

CELANEX® 3316

30% glass-fiber reinforced, flame retardant (UL94 V-0) grade, non-exuding
 Celanex 3316 is a non-exuding flame retarded (UL and CSA approved V-0 at 1/32 inch and 5V at 1/16 inch), 30% 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

Part Marking Code	> PBT-GF30 FR(17) <	ISO 11469
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Rheological properties

Melt volume-flow rate	7 cm ³ /10min	ISO 1133
Melt mass-flow rate	12 g/10min	ISO 1133
Temperature	250 °C	
Load	2.16 kg	
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	2.16 kg	
Moulding shrinkage range, parallel	0.3 - 0.5 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.8 - 1.0 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	10700 MPa	ISO 527-1/-2
Stress at break, 5mm/min	135 MPa	ISO 527-1/-2
Strain at break, 5mm/min	2.5 %	ISO 527-1/-2
Flexural Modulus	10300 MPa	ISO 178
Flexural Strength	200 MPa	ISO 178
Charpy impact strength, 23°C	59 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	42 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	8.5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	8.5 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	7.7 kJ/m ²	ISO 180/1A
Hardness, Rockwell, M-scale	89	ISO 2039-2
Shore D hardness, 15s	85	ISO 48-4 / ISO 868

Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	208 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	220 °C	ISO 75-1/-2
Temp. of deflection under load, 8 MPa	165 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	225 °C	ISO 306
Coeff. of linear therm. expansion, parallel	25 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	80 E-6/K	ISO 11359-1/-2

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Flammability

Burning Behav. at thickness h	V-0 class	UL 94
Thickness tested	0.38 mm	UL 94
Burning Behav. 5V at thickness h	5VA class	UL 94
Thickness tested	1.5 mm	UL 94
Oxygen index	30 %	ISO 4589-1/-2

Electrical properties

Relative permittivity, 100Hz	3.6	IEC 62631-2-1
Relative permittivity, 1MHz	2.9	IEC 62631-2-1
Dissipation factor, 100Hz	33 E-4	IEC 62631-2-1
Dissipation factor, 1MHz	145 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	34 kV/mm	IEC 60243-1
Comparative tracking index	PLC 2 PLC	UL 746A

Other properties

Humidity absorption, 2mm	0.16 %	Sim. to ISO 62
Water absorption, 2mm	0.4 %	Sim. to ISO 62
Density	1660 kg/m³	ISO 1183

VDA Properties

Emission of organic compounds	15.5 µgC/g	VDA 277
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Injection

Drying Temperature	120 - 130 °C
Drying Time, Dehumidified Dryer	4 h
Processing Moisture Content	0.02 %
Max. mould temperature	65 - 93 °C
Injection speed	medium-fast

Characteristics

Additives	Flame retardant
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Additional information

Injection molding	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

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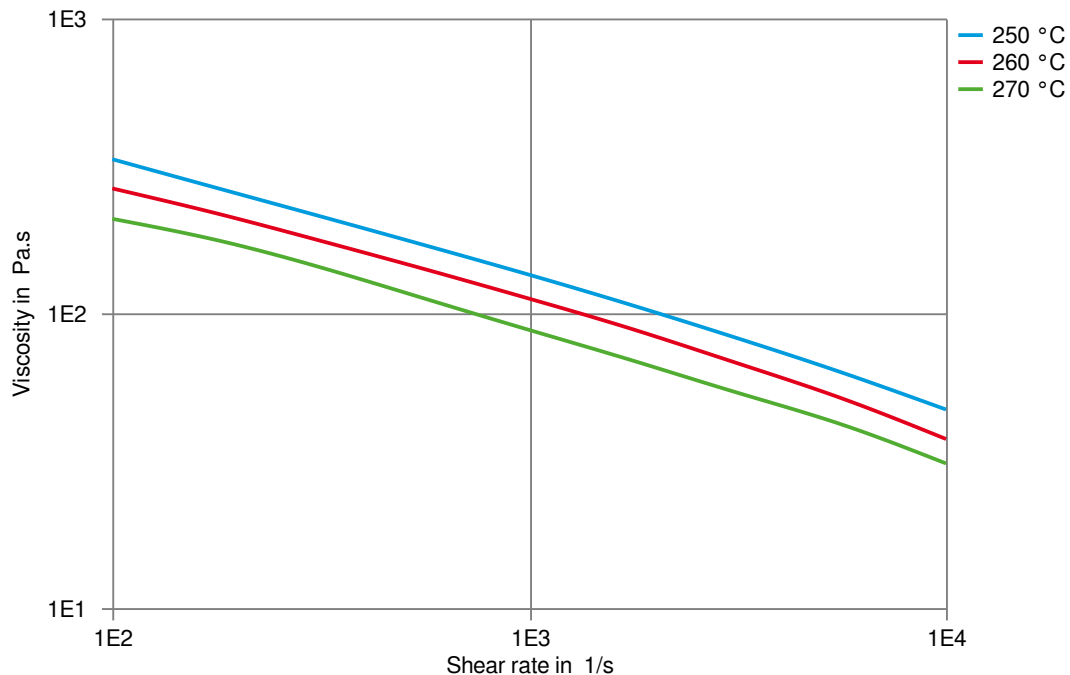


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Screw Speed Medium
Injection Speed Fast

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.

