

CELSTRAN® PP-GF40-0405 P10/10 - PP-GF40

Description

Material code according to ISO 1043-1: PP UV-stabilized polypropylene reinforced with 40 weight percent long glass fibers. The fibers are chemically coupled to the polypropylene matrix. 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

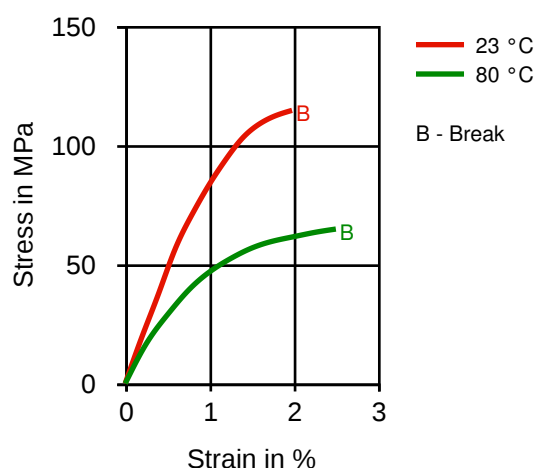
Physical properties	Value	Unit	Test Standard
Density	1210	kg/m ³	ISO 1183

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, -40 °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/m ²	ISO 179/1eU
Charpy impact strength, -30 °C	60	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23 °C	25	kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30 °C	30	kJ/m ²	ISO 179/1eA

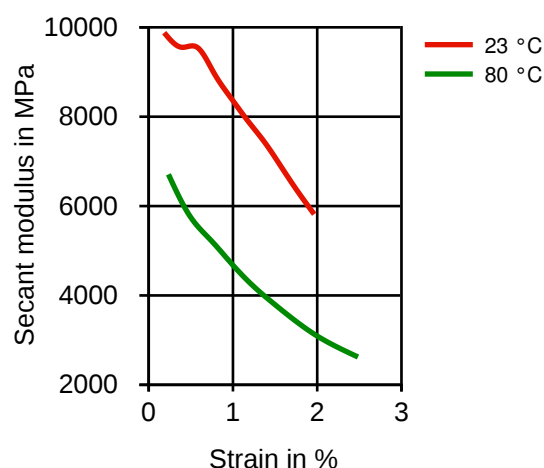
Thermal properties	Value	Unit	Test Standard
Melting temperature, 10 °C/min	165	°C	ISO 11357-1/-3
DTUL at 1.8 MPa	158	°C	ISO 75-1, -2
DTUL at 8.0 MPa	135	°C	ISO 75-1, -2
Flammability at thickness h	HB	class	UL 94
thickness tested (h)	1,50	mm	UL 94
UL recognition (h)	UL	-	UL 94

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	-

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Temperature	Value	Unit	Test Standard
Feeding zone temperature	20 - 50	°C	-
Zone1 temperature	220 - 230	°C	-
Zone2 temperature	230 - 240	°C	-
Zone3 temperature	240 - 250	°C	-
Zone4 temperature	250 - 260	°C	-
Die temperature	240 - 250	°C	-
Melt temperature	230 - 270	°C	-
Cavity 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