Celanese
The chemistry inside innovation™

CELANEX® 3319 ED3002 BLACK

CELANEX® PBT

Celanex 3319 is an injection molding flame retarded, 30% fiberglass reinforced polybutylene terephthalate which has an excellent balance of mechanical properties and processability. It is well suited for electrical connector and sensor housing applications.

Product information

Resin Identification	PBT-GF30 FR(17)	ISO 1043
Part Marking Code	>PBT-GF30 FR(17)<	ISO 11469

Rheological properties

Melt volume-flow rate	3	cm^3/10min	ISO 1133
Temperature	250	°C	
Load	2.16	kg	
Moulding shrinkage range, parallel	0.5 - 0.7	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1 - 1.2	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	11500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	140	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.1	%	ISO 527-1/-2
Flexural modulus	11100	MPa	ISO 178
Flexural strength	220	MPa	ISO 178
Charpy impact strength, 23°C	50	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	8.5	kJ/m^2	ISO 179/1eA
Poisson's ratio	0.33[C]		

[C]: Calculated

Thermal properties

Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	209	°C	ISO 75-1/-2

Flammability

Burning Behav. at 1.5mm nom. thickn.	V-0	class	IEC 60695-11-10
Thickness tested	1.5	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Burning Behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.75	mm	IEC 60695-11-10
UL recognition	yes		UL 94
Glow Wire Flammability Index, 0.75mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 3.0mm	825	°C	IEC 60695-2-13

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Electrical properties

Volume resistivity	>1E13	Ohm.m	IEC 62631-3-1
Electric strength	28	kV/mm	IEC 60243-1
Comparative tracking index	225		IEC 60112

Physical/Other properties

Density	1640	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	120	°C
Drying Time, Dehumidified Dryer	4	h
Processing Moisture Content	≤0.02	%
Melt Temperature Optimum	250	°C
Min. melt temperature	240	°C
Max. melt temperature	260	°C
Screw tangential speed	0.1 - 0.3	m/s
Mold Temperature Optimum	80	°C
Min. mould temperature	60	°C
Max. mould temperature	130	°C

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
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 240-250 (deg C)
Center Temperature 245-260 (deg C)
Front Temperature 250-265 (deg C)
Nozzle Temperature 255-260 (deg C)
Melt Temperature 245-265 (deg C)
Mold Temperature 50-100 (deg C)
Back Pressure 0-50 psi
Screw Speed Medium
Injection Speed Fast

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Processing Notes

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.

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.