Celanese
The chemistry inside innovation™

# CELANEX® 3216

## CELANEX® PBT

Celanex 3216 is a non-exuding (UL and CSA approved V-0 at 1/32 inch and 5V at 1/8 inch ),15% fiberglass reinforced polybutylene terephthalate which has an excellent balance of mechanical properties and processability. It is well suited for electrical connector applications where its UL approved 50% regrind use capability allows maximum use of purchased product.

## Product information

| | | |
|---|---|---|
| Resin Identification | PBT-GF15 FR(17) | ISO 1043 |
| Part Marking Code | >PBT-GF15 FR(17)< | ISO 11469 |

## Rheological properties

| | | | |
|---|---|---|---|
| Melt volume-flow rate | 9 | $cm^3$/10min | ISO 1133 |
| Temperature | 482 | °F | |
| Load | 4.76 | lb | |
| Melt mass-flow rate | 12 | g/10min | ISO 1133 |
| Melt mass-flow rate, Temperature | 482 | °F | |
| Melt mass-flow rate, Load | 4.76 | lb | |
| Molding shrinkage range, parallel | 0.5 - 0.7 | % | ISO 294-4, 2577 |
| Molding shrinkage range, normal | 0.9 - 1.2 | % | ISO 294-4, 2577 |

## Typical mechanical properties

| | | | |
|---|---|---|---|
| Shore D hardness, 15s | 82 | | ISO 48-4 / ISO 868 |
| Tensile modulus | 972000 | psi | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 14500 | psi | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 3 | % | ISO 527-1/-2 |
| Flexural modulus | 870000 | psi | ISO 178 |
| Flexural strength | 22500 | psi | ISO 178 |
| Charpy impact strength, 23°C | 13.3 | $ftlb/in^2$ | ISO 179/1eU |
| Charpy impact strength, -30°C | 13.3 | $ftlb/in^2$ | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 2.85 | $ftlb/in^2$ | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 2.85 | $ftlb/in^2$ | ISO 179/1eA |
| Izod notched impact strength, 23°C | 2.62 | $ftlb/in^2$ | ISO 180/1A |
| Hardness, Rockwell, M-scale | 87 | | ISO 2039-2 |
| Poisson's ratio | 0.41 | | |

## Thermal properties

| | | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 437 | °F | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | 140 | °F | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 369 | °F | ISO 75-1/-2 |
| Temperature of deflection under load, 0.45 MPa | 423 | °F | ISO 75-1/-2 |
| Temperature of deflection under load, 8 MPa | 203 | °F | ISO 75-1/-2 |
| Vicat softening temperature, 50°C/h 50N | 403 | °F | ISO 306 |
| Coefficient of linear thermal expansion (CLTE), parallel | 0.20 | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal | 0.556 | E-4/°F | ISO 11359-1/-2 |

# CELANEX® 3216

CELANEX® PBT

## Flammability

| | | | |
|---|---|---|---|
| Burning Behav. at thickness h | V-0 | class | IEC 60695-11-10 |
| Thickness tested | 0.0150 | in | IEC 60695-11-10 |
| UL recognition | yes | | UL 94 |
| Burning Behav. 5V at thickness h | 5VA | class | IEC 60695-11-20 |
| Thickness tested | 0.1181 | in | IEC 60695-11-20 |
| Oxygen index | 29.5 | % | ISO 4589-1/-2 |

## Electrical properties

| | | | |
|---|---|---|---|
| Relative permittivity, 100Hz | 3.7 | | IEC 62631-2-1 |
| Relative permittivity, 1MHz | 3.5 | | IEC 62631-2-1 |
| Dissipation factor, 100Hz | 33 | E-4 | IEC 62631-2-1 |
| Dissipation factor, 1MHz | 160 | E-4 | IEC 62631-2-1 |
| Volume resistivity | 1E13 | Ohm.m | IEC 62631-3-1 |
| Surface resistivity | 1E15 | Ohm | IEC 62631-3-2 |
| Electric strength | 762 | kV/in | IEC 60243-1 |
| Comparative tracking index | 250 | | IEC 60112 |
| Arc Resistance | 79 | s | UL 746B |

## Physical/Other properties

| | | | |
|---|---|---|---|
| Humidity absorption, 2mm | 0.17 | % | Sim. to ISO 62 |
| Water absorption, 2mm | 0.4 | % | Sim. to ISO 62 |
| Water absorption, Immersion 24h | 0.05 | % | Sim. to ISO 62 |
| Density | 0.0556 | lb/in$^3$ | ISO 1183 |

## Emissions

| | | | |
|---|---|---|---|
| Emission of organic compounds | 25 | µgC/g | VDA 277 |

