CELCON® M140 | POM | Unfilled

Description

Celcon® acetal copolymer grade M140 is a moderately high flow general purpose injection molding grade. It is designed for use in applications requiring some enhanced flow characteristics over the standard Celcon® M90 material.

Chemical abbreviation according to ISO 1043-1: POM

Please also see Hostaform® C 13021.

Physical properties	Value	Unit	Test Standard
Density	**1410**	kg/m³	ISO 1183
Melt volume rate (MVR)	**12**	cm³/10min	ISO 1133
MVR test temperature	**190**	°C	ISO 1133
MVR test load	**2.16**	kg	ISO 1133
Mold shrinkage - parallel	**1.8**	%	ISO 294-4
Mold shrinkage - normal	**1.7**	%	ISO 294-4
Water absorption (23°C-sat)	**0.75**	%	ISO 62
Humidity absorption (23°C/50%RH)	**0.2**	%	ISO 62

Mechanical properties	Value	Unit	Test Standard
Tensile modulus (1mm/min)	**2740**	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	**65**	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	**9**	%	ISO 527-2/1A
Tensile creep modulus (1h)	**2350**	MPa	ISO 899-1
Tensile creep modulus (1000h)	**1300**	MPa	ISO 899-1
Flexural modulus (23°C)	**2640**	MPa	ISO 178
Charpy notched impact strength @ 23°C	**6.0**	kJ/m²	ISO 179/1eA
Notched impact strength (Izod) @ 23°C	**5.7**	kJ/m²	ISO 180/1A

Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	**166**	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	**102**	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	**156**	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	**1**	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	**1**	E-4/°C	ISO 11359-2

Test specimen production	Value	Unit	Test Standard
Processing conditions acc. ISO	**9988-2**	-	Internal

Rheological Calculation properties	Value	Unit	Test Standard
Density of melt	**1200**	kg/m³	Internal
Thermal conductivity of melt	**0.155**	W/(m K)	Internal
Specific heat capacity of melt	**2210**	J/(kg K)	Internal

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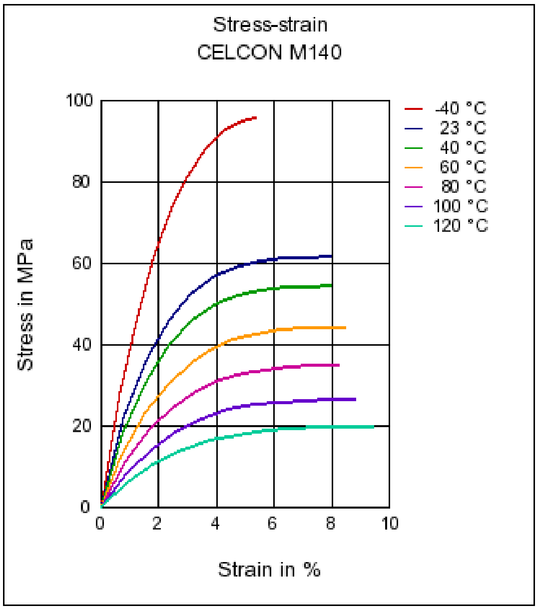
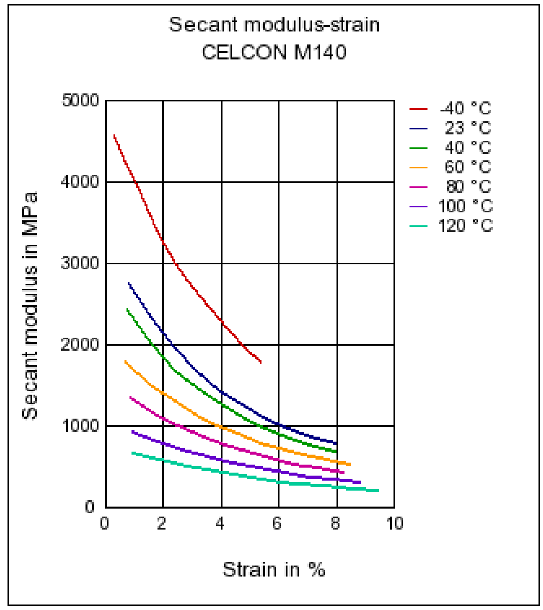
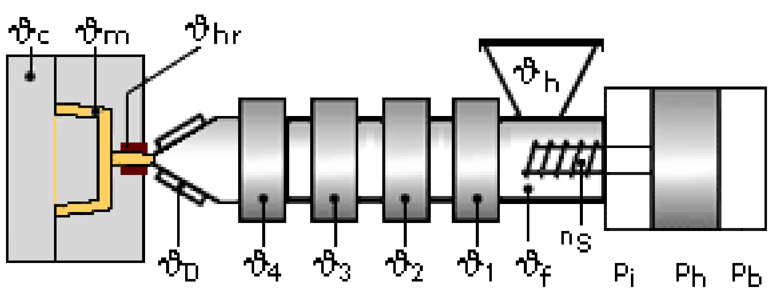
Stress-strain



Secant modulus-strain



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:

	$^{\vartheta}$Manifold	$^{\vartheta}$Mold	$^{\vartheta}$Melt	$^{\vartheta}$Nozzle	$^{\vartheta}$Zone4	$^{\vartheta}$Zone3	$^{\vartheta}$Zone2	$^{\vartheta}$Zone1
min (°C)	180	80	180	190	190	180	180	170
max (°C)	200	120	200	200	200	190	190	180

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Pressure:

	Inj press	Hold press	Back pressure
min (bar)	600	600	0
max (bar)	1200	1200	5

Speed:

Injection speed: slow-medium

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.

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General Disclaimer

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