Celanese
The chemistry inside innovation™

CELANEX® 3300LM

CELANEX® PBT

Celanex 3300LM is a 30% glass reinforced lasermarkable grade specially formulated to yield crisp marks when subjected to a Nd:YAG laser or equivalent operated at 1064nm or 532nm. Lasers operating in the UV region (355nm) may yield different results3300LM also offers a superior combination of mechanical, electrical, and thermal properties. This grade provides outstanding processability and good chemical resistance.

Product information

Resin Identification	PBT-GF30		ISO 1043
Part Marking Code	>PBT-GF30<		ISO 11469

Rheological properties

Melt mass-flow rate	17	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	0.7 - 1.1	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	9200	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	130	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	2.5	%	ISO 527-1/-2
Flexural modulus	9700	MPa	ISO 178
Flexural strength	210	MPa	ISO 178
Charpy impact strength, 23°C	46	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	45	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	8.5	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	8.5	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	7.5	kJ/m²	ISO 180/1A
Hardness, Rockwell, M-scale	90		ISO 2039-2
Poisson's ratio	0.34[C]		

[C]: Calculated

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
Temperature of deflection under load, 1.8 MPa	205	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	225	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	220	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	25	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	100	E-6/K	ISO 11359-1/-2

Electrical properties

Relative permittivity, 100Hz	4.5		IEC 62631-2-1
Relative permittivity, 1MHz	4.1		IEC 62631-2-1
Dissipation factor, 100Hz	22	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

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Surface resistivity	>1E15	Ohm	IEC 62631-3-2
Electric strength	31	kV/mm	IEC 60243-1
Comparative tracking index	425		IEC 60112

Physical/Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	1530	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
Special characteristics	Laser Markable

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 470-500(240-260) deg F (deg C)
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

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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.