Celanese
The chemistry inside innovation™

CELCON® GB25

25% glass bead filled for stiffness, low warpage
Celcon® GB25 acetal copolymer is a 25% glass bead filled grade for low shrinkage and warp resistance in large, flat and thin walled parts.
Chemical abbreviation according to ISO 1043-1: POM

Rheological properties

Melt volume-flow rate	13	cm^3/10min	ISO 1133
Melt mass-flow rate	17	g/10min	ISO 1133
Temperature	190	°C	
Load	2.16	kg	
Melt mass-flow rate, Temperature	190	°C	
Melt mass-flow rate, Load	2.16	kg	
Moulding shrinkage, parallel	1.5	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.3	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	3700	MPa	ISO 527-1/-2
Yield stress, 50mm/min	49	MPa	ISO 527-1/-2
Yield strain, 50mm/min	4	%	ISO 527-1/-2
Flexural Modulus	3600	MPa	ISO 178
Compressive stress at 1% strain	29	MPa	ISO 604
Charpy notched impact strength, 23°C	2.4	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	2.2	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	2.6	kJ/m^2	ISO 180/1A
Poisson's ratio	0.422		

Thermal properties

Melting temperature, 10°C/min	165	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	105	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	161	°C	ISO 306
Coeff. of linear therm. expansion, parallel	70	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	80	E-6/K	ISO 11359-1/-2

Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.65	%	Sim. to ISO 62
Density	1580	kg/m^3	ISO 1183

CELCON® GB25

Injection

Drying Temperature	100 - 120	°C	
Drying Time, Dehumidified Dryer	3 - 4	h	
Melt Temperature Optimum	174	°C	Internal
Max. mould temperature	90 - 120	°C	
Back pressure	2	MPa	
Injection speed	slow		

Additional information

Injection molding

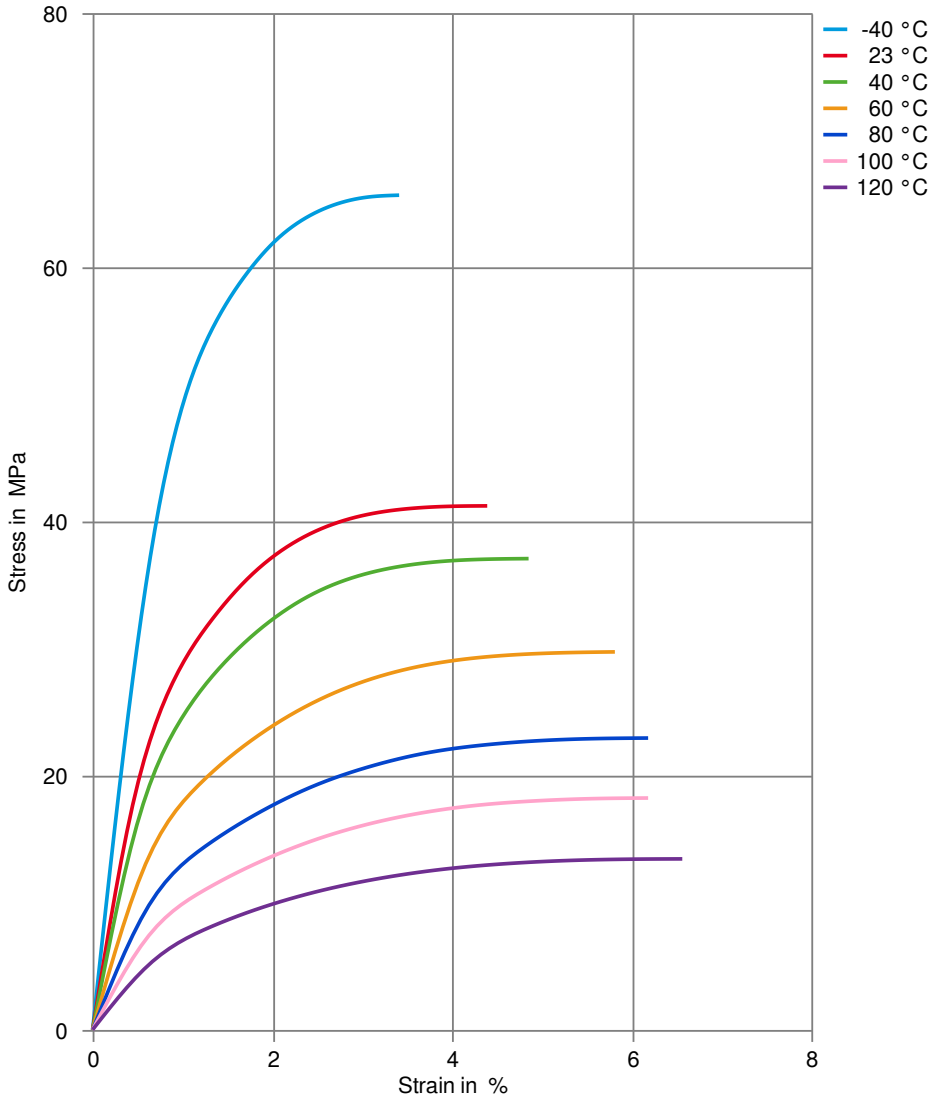
Standard reciprocating screw injection molding machines with a high compression screw (minimum 3:1 and preferably 4:1) and low back pressure (0.35 Mpa/50 PSI) are favored. Using a low compression screw (I.E. general purpose 2:1 compression ratio) can result in unmelted particles and poor melt homogeneity. Using a high back pressure to make up for a low compression ratio may lead to excessive shear heating and deterioration of the 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 82-93 C (180-200 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 3mm (1/8 in.) may use a cooler (65 C/150 F) mold surface temperature and wall thickness over 6mm (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 hinder weld line formation and produce a hazy surface or a surface with flow lines, pits and other included defects that can hinder part performance.