Viscosity-shear rate

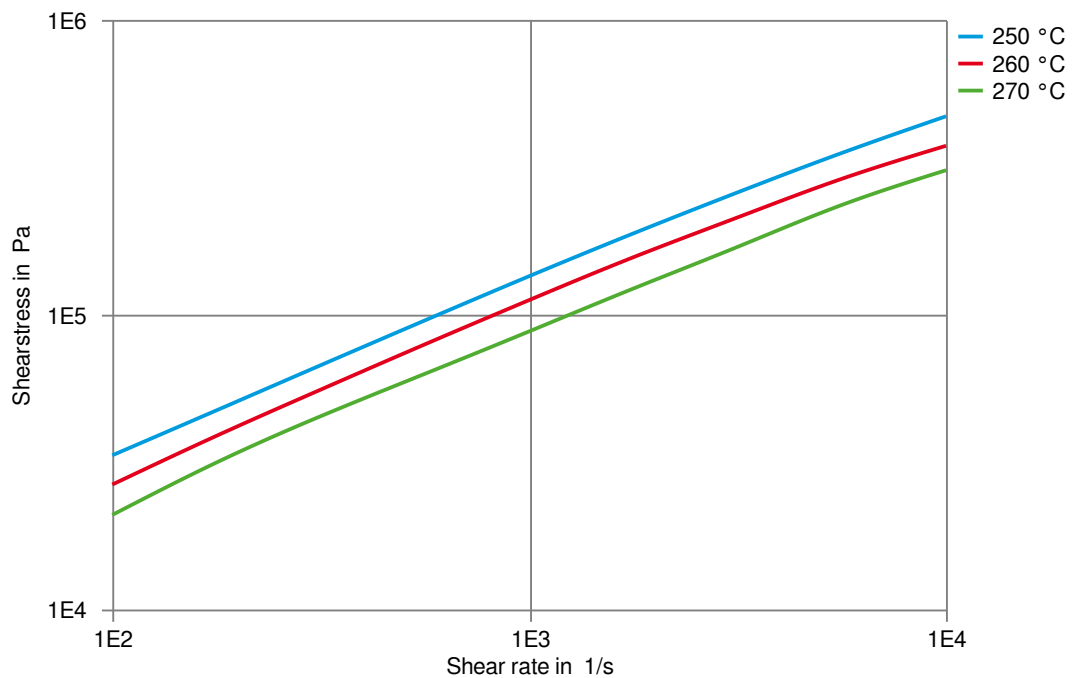


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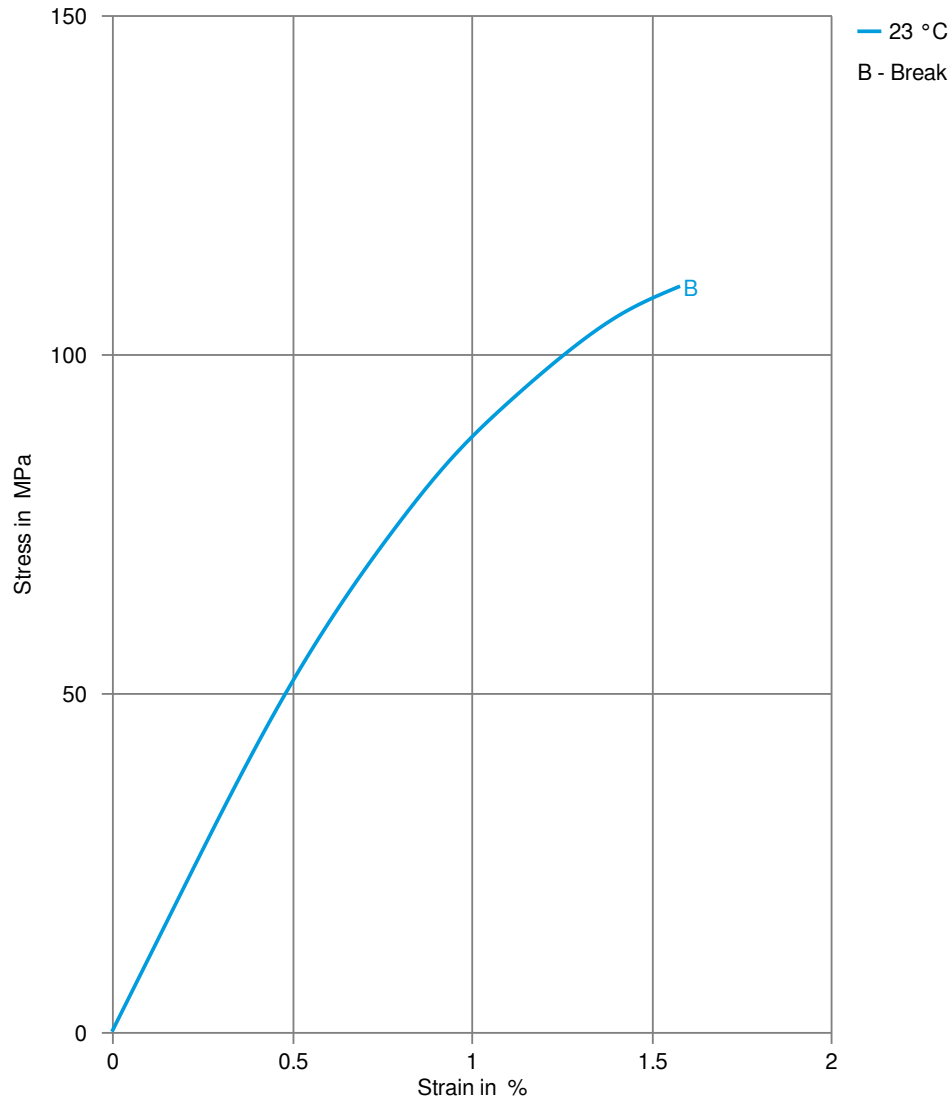
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Shearstress-shear rate



