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**CELCON® GC25A | POM | Glass Reinforced**


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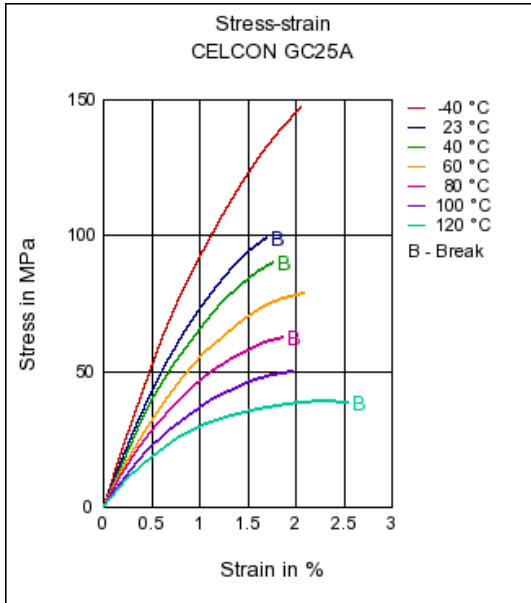
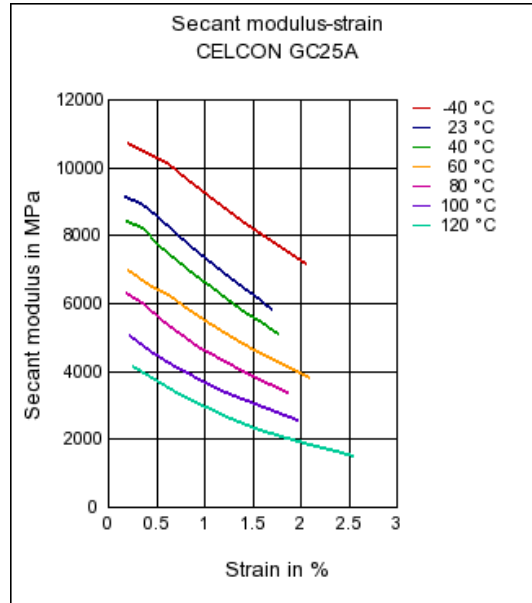
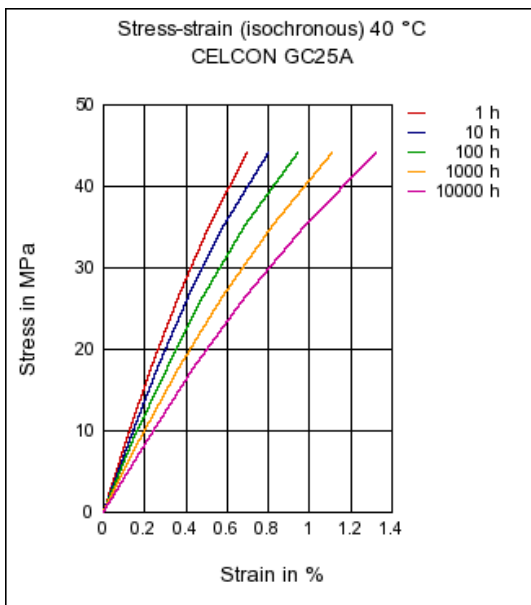
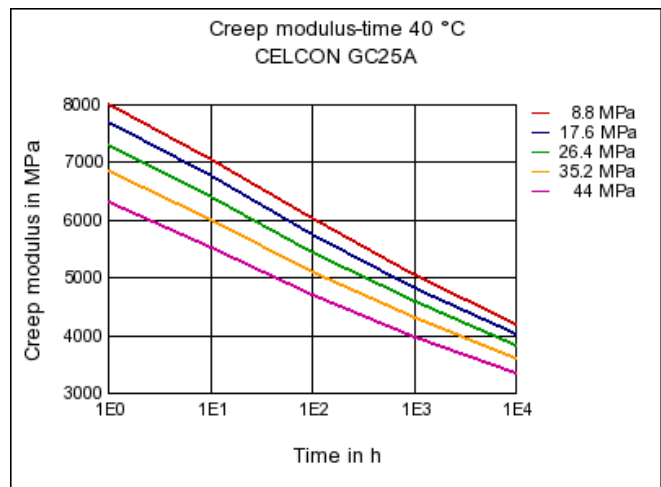
**Description**

