

CELANEX® 3300USFDA - PBT

Description

Celanex 3300USFDA is a general purpose, 30% glass reinforced, polybutylene terephthalate that offers a superior combination of mechanical, electrical, and thermal properties for US FDA applications. This grade provides outstanding processability and good chemical resistance.

Physical properties	Value	Unit	Test Standard
Density	1530	kg/m ³	ISO 1183
Melt flow rate, MFR	17	g/10min	ISO 1133
MFR temperature	250	°C	ISO 1133
MFR load	2.16	kg	ISO 1133
Melt volume rate, MVR	13	cm ³ /10min	ISO 1133
MVR temperature	250	°C	ISO 1133
MVR load	2.16	kg	ISO 1133
Molding shrinkage, parallel	0.3 - 0.7	%	ISO 294-4, 2577
Molding shrinkage, normal	0.7 - 1.1	%	ISO 294-4, 2577
Water absorption, 23°C-sat	0.4	%	ISO 62
Humidity absorption, 23°C/50%RH	0.16	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	9200	MPa	ISO 527-2/1A
Tensile stress at break, 5mm/min	130	MPa	ISO 527-2/1A
Tensile strain at break, 5mm/min	2.5	%	ISO 527-2/1A
Flexural modulus, 23°C	9700	MPa	ISO 178
Flexural strength, 23°C	210	MPa	ISO 178
Charpy impact strength, 23°C	46	kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	45	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 impact notched, 23°C	7.5	kJ/m ²	ISO 180/1A
Rockwell hardness (M-Scale)	90	M-Scale	ISO 2039-2

Mechanical properties (TPE)	Value	Unit	Test Standard
Shore D hardness, 15s	84	-	ISO 868

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	225	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60	°C	ISO 11357-1,-2,-3
DTUL at 1.8 MPa	205	°C	ISO 75-1, -2
DTUL at 0.45 MPa	225	°C	ISO 75-1, -2
DTUL at 8.0 MPa	150	°C	ISO 75-1, -2
Vicat softening temperature, 50°C/h 50N	220	°C	ISO 306
Coeff. of linear therm expansion, parallel	0.25	E-4/°C	ISO 11359-2
Coeff. of linear therm expansion, normal	1	E-4/°C	ISO 11359-2
Limiting oxygen index (LOI)	20	%	ISO 4589-1/-2
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	0.71	mm	UL 94

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Electrical properties	Value	Unit	Test Standard
Relative permittivity, 100Hz	4.5	-	IEC 60250
Relative permittivity, 1MHz	4.1	-	IEC 60250
Dissipation factor, 100Hz	22	E-4	IEC 60250
Dissipation factor, 1MHz	160	E-4	IEC 60250
Volume resistivity	>1E13	Ohm*m	IEC 60093
Surface resistivity	>1E15	Ohm	IEC 60093
Electric strength	31	kV/mm	IEC 60243-1
Comparative tracking index	425	-	IEC 60112

Typical injection moulding processing conditions

Pre Drying	Value	Unit	Test Standard
Necessary low maximum residual moisture content	0.02	%	-
Drying time	4	h	-
Drying temperature	120 - 130	°C	-
Temperature	Value	Unit	Test Standard
Hopper temperature	20 - 50	°C	-
Feeding zone temperature	20 - 50	°C	-
Zone1 temperature	230 - 240	°C	-
Zone2 temperature	235 - 250	°C	-
Zone3 temperature	235 - 250	°C	-
Zone4 temperature	240 - 260	°C	-
Nozzle temperature	250 - 260	°C	-
Melt temperature	235 - 260	°C	-
Mold temperature	65 - 93	°C	-
Hot runner temperature	250 - 260	°C	-
Speed	Value	Unit	Test Standard
Injection speed	medium-fast	-	-

Other text information

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

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

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.

Characteristics

Product Categories	Delivery Form
Glass reinforced	Pellets

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Processing

Injection molding

Contact Information

General Disclaimer

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colorants or other additives may cause significant variations in data values. Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products. The products mentioned herein are not intended for use in medical or dental implants.

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