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Stress-strain

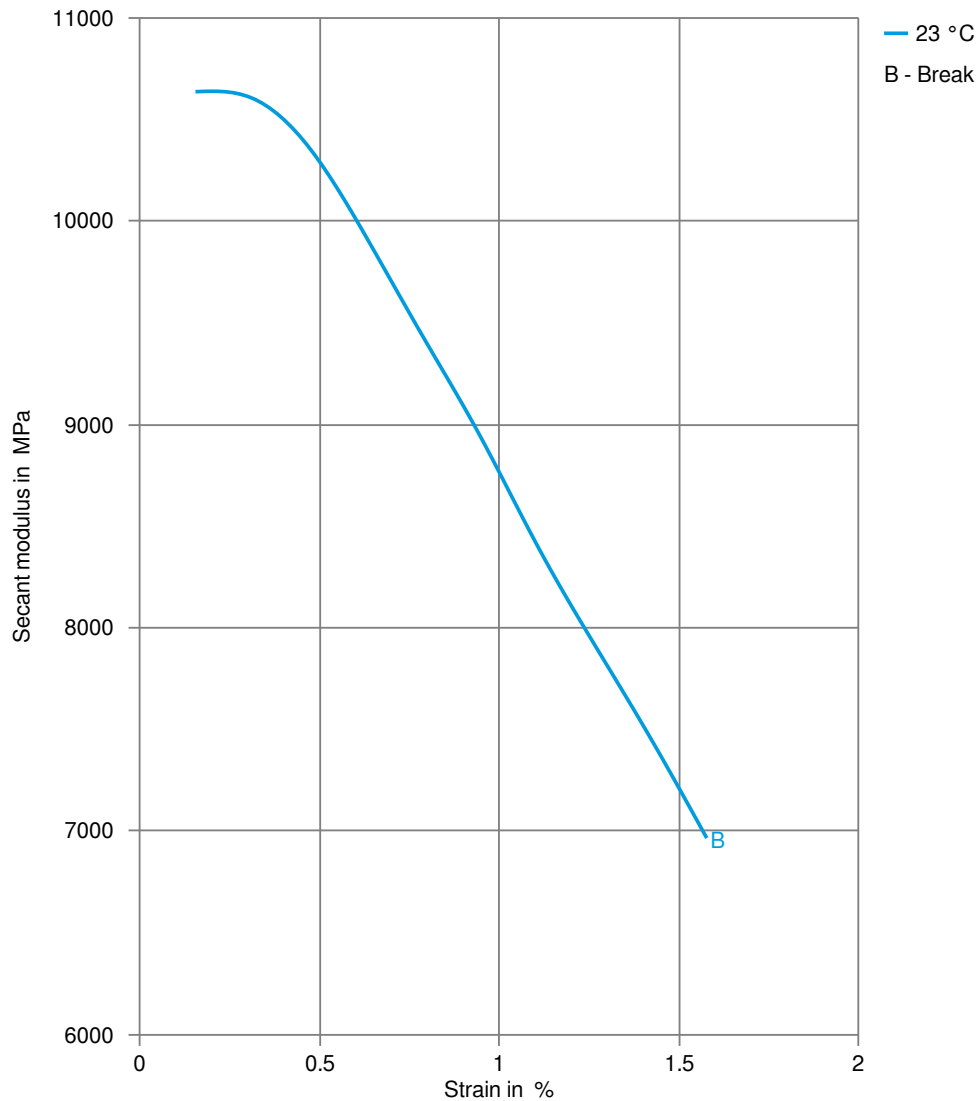


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Secant modulus-strain



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Processing Texts

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.

Longer pre-drying times/storage

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

Injection molding

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 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.

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..

Other Approvals

Other Approvals

OEM	Specification	Additional Information
Stellantis - Chrysler	CPN 2253	Black
GM	GMW16733P-PBT-GF30F	
Li Auto	Q/LiA5310038	2021 (V2)
Stellantis - PSA Group	X62 3902	
Renault		No spec listed
SAIC Motor	SMTC 5 310 055	ED3002 Black

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