CELCON® GC10

POM-GF10 Celanese

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
[C] Molding shrinkage, parallel	**0.9**	%	ISO 294-4, 2577
[C] Molding shrinkage, normal	**1.2**	%	ISO 294-4, 2577

[C]: CAMPUS

Mechanical properties	Value	Unit	Test Standard
ISO Data			
[C] Tensile Modulus	**4500**	MPa	ISO 527
[C] Stress at break	**75**	MPa	ISO 527
[C] Strain at break	**3**	%	ISO 527
[C] Charpy impact strength, +23°C	**38**	kJ/m²	ISO 179/1eU
[C] Charpy impact strength, -30°C	**45**	kJ/m²	ISO 179/1eU
[C] Charpy notched impact strength, +23°C	**4.5**	kJ/m²	ISO 179/1eA

[C]: CAMPUS

Thermal properties	Value	Unit	Test Standard
ISO Data			
[C] Melting temperature, 10°C/min	**166**	°C	ISO 11357-1/-3
[C] Temp. of deflection under load, 1.80 MPa	**155**	°C	ISO 75-1/-2
[C] Coeff. of linear therm. expansion, parallel	**53**	E-6/K	ISO 11359-1/-2
[C] Coeff. of linear therm. expansion, normal	**120**	E-6/K	ISO 11359-1/-2

[C]: CAMPUS

Other properties	Value	Unit	Test Standard
[C] Water absorption	**0.8**	%	Sim. to ISO 62
[C] Humidity absorption	**0.2**	%	Sim. to ISO 62
[C] Density	**1470**	kg/m³	ISO 1183

[C]: CAMPUS

Processing Recommendation Injection Molding	Value	Unit	Test Standard
Pre-drying - Temperature	**80**	°C	-
Pre-drying - Time	**3**	h	-
Processing humidity	**≤0.35**	%	-
Melt temperature	**182 - 199**	°C	-
Mold temperature	**93 - 121**	°C	-

Characteristics

Processing
Injection Molding

Features
Copolymer

Delivery form
Pellets

Regional Availability
North America, South and Central America

Other text information

Injection molding

Drying is generally not required because Celcon materials are not hydroscopic nor are they degraded by moisture during processing. Excessive moisture can lead to splay (silver streaking) in molded parts. For better uniformity in molding especially when using regrind or material that has been stored in containers open to the atmosphere, recommended drying conditions are 80 C (180 F) for three hours. Desiccant hopper dryers are not required. Max. water content = 0.35%.
Standard reciprocating screw injection molding machines with a high compression screw (minimum 3:1 and preferably 4:1) and low back pressure (0.35 Mpa/50 PSI) are favored. Using a low compression screw (i.e.- general purpose 2:1 compression ratio) can result in unmelted particles and poor melt homogeneity. Using a high back pressure to make up for a low compression ratio may lead to excessive shear heating and deterioration of the Celcon material.

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Melt temperature: preferred range 182-199 C (360-390 F) Melt temperature should never exceed 230 C (450 F).Mold surface temperature: preferred range 93-121 C (200-250 F) especially with wall thickness less than 1.5 mm (0.060 in.). May require mold temperature as high as 120 C (250 F) to reproduce mold surface or to assure minimal molded in stress. Wall thickness greater than 3 mm (1/8 in.) may use a cooler (65 C/150 F) mold surface temperature and wall thickness over 6 mm (1/4 in.) may use a cold mold surface down to 25 C (80 F). In general, mold surface temperatures lower than 82 C (180 F) may produce a hazy surface or a surface with flow lines, pits and other included defects.
Postprocessing conditioning and moisturizing not required. It may be necessary to fixture large or complicated parts with varying wall thickness to prevent warpage while cooling to ambient temperature.

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