Celanese
The chemistry inside innovation™

CELCON® GC25A

25% glass fibers, coupled for improved stiffness, standard grade
Celcon® acetal copolymer grade GC25A is a glass coupled formulation containing 25% reinforced fiber glass. This grade offers excellent strength, stiffness and heat distortion temperature with lower mold shrinkage, minimum thermal expansion, excellent dimensional stability and good moldability.
Chemical abbreviation according to ISO 1043-1: POM

Rheological properties

Moulding shrinkage, parallel	0.6	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	8800	MPa	ISO 527-1/-2
Stress at break, 5mm/min	106	MPa	ISO 527-1/-2
Strain at break, 5mm/min	2.2	%	ISO 527-1/-2
Flexural Modulus	8900	MPa	ISO 178
Flexural Strength	160	MPa	ISO 178
Charpy impact strength, 23°C	30	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	35	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	6.4	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	6	kJ/m²	ISO 180/1A
Poisson's ratio	0.42		

Thermal properties

Melting temperature, 10°C/min	165	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	160	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	161	°C	ISO 306
Coeff. of linear therm. expansion, parallel	25	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	120	E-6/K	ISO 11359-1/-2

Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.8	%	Sim. to ISO 62
Density	1580	kg/m³	ISO 1183

Injection

Drying Temperature	100 - 120	°C	
Drying Time, Dehumidified Dryer	3 - 4	h	
Melt Temperature Optimum	182	°C	Internal
Max. mould temperature	90 - 120	°C	
Back pressure	2	MPa	
Injection speed	slow		

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Characteristics

Additives	Release agent

Additional information

Injection molding	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. 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.
Other extrusion	Standard extruders with a length to diameter ratio of at least 20:1 are recommended. The screw should be a high compression ratio of at least 3:1 and preferably 4:1 to assure good melting and uniform melt homogeneity. The design should be approximately 35% each for the feed and metering sections with the remaining 30% as transition zone. Melt temperature 180-220 C (355-430F)

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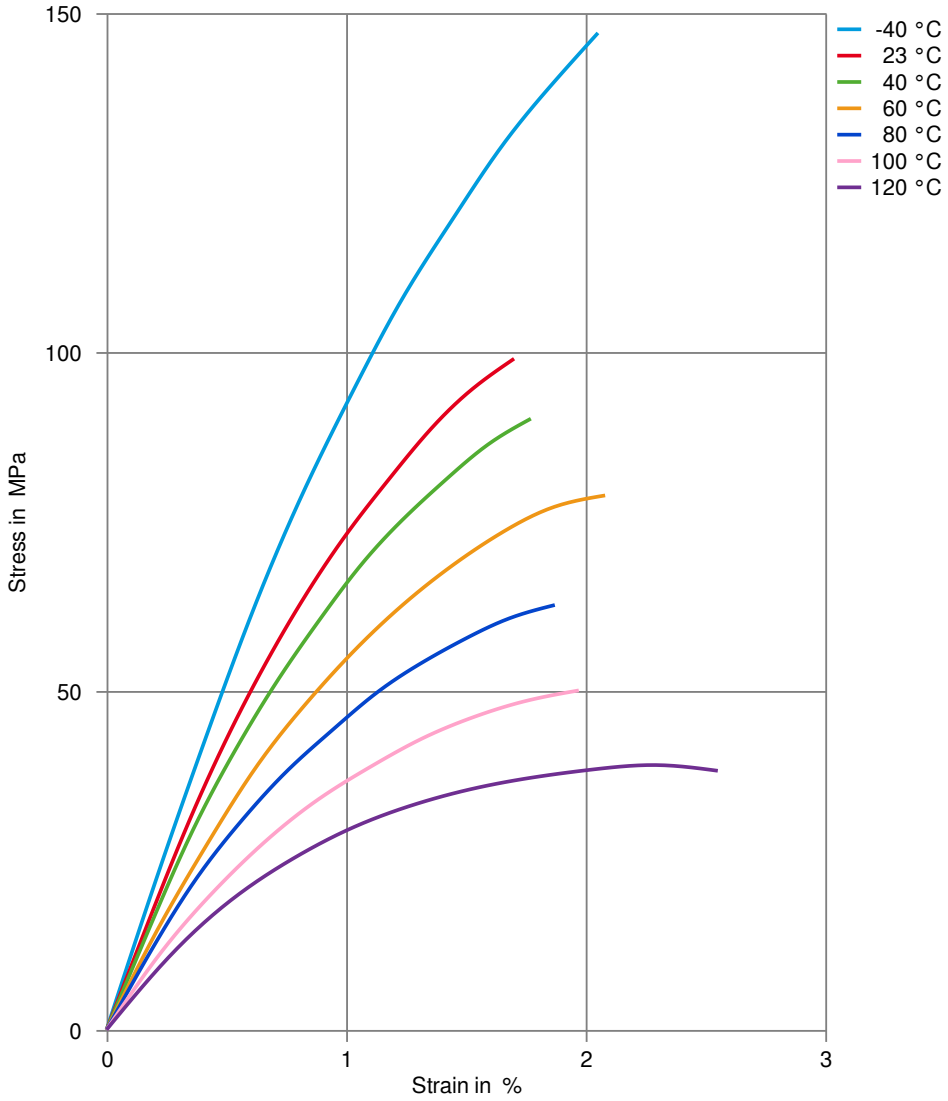
Stress-strain



