



## Celstran® PP-GF40-05 Black

Celanese Corporation - Polypropylene

Tuesday, November 5, 2019

### General Information

#### Product Description

Material code according to ISO 1043-1: PP Heat stabilized polypropylene reinforced with 40 weight percent long glass fibers. The fibers are chemically coupled to the polypropylene matrix. The impact properties are enhanced. The pellets are cylindrical and normally as well as the embedded fibers 10 mm long. 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: Functional/structural parts for automotive

#### General

|                        |                                                                                                                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material Status        | • Commercial: Active                                                                                                                                                                       |
| Availability           | • Asia Pacific • Europe • North America                                                                                                                                                    |
| Filler / Reinforcement | • Long Glass Fiber, 40% Filler by Weight                                                                                                                                                   |
| Additive               | • Heat Stabilizer                                                                                                                                                                          |
| Features               | • Chemically Coupled • Good Isotropy • High Strength<br>• Creep Resistant • Heat Stabilized • Low Temperature Impact Resistance<br>• Good Impact Resistance • High Stiffness • Low Warpage |
| Uses                   | • Automotive Applications                                                                                                                                                                  |
| RoHS Compliance        | • Contact Manufacturer                                                                                                                                                                     |
| Appearance             | • Black                                                                                                                                                                                    |
| Forms                  | • Pellets                                                                                                                                                                                  |
| Processing Method      | • Injection Molding                                                                                                                                                                        |
| Resin ID (ISO 1043)    | • PP                                                                                                                                                                                       |

### ASTM & ISO Properties <sup>1</sup>

| Physical                         | Nominal Value | Unit                  | Test Method    |
|----------------------------------|---------------|-----------------------|----------------|
| Density                          | 1.21          | g/cm <sup>3</sup>     | ISO 1183       |
| Mechanical                       | Nominal Value | Unit                  | Test Method    |
| Tensile Modulus                  | 1.19E+6       | psi                   | ISO 527-2/1A   |
| Tensile Stress (Break)           | 16000         | psi                   | ISO 527-2/1A/5 |
| Tensile Strain (Break)           | 2.2           | %                     | ISO 527-2/1A/5 |
| Flexural Modulus                 |               |                       | ISO 178        |
| 73°F                             | 1.19E+6       | psi                   |                |
| 176°F                            | 725000        | psi                   |                |
| Flexural Stress                  |               |                       | ISO 178        |
| 73°F                             | 26800         | psi                   |                |
| 176°F                            | 12300         | psi                   |                |
| Impact                           | Nominal Value | Unit                  | Test Method    |
| Charpy Notched Impact Strength   |               |                       | ISO 179/1eA    |
| -22°F                            | 13            | ft-lb/in <sup>2</sup> |                |
| 73°F                             | 15            | ft-lb/in <sup>2</sup> |                |
| Charpy Unnotched Impact Strength |               |                       | ISO 179/1eU    |
| -22°F                            | 39            | ft-lb/in <sup>2</sup> |                |
| 73°F                             | 38            | ft-lb/in <sup>2</sup> |                |

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| Thermal                                            | Nominal Value | Unit | Test Method |
|----------------------------------------------------|---------------|------|-------------|
| Heat Deflection Temperature (264 psi, Unannealed)  | 316           | °F   | ISO 75-2/A  |
| Heat Deflection Temperature (1160 psi, Unannealed) | 257           | °F   | ISO 75-2/C  |
| Melting Temperature <sup>2</sup>                   | 331           | °F   | ISO 11357-3 |

### Processing Information

| Injection              | Nominal Value | Unit |
|------------------------|---------------|------|
| Drying Temperature     | 194 to 212    | °F   |
| Drying Time            | 4.0           | hr   |
| Suggested Max Moisture | 0.20          | %    |
| Rear Temperature       | 428 to 446    | °F   |
| Middle Temperature     | 446 to 464    | °F   |
| Front Temperature      | 464 to 482    | °F   |
| Nozzle Temperature     | 464 to 482    | °F   |
| Processing (Melt) Temp | 446 to 518    | °F   |
| Mold Temperature       | 86 to 158     | °F   |
| Injection Rate         | Slow          |      |
| Back Pressure          | < 435         | psi  |

### Injection Notes

Feeding zone temperature: 20 to 50°C  
 Zone4 temperature: 250 to 260°C  
 Hot runner temperature: 230 to 270°C

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> 10°C/min