

CELANEX® 7716

35% glass-fiber / mineral filled, flame retardant (UL94 V-0) low warp grade, non-exuding

Celanex 7716 is a 35% glass/mineral reinforced, non exuding, flame retarded polybutylene terephthalate which has and excellent balance of mechanical properties and processability. Celanex 7716 is well suited for electrical applications where warp resistance or very flat surfaces are required.

Product information

Part Marking Code

> PBT-(GF+MD)35 FR(17) <

ISO 11469

Rheological properties

Melt mass-flow rate	6.3 g/10min	ISO 1133
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	2.16 kg	
Moulding shrinkage range, parallel	0.2 - 0.5 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.6 - 0.8 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	10800 MPa	ISO 527-1/-2
Stress at break, 5mm/min	83 MPa	ISO 527-1/-2
Strain at break, 5mm/min	1.6 %	ISO 527-1/-2
Flexural Modulus	11600 MPa	ISO 178
Flexural Strength	140 MPa	ISO 178
Charpy impact strength, 23°C	22 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	21 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	5 kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	4.9 kJ/m ²	ISO 180/1A
Izod notched impact strength, -30°C	4.5 kJ/m ²	ISO 180/1A
Izod impact strength, 23°C	19 kJ/m ²	ISO 180/1U
Shore D hardness, 15s	83	ISO 48-4 / ISO 868

Thermal properties

Melting temperature, 10°C/min	225 °C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	194 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	222 °C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	31 E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	46 E-6/K	ISO 11359-1/-2

Flammability

Burning Behav. at thickness h	V-0 class	UL 94
Thickness tested	0.80 mm	UL 94



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Electrical properties

Relative permittivity, 100Hz	4.2	IEC 62631-2-1
Relative permittivity, 1MHz	3.9	IEC 62631-2-1
Dissipation factor, 1MHz	190 E-4	IEC 62631-2-1
Volume resistivity	2E14 Ohm.m	IEC 62631-3-1
Surface resistivity	5E16 Ohm	IEC 62631-3-2
Electric strength	24 kV/mm	IEC 60243-1
Comparative tracking index	PLC 3 PLC	UL 746A

Other properties

Humidity absorption, 2mm	0.1 %	Sim. to ISO 62
Density	1690 kg/m ³	ISO 1183

Injection

Drying Temperature	120 - 130 °C	
Drying Time, Dehumidified Dryer	4 h	
Processing Moisture Content	0.02 %	
Melt Temperature Optimum	248 °C	Internal
Max. mould temperature	65 - 96 °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
	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.



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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.

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