

Mineral coupled for reduced warpage, high modulus, moderate flow Celcon® MC90-HM is a highly mineral filled and coupled M90 material for producing very flat and dimensionally stable parts (normal flow).

### Rheological properties

Moulding shrinkage, parallel Moulding shrinkage, normal	1.5 1.3		ISO 294-4, 2577 ISO 294-4, 2577
Typical mechanical properties			
Tensile Modulus Yield stress, 50mm/min Yield strain, 50mm/min Flexural Modulus Flexural Strength Compressive stress at 1% strain Charpy notched impact strength, 23°C Charpy notched impact strength, -30°C Izod notched impact strength, 23°C Poisson's ratio	6 3500 72 28 6.3 4.9	MPa %	ISO 527-1/-2 ISO 527-1/-2 ISO 527-1/-2 ISO 178 ISO 178 ISO 604 ISO 179/1eA ISO 179/1eA ISO 180/1A
Thermal properties	000		
Melting temperature, 10°C/min Temp. of deflection under load, 1.8 MPa Vicat softening temperature, 50°C/h, 50N Coeff. of linear therm. expansion, parallel Coeff. of linear therm. expansion, normal		°C	ISO 11357-1/-3 ISO 75-1/-2 ISO 306 ISO 11359-1/-2 ISO 11359-1/-2
Other properties			
Humidity absorption, 2mm Water absorption, 2mm Density	0.2 0.75 1570		Sim. to ISO 62 Sim. to ISO 62 ISO 1183

### Injection

Drying Temperature	100 - 120	°C
Drying Time, Dehumidified Dryer	3 - 4	h
Max. mould temperature	80 - 120	°C
Back pressure	4	MPa
Injection speed	slow	

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#### Characteristics

Additives

Release agent, Mineral Filler

#### 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.

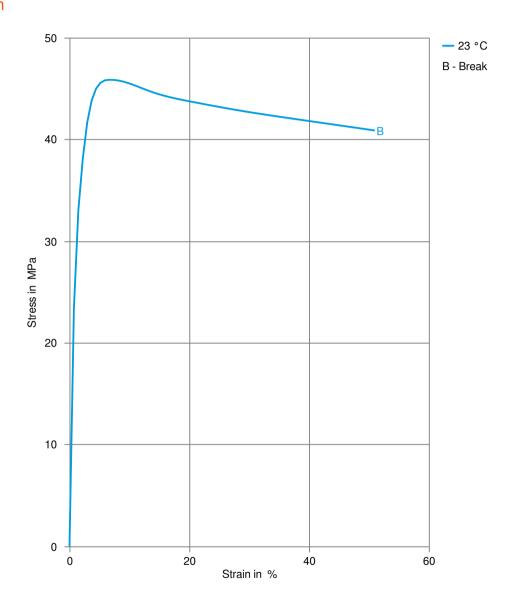
Melt Temperature: Preferred range 182-199 C (360-390 F). Melt temperature should never exceed 230 C (450 F).

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.

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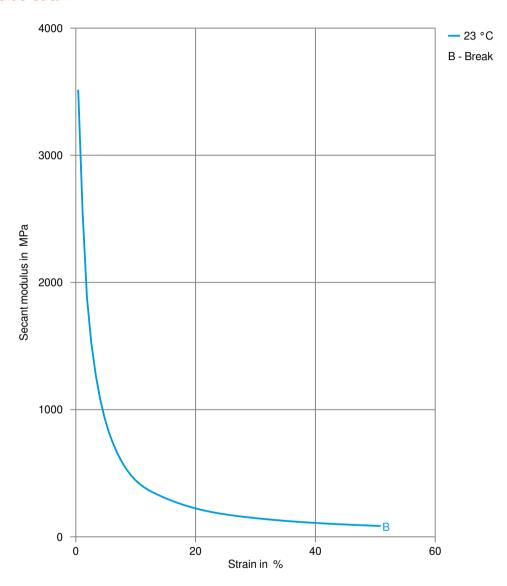
#### Stress-strain



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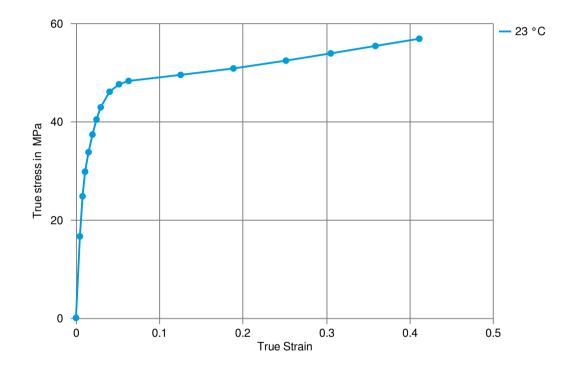
#### Secant modulus-strain



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#### True stress-strain



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#### **Processing Texts**

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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.

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