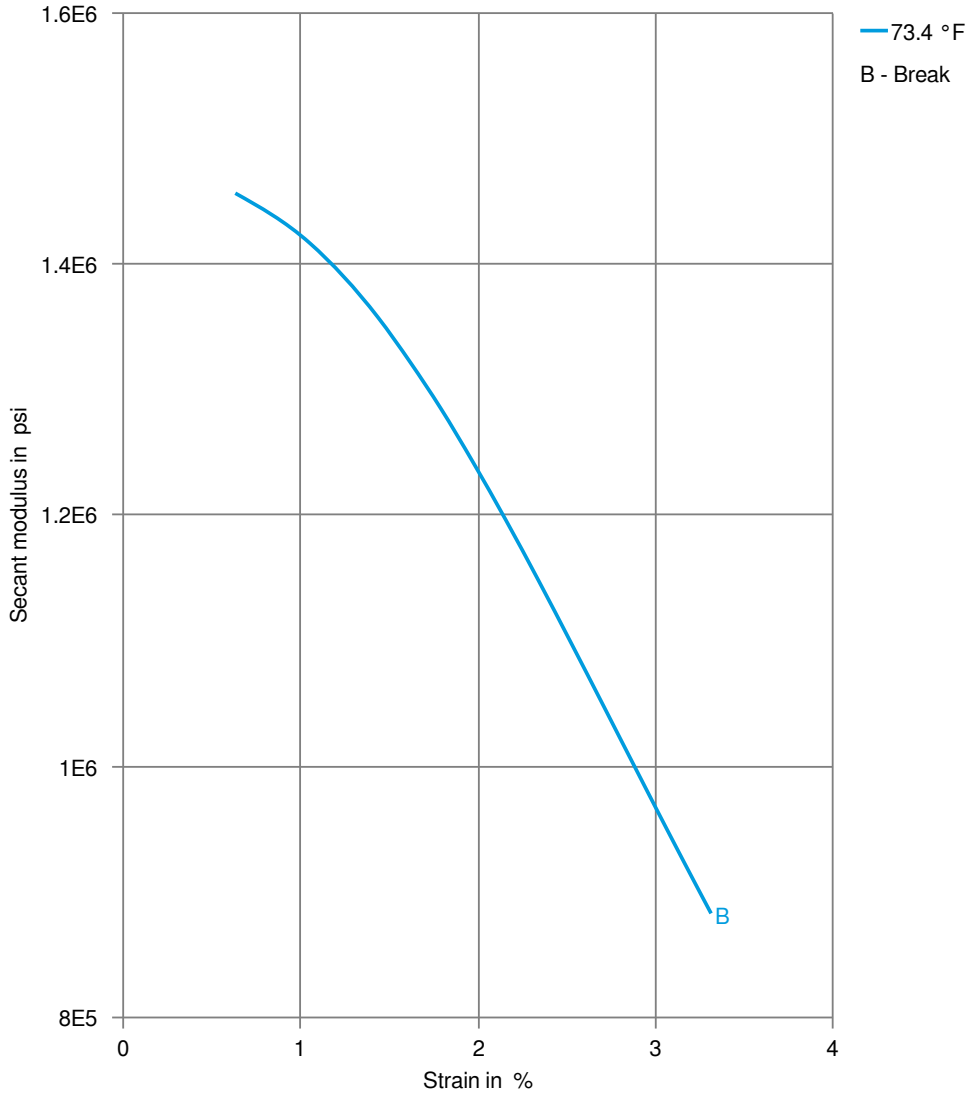
## Stress-strain (dry)
(measured on Zytel® 70G30HSR2 BK309)



# Zytel® FG70G30HSR2 BK309

NYLON RESIN

## Secant modulus-strain (dry)
(measured on Zytel® 70G30HSR2 BK309)



# Zytel® FG70G30HSR2 BK309

NYLON RESIN

## 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

- ✔ Insulating Oil, 23°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
- ✔ 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

# Zytel® FG70G30HSR2 BK309

## NYLON RESIN

**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: 2025-04-23 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.
Copyright © 2026 Celanese or its affiliates. All rights reserved.
Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates.