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CELANEX® 2406MT GF20

20% glass fiber reinforced, tribological-modified medical grade, for applications with improved slip and wear characteristics
Celanex 2406MT GF20 is a 20% glass fiber reinforced, tribologically-modified, medium flow PBT + PET blend grade for injection molding processing.

Celanex 2406MT GF20 is a special grade developed for medical industry applications and complies with:

- CFR 21 (177.1660) of the Food and Drug Administration (FDA) and is listed in the Drug Master File (DMF 10047 (US) / 10033 (EU)) and the Device Master File (MAF 443 (US) / 1078 (EU))
- the corresponding EU and national registry regulatory requirements
- biocompatibility in tests corresponding to USP 23 Class VI/ISO 10993
- low residual monomers
- no animal products

Product information

Part Marking Code	> (PBT+PET)-GF20 <	ISO 11469

Rheological properties

Melt volume-flow rate	13	cm^3/10min	ISO 1133
Temperature	265	°C	
Load	2.16	kg	
Moulding shrinkage range, parallel	0.3 - 0.5	%	ISO 294-4, 2577
Moulding shrinkage range, normal	0.7 - 0.9	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	7600	MPa	ISO 527-1/-2
Stress at break, 5mm/min	125	MPa	ISO 527-1/-2
Strain at break, 5mm/min	3	%	ISO 527-1/-2
Flexural Modulus	7500	MPa	ISO 178
Flexural Strength	190	MPa	ISO 178
Charpy impact strength, 23°C	65	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	55	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	10	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	9.5	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	10	kJ/m^2	ISO 180/1A
Izod impact strength, 23°C	47	kJ/m^2	ISO 180/1U

Thermal properties

Melting temperature, 10°C/min	255	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	205	°C	ISO 75-1/-2

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Flammability

Burning Behav. at 1.5mm nom. thickn.	HB	class	UL 94
Thickness tested	1.6	mm	UL 94
Burning Behav. at thickness h	HB	class	UL 94
Thickness tested	0.80	mm	UL 94

Other properties

Humidity absorption, 2mm	0.15	%	Sim. to ISO 62
Water absorption, 2mm	0.4	%	Sim. to ISO 62
Density	1470	kg/m³	ISO 1183

Injection

Drying Temperature	120 - 140	°C	
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	0.02	%	
Melt Temperature Optimum	263	°C	Internal
Screw tangential speed	0.12 - 0.17	m/s	
Max. mould temperature	90 - 100	°C	
Injection speed	fast		

Characteristics

Additives	Release agent
Food contact	FDA 21 CFR

Additional information

Injection molding

Melt Temperature 265-275 °C
Mold Temperature *) 90-100 °C
Maximum Barrel Residence Time **) 5-10 min
Injection Speed fast
Peripheral screw speed max.0,3 m/sec
Back Pressure 10-30 bar
Injection Pressure 600-1000 bar
Holding Pressure 400-800 bar
Nozzle Design open design preferred

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.

Celanese recommends only externally heated hot runner systems.

*) For moulded parts with especially high requirements to the surface quality or

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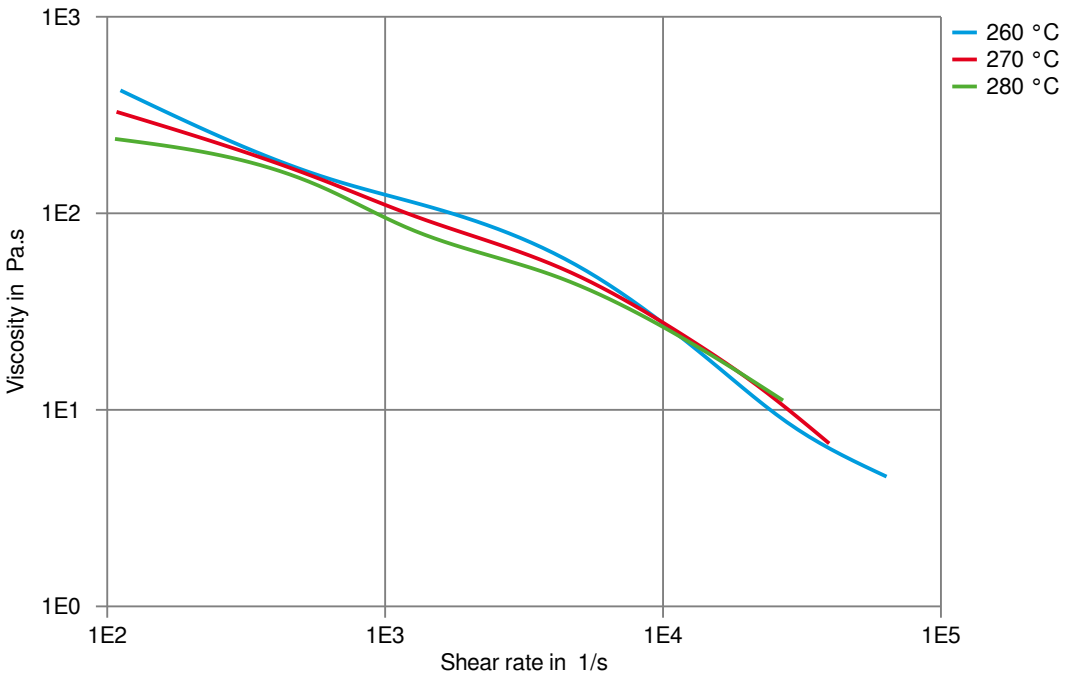
dimensional stability, a mold temperature of up to 110 °C can be advantageous.

**) If the cylinder temperatures are higher than the recommended maximum temperatures, the max. residence time in the barrel has to be reduced.

Viscosity-shear rate



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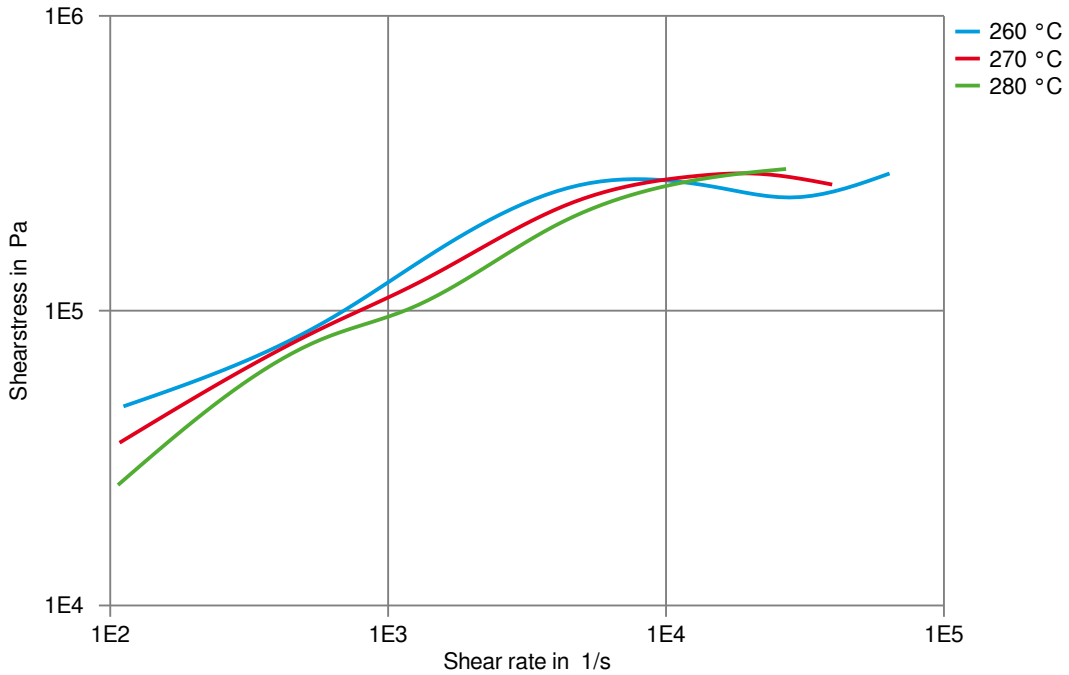
Shearstress-shear rate