## Injection

| | | |
|---|---|---|
| Drying Recommended | yes | |
| Drying Temperature | 248 | °F |
| Drying Time, Dehumidified Dryer | 4 | h |
| Processing Moisture Content | ≤0.02 | % |
| Melt Temperature Optimum | 482 | °F |
| Min. melt temperature | 464 | °F |
| Max. melt temperature | 500 | °F |
| Max. screw tangential speed | 0.1 - 0.3 | m/s |
| Mold Temperature Optimum | 176 | °F |
| Min. mold temperature | 140 | °F |
| Max. mold temperature | 266 | °F |

## Automotive

| OEM | STANDARD | ADDITIONAL INFORMATION |
|---|---|---|
| Li Auto | Q/LiA5310038 | 2021 (V2) |
| Stellantis - Chrysler | MS.50103 / CPN-3765 | Non-matched Color |

# CELANEX® 3216

CELANEX® PBT

## Characteristics

| | |
|---|---|
| Processing | Injection Molding |
| Additives | Flame retardant |
| Special characteristics | Flame retardant |

## Additional information

Injection molding

### Preprocessing

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-30°F (-34°C) at 250°F (121°C) for 4 hours..

### Processing

Rear Temperature 450-470 (230-240) deg F (deg C)
Center Temperature 460-480 (235-250) deg F (deg C)
Front Temperature 470-490 (240-255) deg F (deg C)
Nozzle Temperature 480-490 (250-255) deg F (deg C)
Melt Temperature 460-490 (235-255) deg F (deg C)
Mold Temperature 150-200 (65-93) deg F (deg C)
Back Pressure 0-50 psi
Screw Speed Medium
Injection Speed Fast

Injection speed, injection pressure and holding pressure have to be optimized to the individual article geometry. To avoid material degradation during processing low back pressure and minimum screw speed have to be used. Overheating of the material has to be avoided, in particular for flame retardant grades. Up to 50% clean and dry regrind may be used for the '16 series' flame retardant grades.

Processing Notes

### Pre-Drying

To avoid hydrolytic degradation during processing, CELANEX resins have to be dried to a moisture level equal to or less than 0.02%. Drying should be done in a dehumidifying hopper dryer capable of dewpoints <-40°F (-40°C) at 250°F (121°C) for 4 hours.

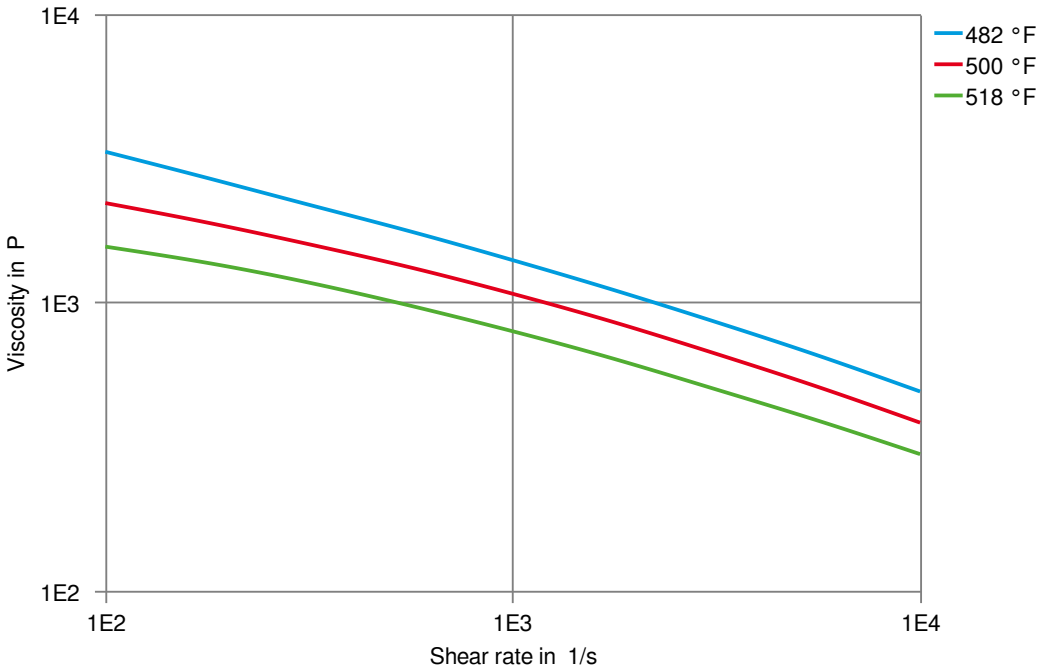
### Storage

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C.

