

CELANEX® 2302 ICF30

30% PIR-CF (post-industrial recycled carbon fiber) reinforced, high gloss, electroconductive grade
 Chemical abbreviation according to ISO 1043-1: PBT Moulding compound ISO 7792- PBT/PET, MGHR, 08-0250N, CF30.
 Polybutylene terephthalate (PBT) polymer blend with Polyethylene terephthalate (PET), containing 30% PIR (post-industrial recycled) carbon fibre, for injection molded parts with superior gloss.

Product information

| | | |
|-------------------|--------------------|-----------|
| Part Marking Code | > (PBT+PET)-CF30 < | ISO 11469 |
|-------------------|--------------------|-----------|

Rheological properties

| | | |
|------------------------------------|---------------------------|-----------------|
| Melt volume-flow rate | 10 cm ³ /10min | ISO 1133 |
| Temperature | 265 °C | |
| Load | 2.16 kg | |
| Moulding shrinkage range, parallel | 0.1 - 0.2 % | ISO 294-4, 2577 |
| Moulding shrinkage range, normal | 0.3 - 0.5 % | ISO 294-4, 2577 |

Typical mechanical properties

| | | |
|---------------------------------------|-----------------------|--------------|
| Tensile Modulus | 24500 MPa | ISO 527-1/-2 |
| Stress at break, 5mm/min | 185 MPa | ISO 527-1/-2 |
| Strain at break, 5mm/min | 1.8 % | ISO 527-1/-2 |
| Charpy impact strength, 23°C | 55 kJ/m ² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 7 kJ/m ² | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 5.7 kJ/m ² | ISO 179/1eA |

Thermal properties

| | | |
|-------------------------------|--------|----------------|
| Melting temperature, 10°C/min | 255 °C | ISO 11357-1/-3 |
|-------------------------------|--------|----------------|

Electrical properties

| | | |
|---------------------|---------|---------------|
| Volume resistivity | 1 Ohm.m | IEC 62631-3-1 |
| Surface resistivity | 62 Ohm | IEC 62631-3-2 |

Other properties

| | | |
|--------------------------|------------------------|----------------|
| Humidity absorption, 2mm | 0.15 % | Sim. to ISO 62 |
| Water absorption, 2mm | 0.45 % | Sim. to ISO 62 |
| Density | 1440 kg/m ³ | ISO 1183 |

Injection

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



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Characteristics

Additives

Release agent

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.

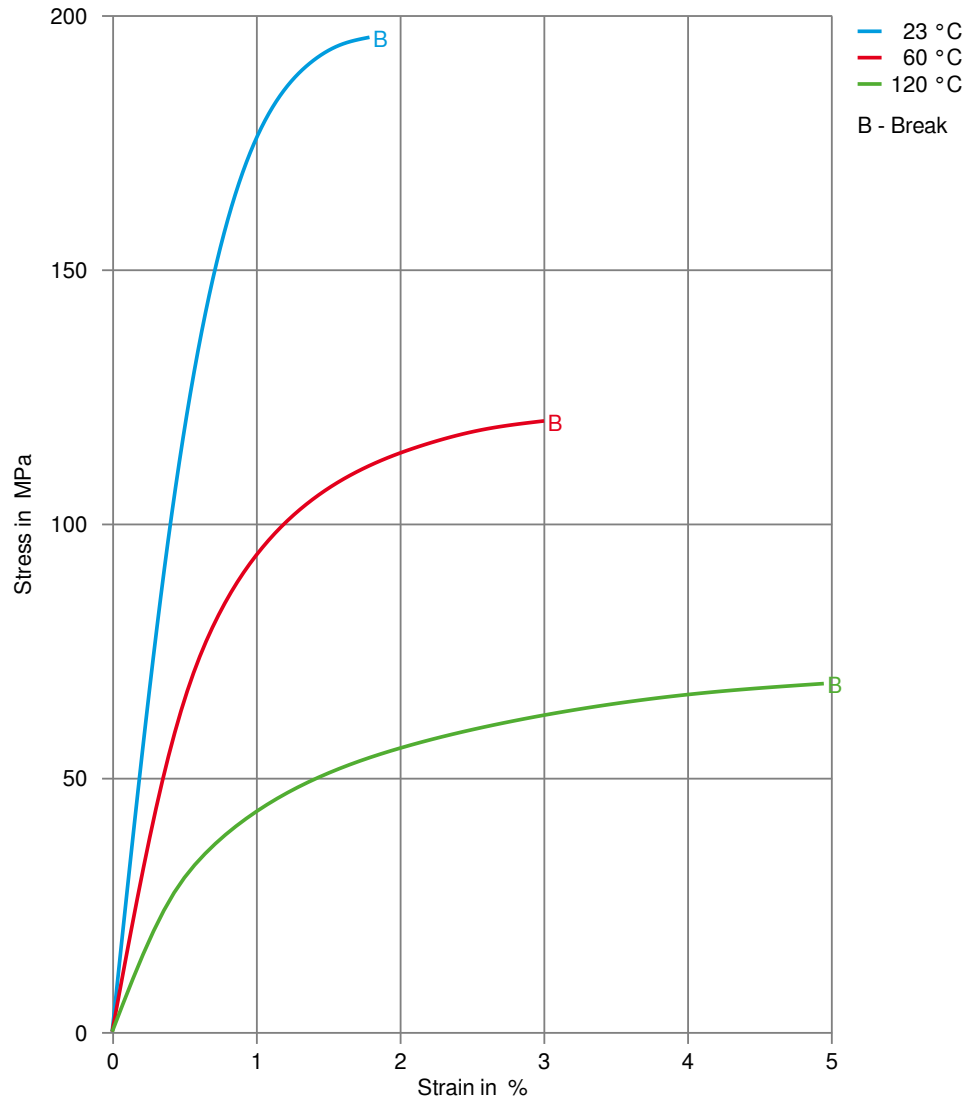
*) For moulded parts with especially high requirements to the surface quality or dimensional stability, a mold temperature of up to 110 °C can be advantageous.