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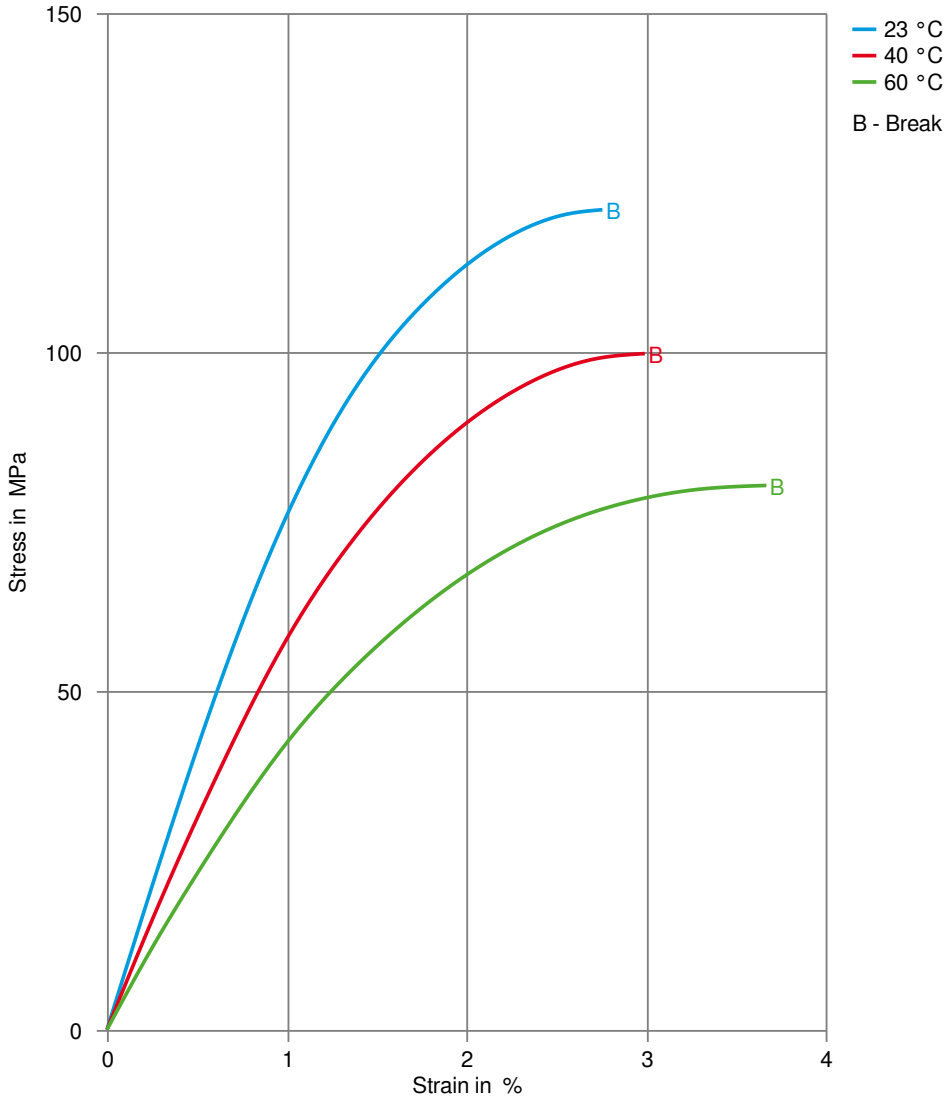
Stress-strain



