Celanese
The chemistry inside innovation™

CELSTRAN® PP-GF40-04 Black - PP

Description

Material code according to ISO 1043-1: PP Polypropylene Homopolymer reinforced with 40 weight percent long glass fibers. Black. The fibers are chemically coupled to the polypropylene matrix. The pellets are cylindrical and normally as well as the embedded fibers 11 mm long. (-0414 = heat stabilized, -0405 = UV-stabilized, -0453/-0455 = low emission) 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

Physical properties	Value	Unit	Test Standard
Density	**1210**	kg/m³	ISO 1183

Mechanical properties	Value	Unit	Test Standard
Tensile modulus	**9200**	MPa	ISO 527-2/1A
Tensile stress at break, 5mm/min	**130**	MPa	ISO 527-2/1A
Tensile strain at break, 5mm/min	**2**	%	ISO 527-2/1A
Flexural modulus, 23°C	**9000**	MPa	ISO 178
Flexural modulus, 80°C	**6400**	MPa	ISO 178
Flexural strength, 23°C	**200**	MPa	ISO 178
Flexural strength, 80°C	**120**	MPa	ISO 178
Charpy impact strength, 23°C	**62**	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	**60**	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	**25**	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	**30**	kJ/m²	ISO 179/1eA

Thermal properties	Value	Unit	Test Standard
Melting temperature, 10°C/min	**162**	°C	ISO 11357-1/-3
DTUL at 1.8 MPa	**158**	°C	ISO 75-1, -2
DTUL at 8.0 MPa	**128**	°C	ISO 75-1, -2

Test specimen production	Value	Unit	Test Standard
Injection Molding, melt temperature	**250**	°C	ISO 294
Injection Molding, mold temperature	**70**	°C	ISO 294
Injection Molding, injection velocity	**80**	mm/s	ISO 294
Injection Molding, pressure at hold	**83**	MPa	ISO 294

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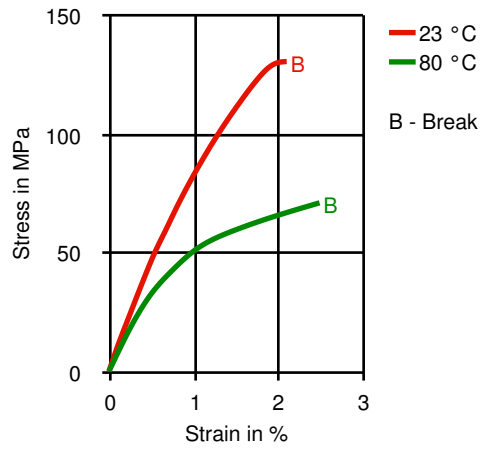
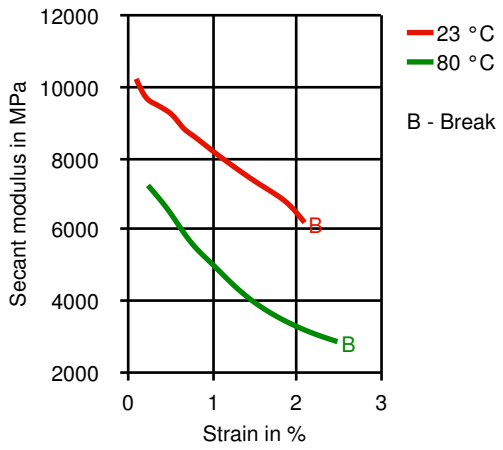
Diagrams

Stress-strain



Secant modulus-strain



Typical injection moulding processing conditions

Pre Drying	Value	Unit	Test Standard
Necessary low maximum residual moisture content	**0.2**	%	-
Drying time	**2**	h	-
Drying temperature	**90 - 100**	°C	-
Temperature	**Value**	**Unit**	**Test Standard**
Feeding zone temperature	**20 - 50**	°C	-
Zone1 temperature	**210 - 230**	°C	-
Zone2 temperature	**220 - 240**	°C	-
Zone3 temperature	**230 - 250**	°C	-
Zone4 temperature	**230 - 250**	°C	-
Nozzle temperature	**230 - 250**	°C	-
Melt temperature	**230 - 250**	°C	-
Mold temperature	**30 - 70**	°C	-
Hot runner temperature	**230 - 270**	°C	-
Pressure	**Value**	**Unit**	**Test Standard**
Back pressure max.	**30**	bar	-
Speed	**Value**	**Unit**	**Test Standard**
Injection speed	**slow**	-	-
Screw Speed	**Value**	**Unit**	**Test Standard**
Screw speed diameter, 40mm	**50**	RPM	-
Screw speed diameter, 55mm	**35**	RPM	-
Screw speed diameter, 75mm	**25**	RPM	-

Other text information

Pre-drying

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. A circulating air drying cabinet can be used for this purpose if the gran

Longer pre-drying times/storage

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

Characteristics

Product Categories	Delivery Form
Glass reinforced	Pellets