Celanese
The chemistry inside innovation™

CELCON® GC25T ECO-B

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Celcon® GC25T is a 25% glass fiber coupled acetal copolymer grade. It offers higher strength than Celcon® GC25A. Celcon® GC25T is also exceptionally resistant to fuel. It offers excellent resistance to transportation fuels especially oxygenated fuels. Chemical abbreviation according to ISO 1043-1: POM ECO-B: Celcon® ECO-B is a POM-Copolymer with the same properties and performance as standard grades but produced with sustainability in mind. Using a mass-balance approach, biogenic feedstocks are used to offset the use of fossil-based raw materials and decrease greenhouse gas emissions. The process is audited and certified according to the ISCC Plus mass balance approach.

产品信息

树脂鉴别	POM-GF25	ISO 1043
制品标识码	>POM-GF25<	ISO 11469

流变性能

模塑收缩率, 平行	0.7	%	ISO 294-4, 2577
模塑收缩率, 垂直	1.5	%	ISO 294-4, 2577

机械性能

拉伸模量	8700	MPa	ISO 527-1/-2
拉伸断裂应力, 5mm/min	125	MPa	ISO 527-1/-2
断裂伸长率, 5mm/min	2.7	%	ISO 527-1/-2
弯曲模量	8500	MPa	ISO 178
弯曲强度	190	MPa	ISO 178
压缩强度	181	MPa	ISO 604
1%形变时的压缩应力	67	MPa	ISO 604
简支梁无缺口冲击强度, 23°C	50	kJ/m²	ISO 179/1eU
简支梁无缺口冲击强度, -30°C	55	kJ/m²	ISO 179/1eU
简支梁缺口冲击强度, 23°C	8.7	kJ/m²	ISO 179/1eA
简支梁缺口冲击强度, -30°C	7.2	kJ/m²	ISO 179/1eA
悬臂梁缺口冲击强度, 23°C	8	kJ/m²	ISO 180/1A
泊松比	0.41		

热性能

熔融温度, 10°C/min	165	°C	ISO 11357-1/-3
热变形温度, 1.8 MPa	161	°C	ISO 75-1/-2
线性热膨胀系数, 平行	27	E-6/K	ISO 11359-1/-2
线性热膨胀系数, 垂直	125	E-6/K	ISO 11359-1/-2

其它性能

吸湿率, 2mm	0.2	%	类似ISO 62
吸水率, 2mm	0.8	%	类似ISO 62
密度	1580	kg/m³	ISO 1183

注塑

建议干燥	否	
干燥温度	100	°C
干燥时间，除湿干燥机	3 - 4	h
加工前水分含量	≤ 0.2	%
最优熔体温度	190	°C

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最低熔体温度***	180	°C
最高熔体温度	200	°C
螺杆最大切线速度	≤ 0.3	m/s
最优模具温度	105	°C
最低模具温度	90	°C
最高模具温度	120	°C
保压范围	60 - 120	MPa
保压时间 (h表示部件的最大壁厚mm)	$2h^2$-3	s
背压	2	MPa

特性

加工方法	注塑, 异型材挤出成型, 其它挤出成型
可持续	生物基

其他信息

注塑

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%.

Processing

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.

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.

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其他挤出成型

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Preprocessing

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Processing

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)

Postprocessing

Postprocessing conditioning or moisturizing are not required. For thick walled sections (>3mm or 1/8 in.), annealing is recommended to reduce internal stresses.

Annealing temperature: 130-140 C (265-285 F)