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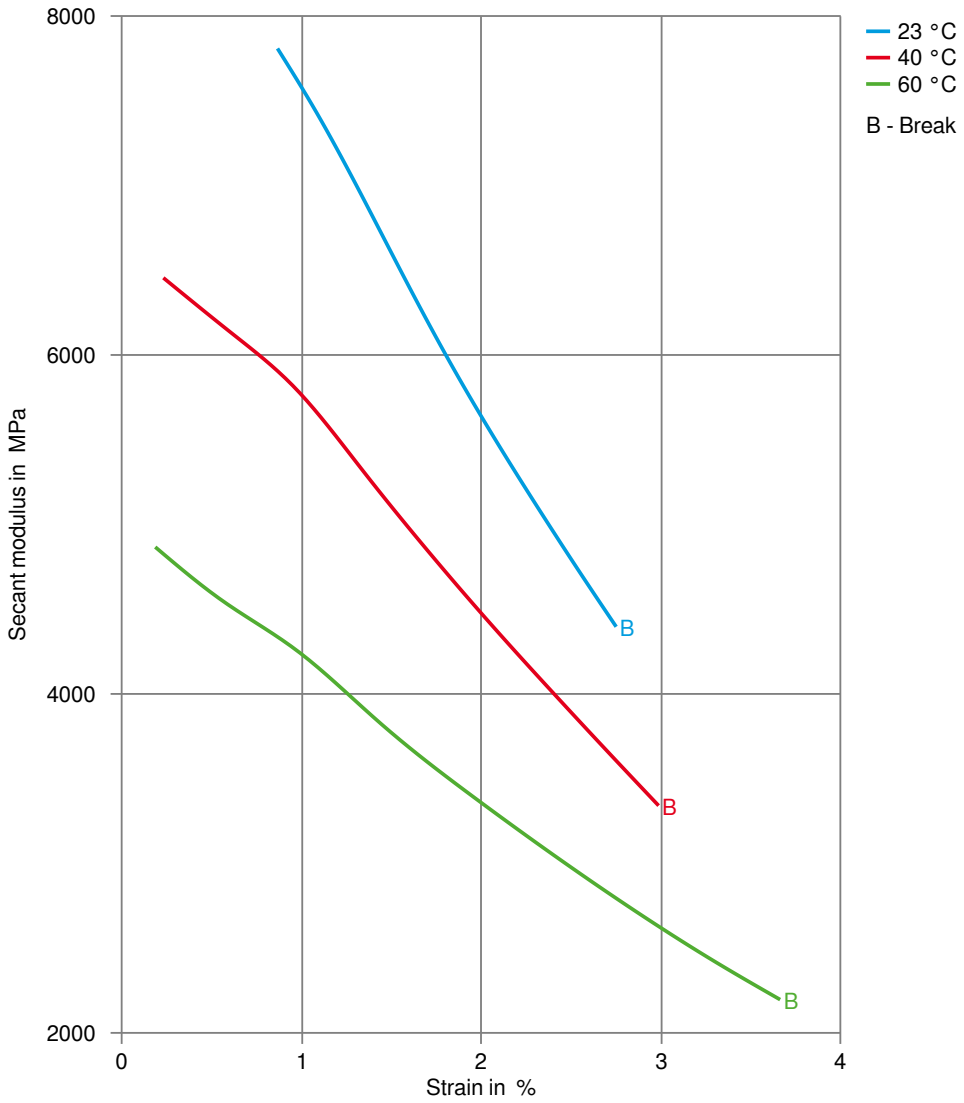
Secant modulus-strain



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Processing Texts

Pre-drying	CELANEX should in principle be predried. Because of the necessary low maximum residual moisture content the use of dry air dryers is recommended. The dew point should be =< - 30° C. The time between drying and processing should be as short as possible.
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	Melt Temperature 265-275 °C Mold Temperature *) 90-100 °C Maximum Barrel Residence Time **) 5-10 min Injection Speed fast Peripheral screw speed max.0,3 m/sec Back Pressure 10-30 bar Injection Pressure 600-1000 bar Holding Pressure 400-800 bar Nozzle Design open design preferred 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. Celanese recommends only externally heated hot runner systems. *) For moulded parts with especially high requirements to the surface quality or dimensional stability, a mold temperature of up to 110 °C can be advantageous. **) If the cylinder temperatures are higher than the recommended maximum temperatures, the max. residence time in the barrel has to be reduced.
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%. The drying should be done in a dry-air dryer (dew point < -30°C) with a temperature of 120 to 140 °C and a drying time of 2 to 4 hours. In case of longer residence times in the dry-air dryer, the temperature should be reduced to 100°C. The time between drying and processing should be kept as short as possible. The processing machine feed hopper should be closed during the processing operation.