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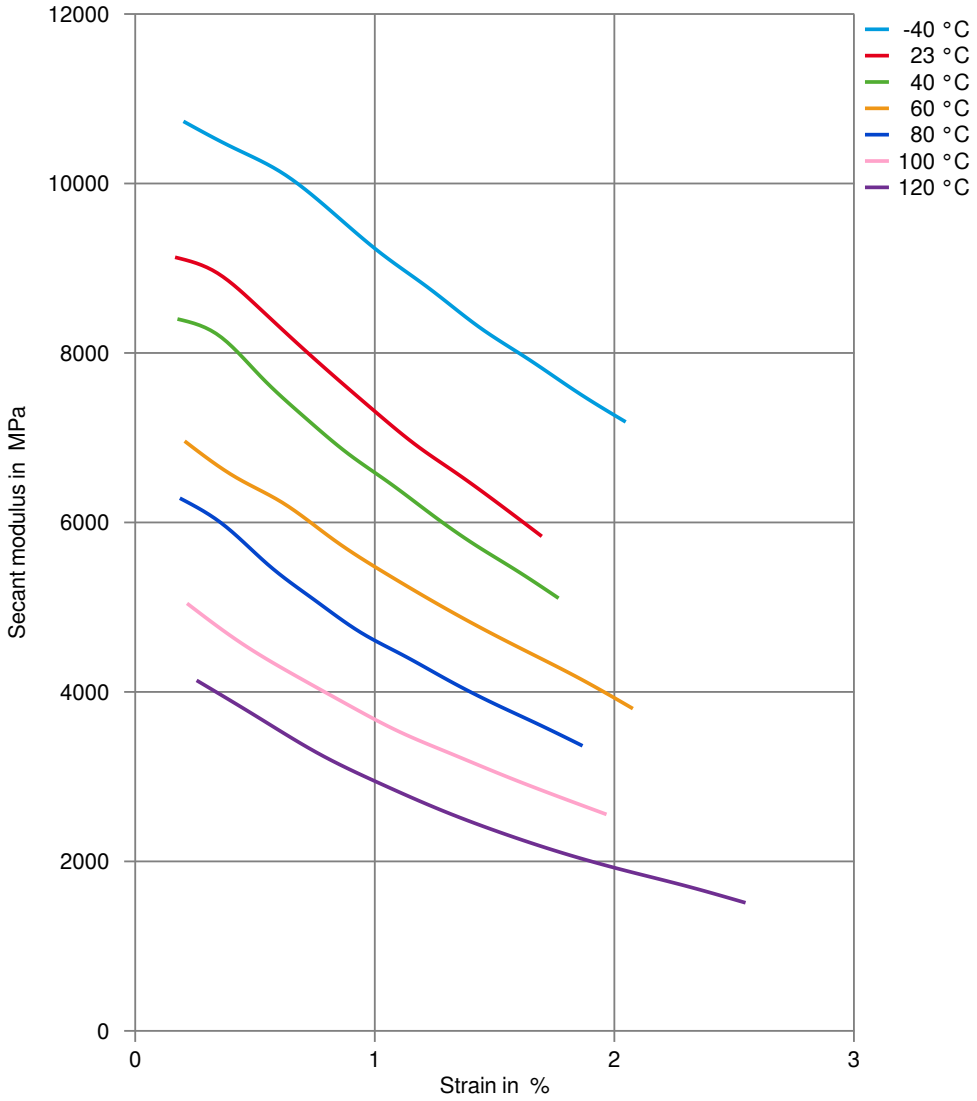
Secant modulus-strain