Annealing time: 10 min/mm thickness

加工注意事项

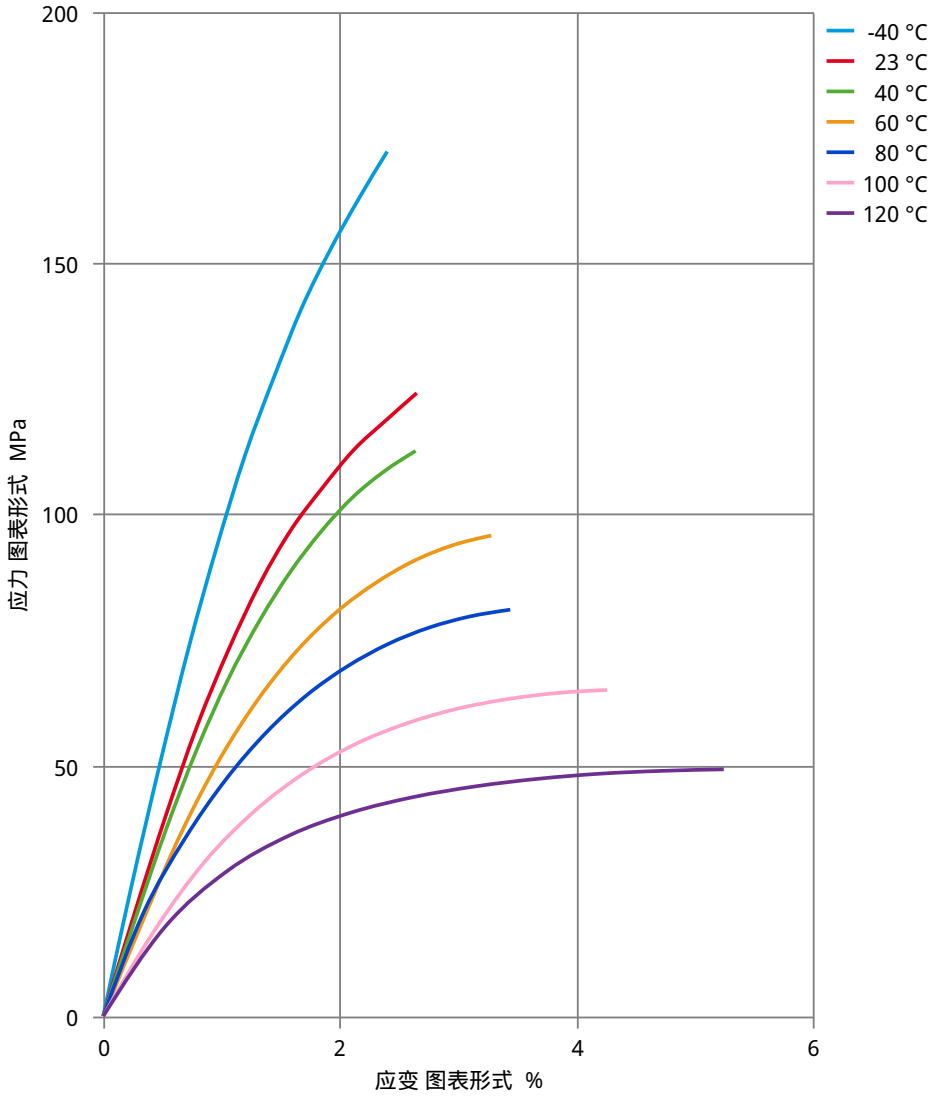
Pre-Drying

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.

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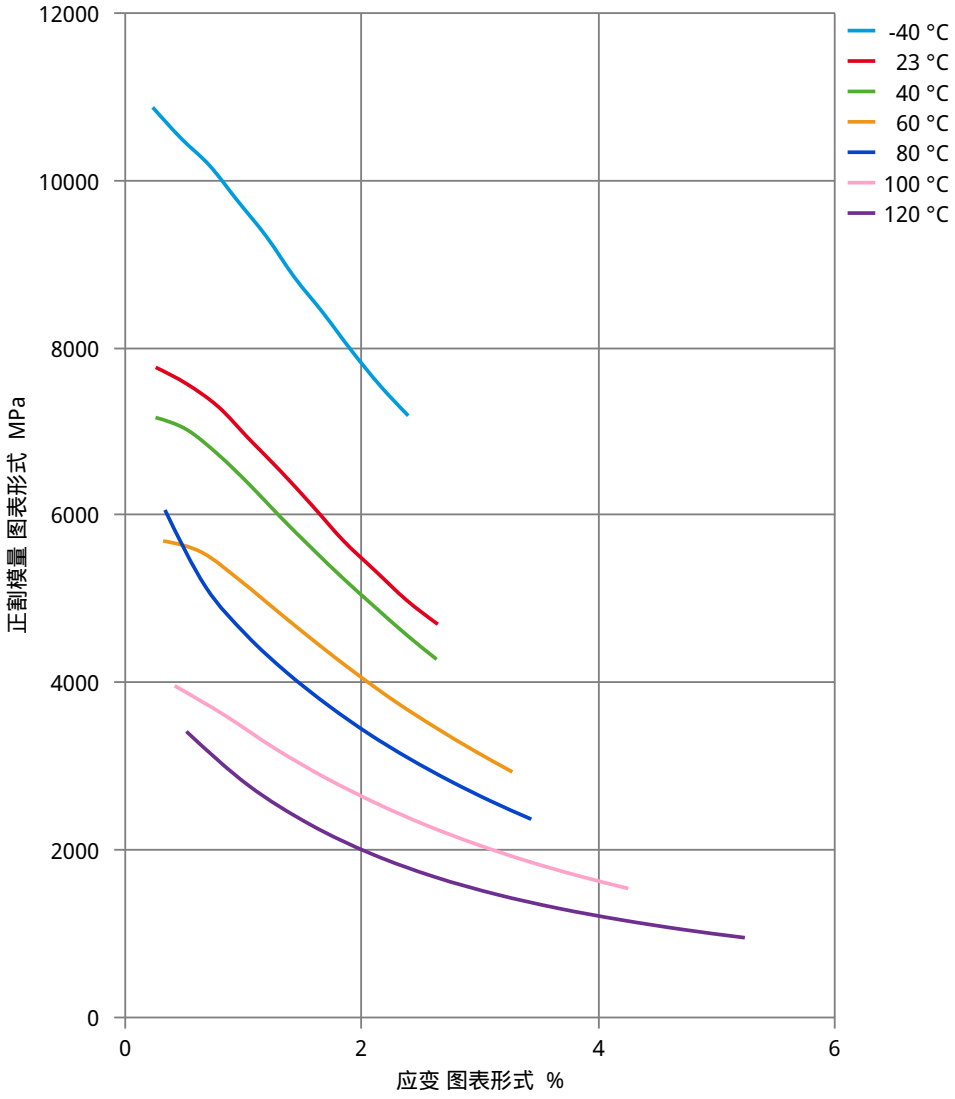
应力 - 应变



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正割模量 - 应变



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耐化学性

标准燃油

- ✔ ISO 1817 燃油1号, 60°C
- ✔ ISO 1817 燃油2号, 60°C
- ✔ ISO 1817 燃油3号, 60°C
- ✔ ISO 1817 燃油4号, 60°C
- ✔ 不含酒精的标准燃油(优先使用C类ISO 1817 燃油), 23°C
- ✔ 含酒精的标准燃油(优先使用4号ISO 1817 燃油), 23°C

Symbols used:

✔ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

✘ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

Revised: 2024-07-10 Source: Celanese Materials Database

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