

## CELSTRAN® PP-GF20-05 Black | PP | Glass Reinforced

### Description

Material code according to ISO 1043-1: PP

Polypropylene copolymer reinforced with 20weight percent long glass fibers. Low emission. The fibers are chemically coupled to the polypropylene matrix. The pellets are cylindrical and normally as well as the embedded fibers 10 mm long.(-0553 = Low emission grade)

Parts molded of CELSTRAN have outstanding mechanical properties such as high strength and stiffness combined with high heat deflection. The notched impact strength is increased at elevated and low temperatures due to the fiber skeleton built in the parts. The long fiber reinforcement reduces creep significantly.

The very isotropic shrinkage in the molded parts minimizes the warpage.

Complex parts can be manufactured with high reproducibility by injection molding.

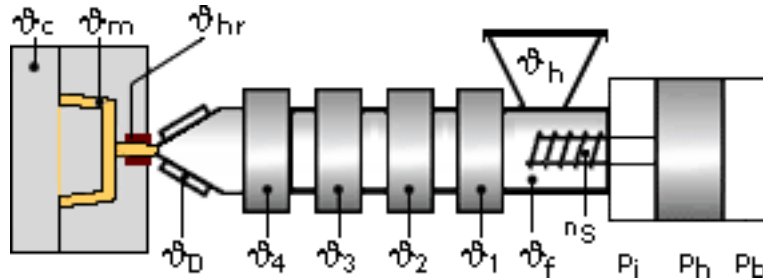
Application field: Functionial/structural parts for automotive

| Physical properties                    | Value | Unit              | Test Standard |
|----------------------------------------|-------|-------------------|---------------|
| Density                                | 1030  | kg/m <sup>3</sup> | ISO 1183      |
| Mechanical properties                  | Value | Unit              | Test Standard |
| Tensile modulus (1mm/min)              | 4700  | MPa               | ISO 527-2/1A  |
| Tensile modulus (80°C)                 | 3400  | MPa               | ISO 527-2/1A  |
| Tensile strength (80°C)                | 60    | MPa               | ISO 527-2/1A  |
| Tensile stress at break (5mm/min)      | 84    | MPa               | ISO 527-2/1A  |
| Tensile strain at break (5mm/min)      | 2.5   | %                 | ISO 527-2/1A  |
| Elongation at break (80°C)             | 2.6   | %                 | ISO 527-2/1A  |
| Flexural modulus (23°C)                | 4500  | MPa               | ISO 178       |
| Flexural modulus (80°C)                | 3400  | MPa               | ISO 178       |
| Flexural strength (23°C)               | 140   | MPa               | ISO 178       |
| Flexural strength (80°C)               | 90    | MPa               | ISO 178       |
| Charpy impact strength @ 23°C          | 56.0  | kJ/m <sup>2</sup> | ISO 179/1eU   |
| Charpy impact strength @ -30°C         | 60.0  | kJ/m <sup>2</sup> | ISO 179/1eU   |
| Charpy notched impact strength @ 23°C  | 20.0  | kJ/m <sup>2</sup> | ISO 179/1eA   |
| Charpy notched impact strength @ -30°C | 20.0  | kJ/m <sup>2</sup> | ISO 179/1eA   |
| Thermal properties                     | Value | Unit              | Test Standard |
| DTUL @ 1.8 MPa                         | 159   | °C                | ISO 75-1/-2   |



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### Typical injection moulding processing conditions



#### Pre Drying:

##### Necessary low maximum residual moisture content: 0.2%

It is normally not necessary to dry CELSTRAN PP. However, should there be surface moisture (condensate) on the molding compound as a result of incorrect storage, drying is required.

The product can then be stored in standard conditions until processed.

#### Drying time: 4 h

#### Drying temperature: 90 - 100 °C

#### Temperature:

|          | ϕManifold | ϕMold | ϕMelt | ϕNozzle | ϕZone4 | ϕZone3 | ϕZone2 | ϕZone1 | ϕFeed |
|----------|-----------|-------|-------|---------|--------|--------|--------|--------|-------|
| min (°C) | 230       | 30    | 230   | 240     | 250    | 240    | 230    | 220    | 20    |
| max (°C) | 270       | 70    | 270   | 250     | 250    | 250    | 240    | 230    | 50    |

#### Pressure:

|           | Inj press | Hold press | Back pressure |
|-----------|-----------|------------|---------------|
| min (bar) | 600       | 400        | 0             |
| max (bar) | 1200      | 800        | 30            |

#### Speed:

##### Injection speed: slow

#### Screw speed

|                     |    |    |    |    |    |
|---------------------|----|----|----|----|----|
| Screw diameter (mm) | 16 | 25 | 40 | 55 | 75 |
| Screw speed (RPM)   | -  | -  | 50 | 35 | 25 |