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



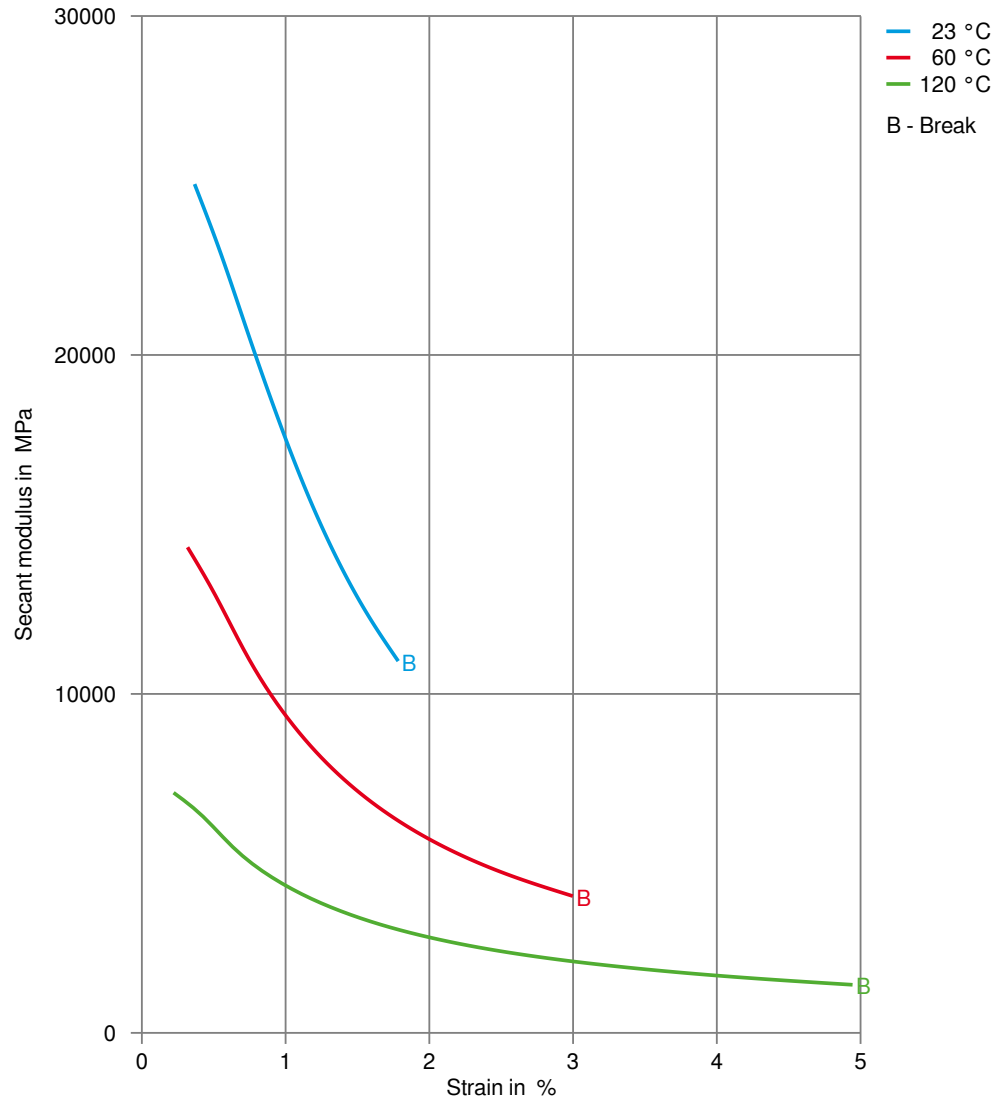
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Stress-strain



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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 $\leq -30^{\circ}\text{C}$. 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.

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 $< -30^{\circ}\text{C}$) 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.