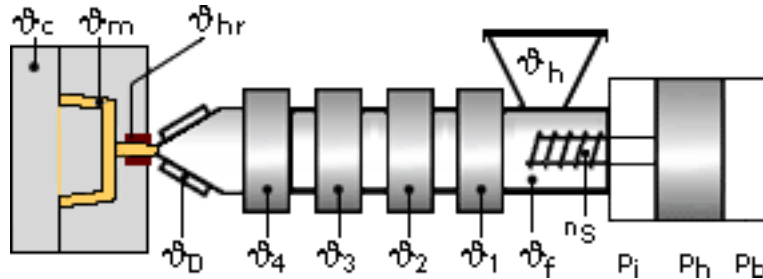

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Celcon® acetal copolymer grade GC25A is a glass coupled formulation containing 25% reinforced fiber glass. This grade offers excellent strength, stiffness and heat distortion temperature with lower mold shrinkage, minimum thermal expansion, excellent dimensional stability and good moldability.

Chemical abbreviation according to ISO 1043-1: POM

<b>Physical properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Density	<b>1580</b>	kg/m <sup>3</sup>	ISO 1183
Mold shrinkage - parallel	<b>0.4</b>	%	ISO 294-4
Mold shrinkage - normal	<b>1.2</b>	%	ISO 294-4
Water absorption (23°C-sat)	<b>0.8</b>	%	ISO 62
Humidity absorption (23°C/50%RH)	<b>0.2</b>	%	ISO 62
<b>Mechanical properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Tensile modulus (1mm/min)	<b>8600</b>	MPa	ISO 527-2/1A
Tensile stress at break (5mm/min)	<b>106</b>	MPa	ISO 527-2/1A
Tensile strain at break (5mm/min)	<b>2</b>	%	ISO 527-2/1A
Flexural modulus (23°C)	<b>8700</b>	MPa	ISO 178
Flexural strength (23°C)	<b>160</b>	MPa	ISO 178
Charpy impact strength @ 23°C	<b>25.0</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy impact strength @ -30°C	<b>35.0</b>	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength @ 23°C	<b>6.4</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Notched impact strength (Izod) @ 23°C	<b>6.0</b>	kJ/m <sup>2</sup>	ISO 180/1A
<b>Thermal properties</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Melting temperature (10°C/min)	<b>165</b>	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	<b>160</b>	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	<b>0.25</b>	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	<b>1.2</b>	E-4/°C	ISO 11359-2
<b>Test specimen production</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Processing conditions acc. ISO	<b>9988-2</b>	-	Internal

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**Stress-strain**

**Secant modulus-strain**

**Stress-strain (isochronous)**

**Creep modulus-time**


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**Typical injection moulding processing conditions**

**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.

**Drying time: 3 h**

**Drying temperature: 80 - 100 °C**

**Temperature:**

	$\varnothing_{\text{Manifold}}$	$\varnothing_{\text{Mold}}$	$\varnothing_{\text{Melt}}$	$\varnothing_{\text{Nozzle}}$	$\varnothing_{\text{Zone4}}$	$\varnothing_{\text{Zone3}}$	$\varnothing_{\text{Zone2}}$	$\varnothing_{\text{Zone1}}$
min (°C)	180	90	180	190	190	180	180	170
max (°C)	200	120	200	200	200	190	190	180

**Pressure:**

	Inj press	Hold press	Back pressure
min (bar)	900	900	0
max (bar)	1400	1400	5

**Speed:**

**Injection speed: slow**

**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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**Contact Information**

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**Americas**

8040 Dixie Highway, Florence, KY 41042 USA

Product Information Service

t: +1-800-833-4882 t: +1-859-372-3244

Customer Service

t: +1-800-526-4960 t: +1-859-372-3214

e: info-engineeredmaterials-am@celanese.com

**Asia**

4560 Jinke Road, Zhang Jiang Hi Tech Park

Shanghai 201203 PRC

Customer Service

t: +86 21 3861 9266 f: +86 21 3861 9599

e: info-engineeredmaterials-asia@celanese.com

**Europa**

Am Unisys-Park 1, 65843 Sulzbach, Germany

Product Information Service

t: +(00)-800-86427-531 t: +49-(0)-69-45009-1011

e: info-engineeredmaterials-eu@celanese.com

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Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use.

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