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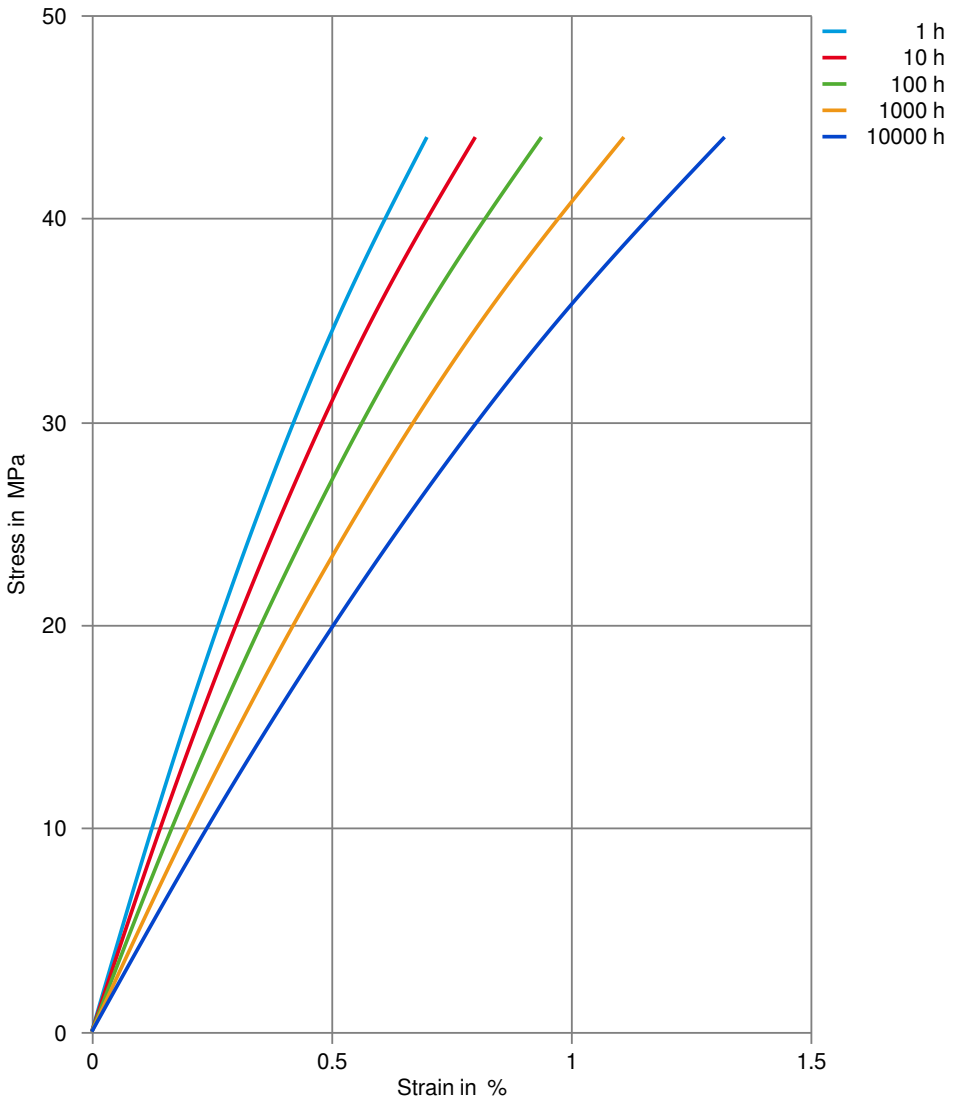
Stress-strain (isochronous) 40 °C



