

CELANEX® 2408MT GF20

20% glass fiber reinforced medical grade, for applications with high gloss and improved overmolding adhesion to TPEs
Chemical abbreviation according to ISO 1043-1: PBT+PET GF20. Celanex® 2408MT® GF20 is a special grade developed for medical industry applications and is filled with 20% glass fiber for injection molded parts with superior adhesion to thermoplastic copolyesters in a two-component molding process.

Celanex 2408MT GF20 is a special grade developed for medical industry applications and complies with:

- CFR 21 (177.1660) of the Food and Drug Administration (FDA)
- 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
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Rheological properties

Melt volume-flow rate	20 cm ³ /10min	ISO 1133
Temperature	265 °C	
Load	2.16 kg	
Moulding shrinkage, parallel	0.3 %	ISO 294-4, 2577
Moulding shrinkage range, parallel	0.2 - 0.4 %	ISO 294-4, 2577
Moulding shrinkage, normal	0.8 %	ISO 294-4, 2577
Moulding shrinkage range, normal	0.7 - 0.9 %	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	7400 MPa	ISO 527-1/-2
Stress at break, 5mm/min	135 MPa	ISO 527-1/-2
Strain at break, 5mm/min	3 %	ISO 527-1/-2
Flexural Modulus	7350 MPa	ISO 178
Flexural Strength	200 MPa	ISO 178
Charpy impact strength, 23°C	45 kJ/m ²	ISO 179/1eU
Charpy impact strength, -30°C	40 kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	8 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30°C	8 kJ/m ²	ISO 179/1eA
Ball indentation hardness, H 358/30	205 MPa	ISO 2039-1

Thermal properties

Melting temperature, 10°C/min	255 °C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	203 °C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	222 °C	ISO 75-1/-2
Temp. of deflection under load, 8 MPa	90 °C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	210 °C	ISO 306
Coeff. of linear therm. expansion, parallel	40 E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal

75 E-6/K

ISO 11359-1/-2

Other properties

Humidity absorption, 2mm

0.15 %

Sim. to ISO 62

Water absorption, 2mm

0.4 %

Sim. to ISO 62

Density

1480 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

260 °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 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.

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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 $\leq -30^{\circ}\text{C}$. 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 ($\leq 60\text{ h}$) it is necessary to lower the temperature to 100°C .

Injection molding

Melt Temperature $265\text{--}275^{\circ}\text{C}$
Mold Temperature *) $90\text{--}100^{\circ}\text{C}$
Maximum Barrel Residence Time **) $5\text{--}10\text{ min}$
Injection Speed fast
Peripheral screw speed $\max. 0,3\text{ m/sec}$
Back Pressure $10\text{--}30\text{ bar}$
Injection Pressure $600\text{--}1000\text{ bar}$
Holding Pressure $400\text{--}800\text{ bar}$
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.

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**) 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 $< -30^{\circ}\text{C}$) with a temperature of $120\text{ to }140^{\circ}\text{C}$ and a drying time of $2\text{ to }4\text{ hours}$. 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.