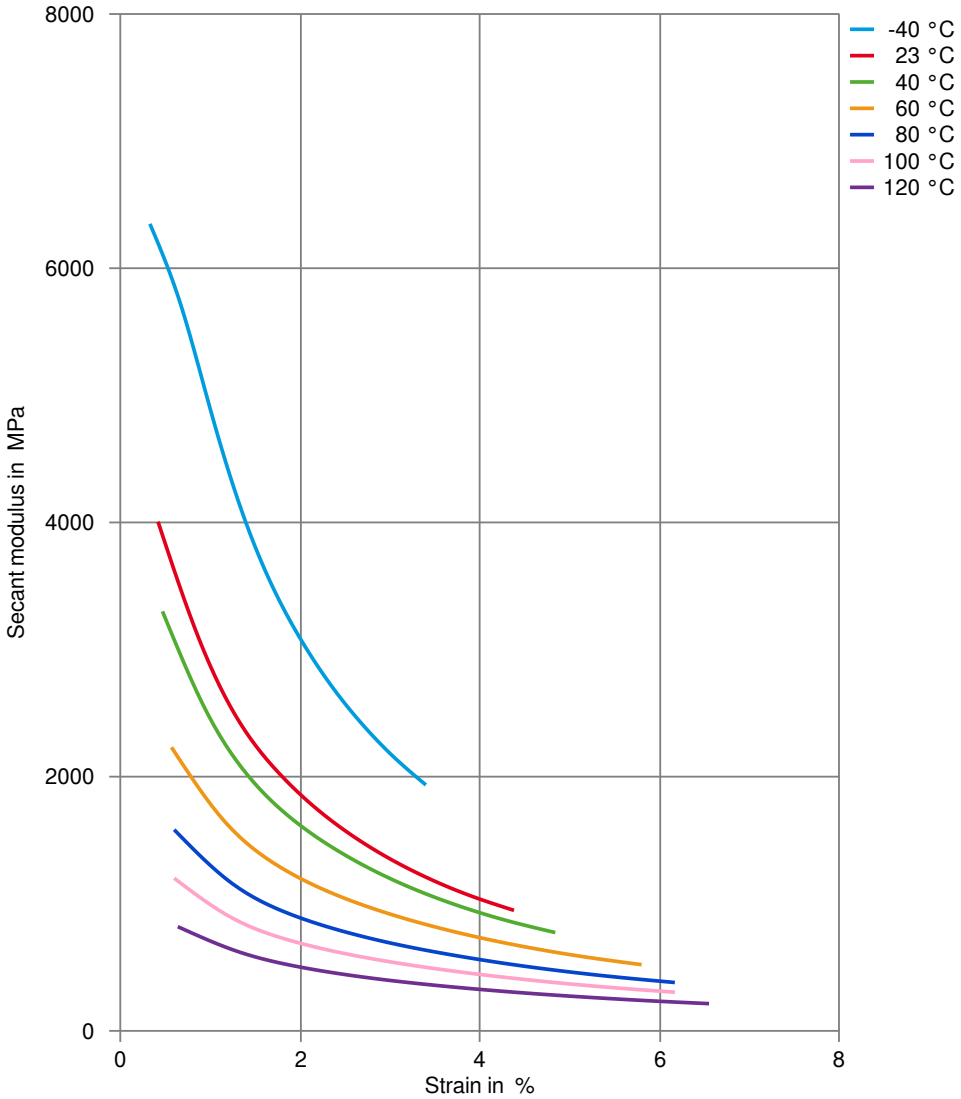
CELCON® GB25

Stress-strain



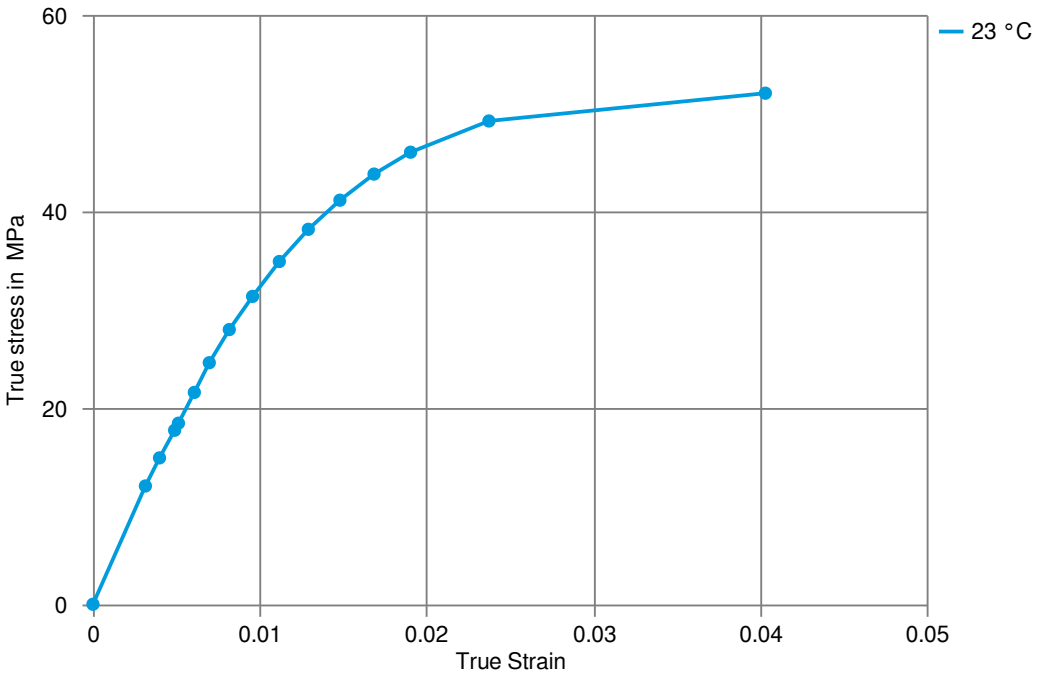
CELCON® GB25

Secant modulus-strain



CELCON® GB25

True stress-strain



CELCON® GB25

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 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 82-93 C (180-200 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 3mm (1/8 in.) may use a cooler (65 C/150 F) mold surface temperature and wall thickness over 6mm (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 hinder weld line formation and produce a hazy surface or a surface with flow lines, pits and other included defects that can hinder part performance.
Injection molding Preprocessing	Drying is generally not required because Celcon® and Hostaform® acetal copolymers 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 3hours. Desiccant hopper dryers are not required. Maximum water content = 0.35%
Injection molding Postprocessing	Postprocessing conditioning and moisturizing are 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
Stellantis - Chrysler	CPN 4165
Ford	WSB-M4D821-A

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Revised: 2023-07-28 Source: Celanese Materials Database