# CELANEX® 3216

CELANEX® PBT

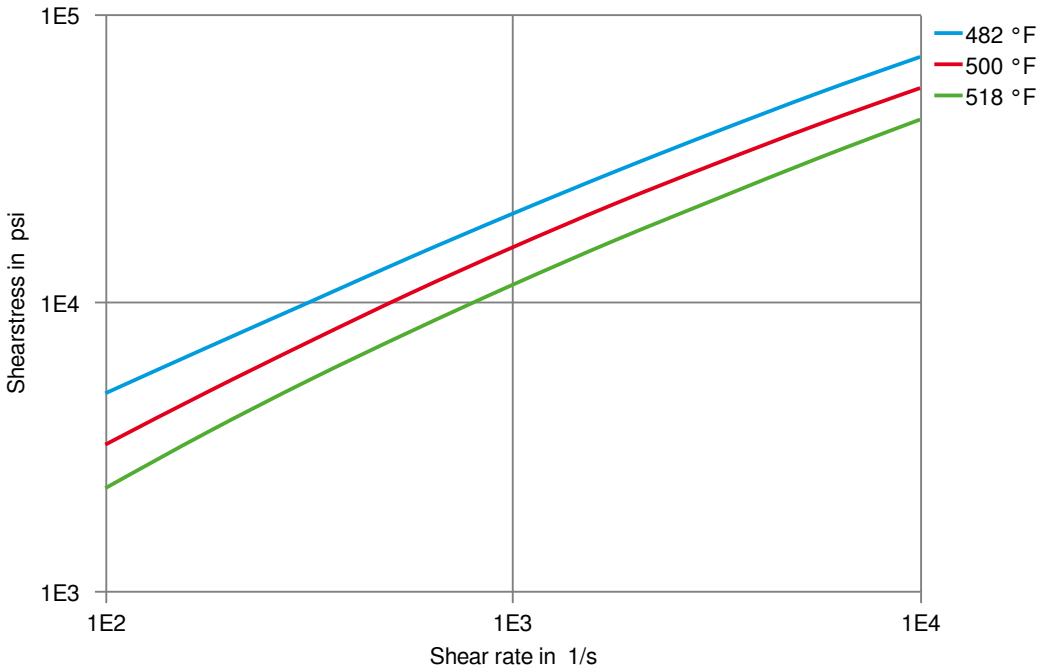
## Viscosity-shear rate



# CELANEX® 3216

CELANEX® PBT

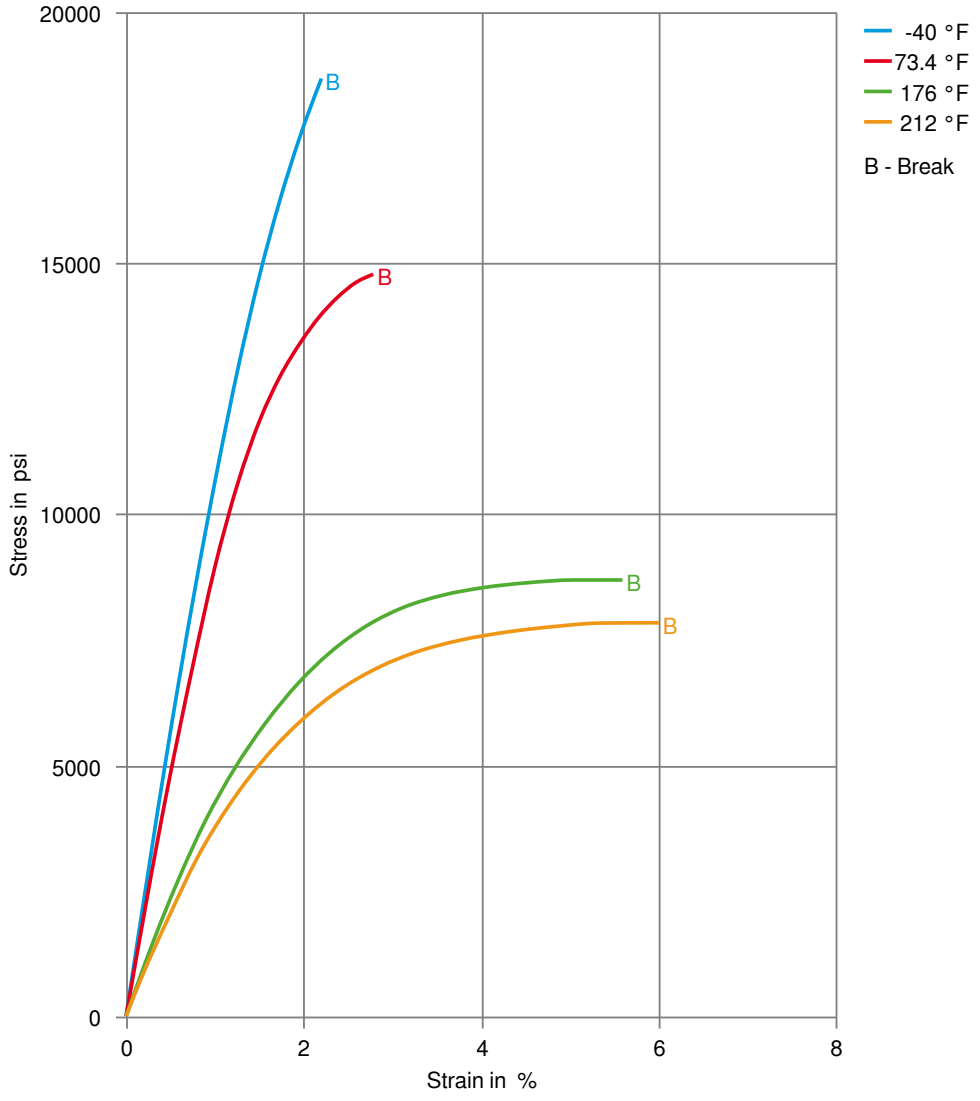
## Shearstress-shear rate



# CELANEX® 3216

CELANEX® PBT

