CELANEX® 3300-2 | PBT | Glass Reinforced

Description

Celanex 3300-2 is a general purpose, 30% glass reinforced, polybutylene terephthalate that offers a superior combination of mechanical, electrical, and thermal properties. This grade provides outstanding processability and good chemical resistance. Celanex 3300-2 is a high flow material that contains an internal lubricant.

Physical properties	Value	Unit	Test Standard
Density	**1530**	kg/m³	ISO 1183
Melt volume rate (MVR)	**17**	cm³/10min	ISO 1133
MVR test temperature	**250**	°C	ISO 1133
MVR test load	**2.16**	kg	ISO 1133
Mold shrinkage - parallel	**0.3-0.7**	%	ISO 294-4
Mold shrinkage - normal	**0.7-1.1**	%	ISO 294-4
Humidity absorption (23°C/50%RH)	**0.2**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	**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/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
Notched impact strength (Izod) @ 23°C	**7.5**	kJ/m²	ISO 180/1A
Rockwell hardness	**90**	M-Scale	ISO 2039-2

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	**225**	°C	ISO 11357-1,-2,-3
Glass transition temperature (10°C/min)	**60**	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	**205**	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	**225**	°C	ISO 75-1/-2
DTUL @ 8.0 MPa	**150**	°C	ISO 75-1/-2
Vicat softening temperature B50 (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
Flammability at thickness h	**HB**	class	UL94
thickness tested (h)	**0.71**	mm	UL94

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	**4.5**	-	IEC 60250
Relative permittivity - 1 MHz	**4.1**	-	IEC 60250
Dissipation factor - 100 Hz	**22**	E-4	IEC 60250
Dissipation factor - 1 MHz	**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 CTI	**425**	-	IEC 60112

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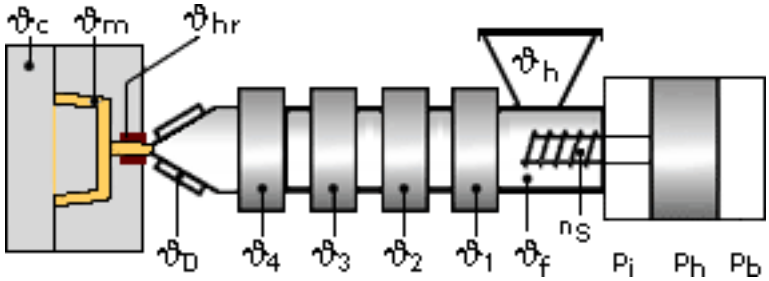
Test specimen production	Value	Unit	Test Standard
Processing conditions acc. ISO	**7792-2**	-	Internal
Injection molding melt temperature	**260**	°C	ISO 294
Injection molding mold temperature	**82**	°C	ISO 294
Injection molding flow front velocity	**300**	mm/s	ISO 294
Injection molding hold pressure	**48**	MPa	ISO 294

Typical injection moulding processing conditions



Pre Drying:

Necessary low maximum residual moisture content: 0.02%

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.

For subsequent storage of the material in the dryer until processed (<= 60 h) it is necessary to lower the temperature to 100° C.

Drying time: 4 h

Drying temperature: 120 - 130 °C

Temperature:

	ϑManifold	ϑMold	ϑMelt	ϑNozzle	ϑZone4	ϑZone3	ϑZone2	ϑZone1	ϑFeed	ϑHopper
min (°C)	250	65	235	250	240	235	235	230	230	20
max (°C)	260	93	260	260	260	250	250	240	240	50

Speed:

Injection speed: medium-fast

Injection Molding

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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
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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.

Contact Information

Americas
8040 Dixie Highway, Florence, KY 41042 USA
Product Information Service
t: +1-800-833-4882 t: +1-859-372-3244
Customer Service
t: +1-800-526-4960 t: +1-859-372-3214
e: info-engineeredmaterials-am@celanese.com

Asia
4560 Jinke Road, Zhang Jiang Hi Tech Park
Shanghai 201203 PRC
Customer Service
t: +86 21 3861 9266 f: +86 21 3861 9599
e: info-engineeredmaterials-asia@celanese.com

Europa
Am Unisys-Park 1, 65843 Sulzbach, Germany
Product Information Service
t: +(00)-800-86427-531 t: +49-(0)-69-45009-1011
e: info-engineeredmaterials-eu@celanese.co

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