



IEC 60695-11-10

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ISO 4589-1/-2

UL 94

CELANEX® 3226

CELANEX® PBT

Celanex 3226 is a non-exuding, 20% glass-filled, flame retarded polybutylene terephthalate (PBT) which has an excellent balance of mechanical properties and processability. It is well suited for electrical connectors and maintains its UL ratings with up to 50% regrind.

Product information

Product information			
Resin Identification Part Marking Code	PBT-GF20 FR(17 >PBT-GF20 FR(1		
Rheological properties			
Melt volume-flow rate Temperature Load Moulding shrinkage range, parallel	250 2.16 0.3 - 0.5	kg %	ISO 1133 ISO 294-4, 2577
Moulding shrinkage range, normal	0.8 - 1.1	%	ISO 294-4, 2577
Typical mechanical properties			
Tensile modulus Tensile stress at break, 5mm/min Tensile strain at break, 5mm/min Flexural modulus Flexural strength Flexural strain at failure Charpy impact strength, 23°C Charpy impact strength, -30°C Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Ball indentation hardness, H 961/30 Poisson's ratio [C]: Calculated	115 2.5 7200 170 3 35 35 7 6.5	MPa MPa % MPa MPa % kJ/m² kJ/m² kJ/m² kJ/m²	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 178 ISO 179/1eU ISO 179/1eU ISO 179/1eA ISO 179/1eA ISO 2039-1
Thermal properties			
Melting temperature, 10 ° C/min Temperature of deflection under load, 1.8 MPa Temperature of deflection under load, 0.45 MPa Temperature of deflection under load, 8 MPa Vicat softening temperature, 50 ° C/h 50N Coefficient of linear thermal expansion (CLTE), parallel Coefficient of linear thermal expansion (CLTE), normal Flammability		°C °C °C	ISO 11357-1/-3 ISO 75-1/-2 ISO 75-1/-2 ISO 75-1/-2 ISO 306 ISO 11359-1/-2
Burning Behav. at 1.5mm nom. thickn.	V-0	class	IEC 60695-11-10
Thickness tested		mm	IEC 60695-11-10

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V-0 class

0.38 mm

30 %

yes

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Burning Behav. at thickness h

Thickness tested

UL recognition

Oxygen index





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Electrical properties

Relative permittivity, 1MHz	3.9	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	32 kV/mm	IEC 60243-1
Comparative tracking index	225	IEC 60112
Arc Resistance	87 s	UL 746B

Physical/Other properties

Humidity absorption, 2mm	0.2 %	Sim. to ISO 62
Water absorption, 2mm	0.4 %	Sim. to ISO 62
Density	1600 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 Release agent, Flame retardant

Special characteristics Flame retardant, Heat stabilised or stable to heat

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 $^{\circ}$ F (-34 $^{\circ}$ C) at 250 $^{\circ}$ F (121 $^{\circ}$ 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 470-500(240-260) deg F (deg C)

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Nozzle Temperature 480-500(250-260) deg F (deg C) Melt Temperature 460-500(235-260) 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 25% clean and dry regrind may be used.

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.

Automotive

OEM STANDARD ADDITIONAL INFORMATION
Li Auto Q/LiA5310038 2021 (V2)

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