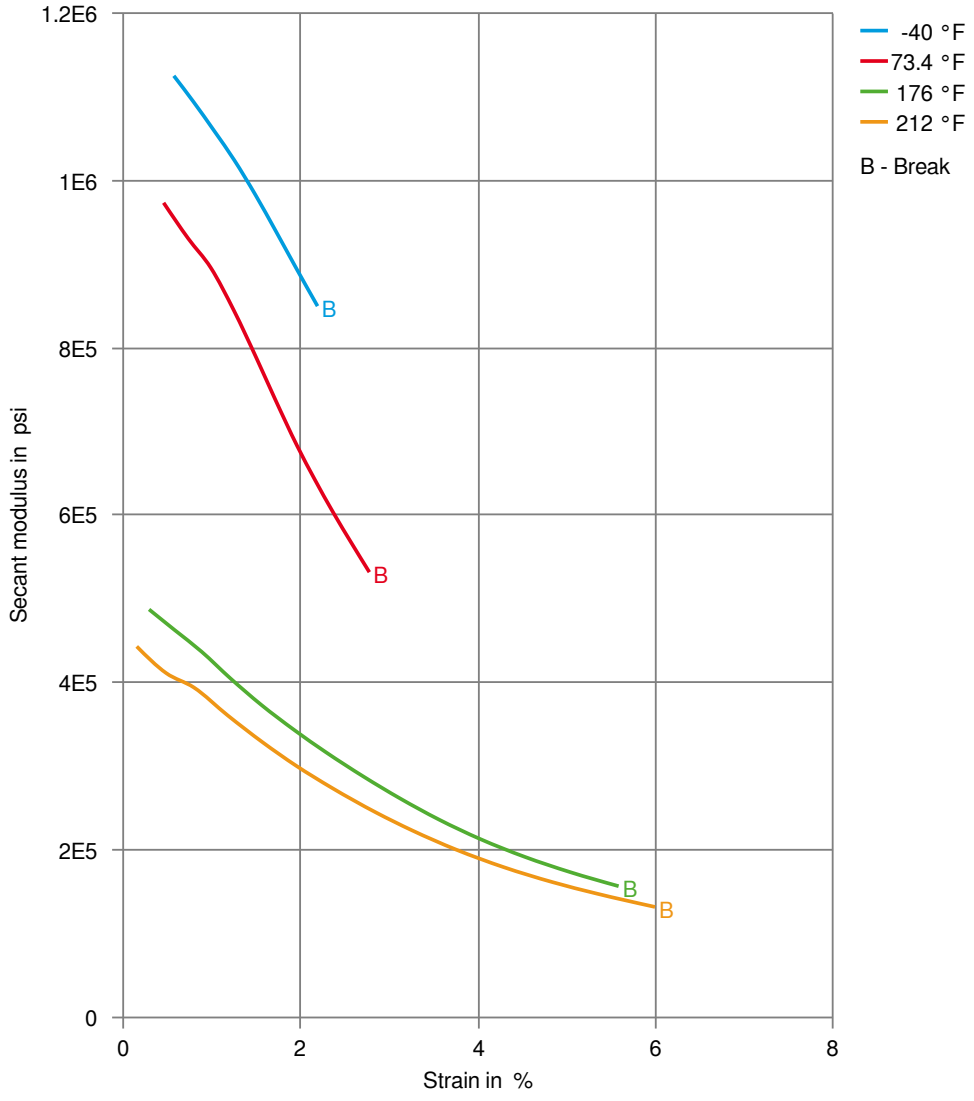
## Stress-strain



# CELANEX® 3216

## CELANEX® PBT

### Secant modulus-strain






Revised: 2026-07-15 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.