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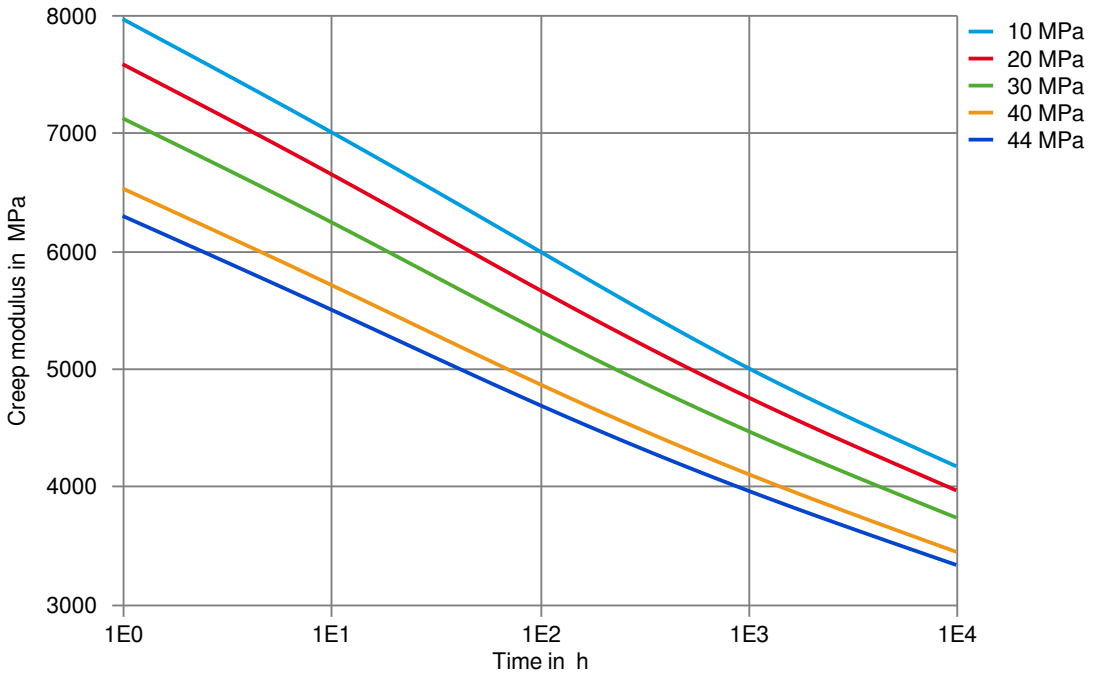
Creep modulus-time 40 °C



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Processing Texts

Pre-drying	Drying is not normally required. If material has come in contact with moisture through improper storage or handling or through regrind use, drying may be necessary to prevent splay and odor problems.
Injection molding	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. 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.
Injection molding Preprocessing	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%.
Injection molding Postprocessing	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.

Other Approvals

Other Approvals

OEM	Specification	Additional Information
Bosch	N28 BN22-X009	Natural, Black, Brown
Continental	TST N 055 54.10	
Stellantis - Chrysler	CPN 1906	Natural, Bishop Tx, Florence KY, ASTMD67 78POM021G25
Stellantis - Chrysler	CPN 2500	Black, Bishop Tx,

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		Florence KY, ASTMD67 78POM021G25