CELANEX® 6500 | PBT | Mineral / Glass Reinforced

Description

Celanex 6500 is a 30% glass/mineral polyester with improved surface finish and a good balance of mechanical properties and processability.

Physical properties	Value	Unit	Test Standard
Density	**1550**	kg/m³	ISO 1183
Mold shrinkage - parallel	**0-0.5**	%	ISO 294-4
Mold shrinkage - normal	**0.5-0.8**	%	ISO 294-4
Humidity absorption (23°C/50%RH)	**0.19**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	**9700**	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	**125**	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	**2.2**	%	ISO 527-2/1A
Flexural modulus (23°C)	**9500**	MPa	ISO 178
Flexural strength (23°C)	**180**	MPa	ISO 178
Charpy impact strength @ 23°C	**30**	kJ/m²	ISO 179/1eU
Charpy impact strength @ -30°C	**30**	kJ/m²	ISO 179/1eU
Charpy notched impact strength @ 23°C	**7.1**	kJ/m²	ISO 179/1eA
Charpy notched impact strength @ -30°C	**6.4**	kJ/m²	ISO 179/1eA
Unnotched impact str (Izod) @ 23°C	**31**	kJ/m²	ISO 180/1U
Notched impact strength (Izod) @ 23°C	**5.3**	kJ/m²	ISO 180/1A
Rockwell hardness	**89**	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)	**54**	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	**202**	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	**223**	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	**0.28**	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	**0.85**	E-4/°C	ISO 11359-2

Electrical properties	Value	Unit	Test Standard
Relative permittivity - 100 Hz	**3.5**	-	IEC 60250
Relative permittivity - 1 MHz	**3.8**	-	IEC 60250
Dissipation factor - 1 MHz	**400**	E-4	IEC 60250
Volume resistivity	**2E14**	Ohm*m	IEC 60093
Surface resistivity	**3E16**	Ohm	IEC 60093
Electric strength	**22**	kV/mm	IEC 60243-1
Comparative tracking index CTI	**325**	-	IEC 60112

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

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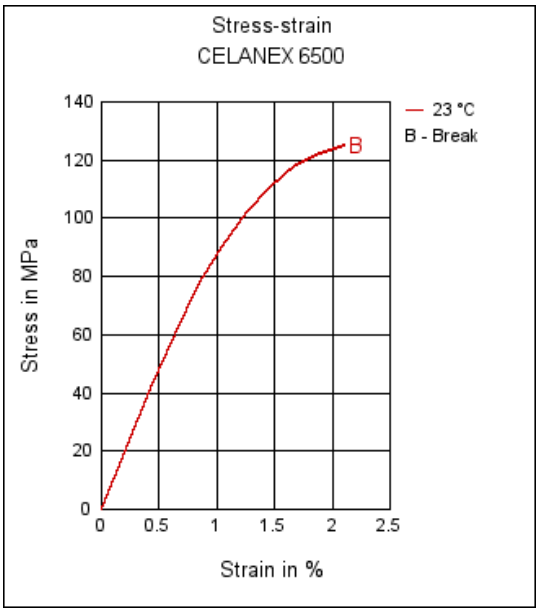
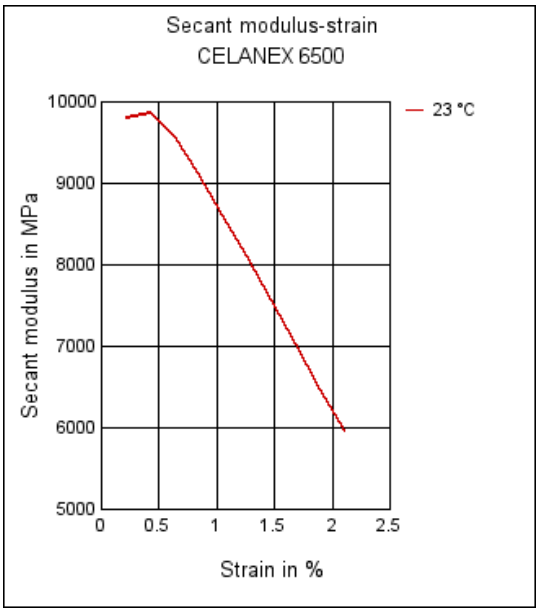
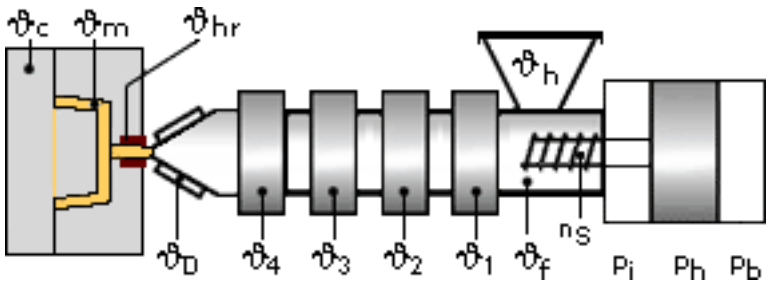
Stress-strain



Secant modulus-strain



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

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Temperature:

	Manifold	Mold	Melt	Nozzle	Zone4	Zone3	Zone2	Zone1	Feed	Hopper
min (°C)	250	65	235	240	240	235	235	230	230	20
max (°C)	265	96	265	265	265	255	255	250	250	50

Speed:

Injection speed: medium-fast

Injection Molding

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Rear Temperature    450-480 (230-250) deg F (deg C)
Center Temperature  460-490(235-255) deg F (deg C)
Front Temperature   470-500 (240-260) deg F (deg C)
Nozzle Temperature  480-510 (250-265) deg F (deg C)
Melt Temperature    460-510 (235-265) 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.

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

General Disclaimer

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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 (+49 (0) 69 30516299 for Europe, +1 859-372-3244 for the Americas and +86 21 3861 9266 for Asia) for additional technical information. Visit our web site for the appropriate Safety Data Sheets (SDS) before attempting to process our products. Feel free to call Customer Services for additional assistance.
The products mentioned herein are not intended for use in medical or dental implants.