Celanese
The chemistry inside innovation™

CELCON® MC90-HM

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 range, parallel	1.5	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1.3	%	ISO 294-4, 2577

Typical mechanical properties

Tensile Modulus	3550	MPa	ISO 527-1/-2
Yield stress, 50mm/min	45	MPa	ISO 527-1/-2
Yield strain, 50mm/min	6	%	ISO 527-1/-2
Flexural Modulus	3500	MPa	ISO 178
Flexural Strength	72	MPa	ISO 178
Compressive stress at 1% strain	28	MPa	ISO 604
Charpy notched impact strength, 23°C	6.3	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	4.9	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	6.1	kJ/m²	ISO 180/1A
Poisson's ratio	0.403		

Thermal properties

Melting temperature, 10°C/min	165	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	103	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	161	°C	ISO 306
Coeff. of linear therm. expansion, parallel	60	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	90	E-6/K	ISO 11359-1/-2

Other properties

Humidity absorption, 2mm	0.2	%	Sim. to ISO 62
Water absorption, 2mm	0.75	%	Sim. to ISO 62
Density	1570	kg/m³	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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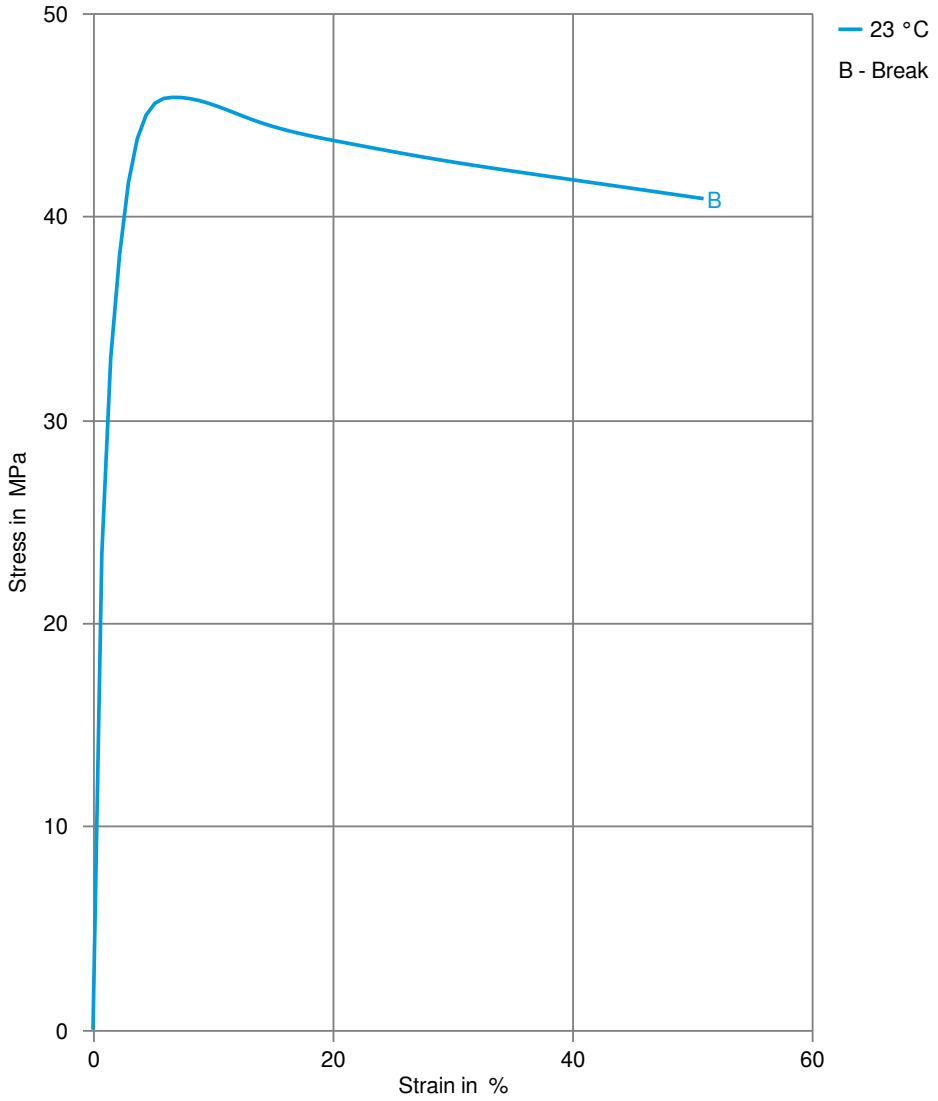
Stress-strain



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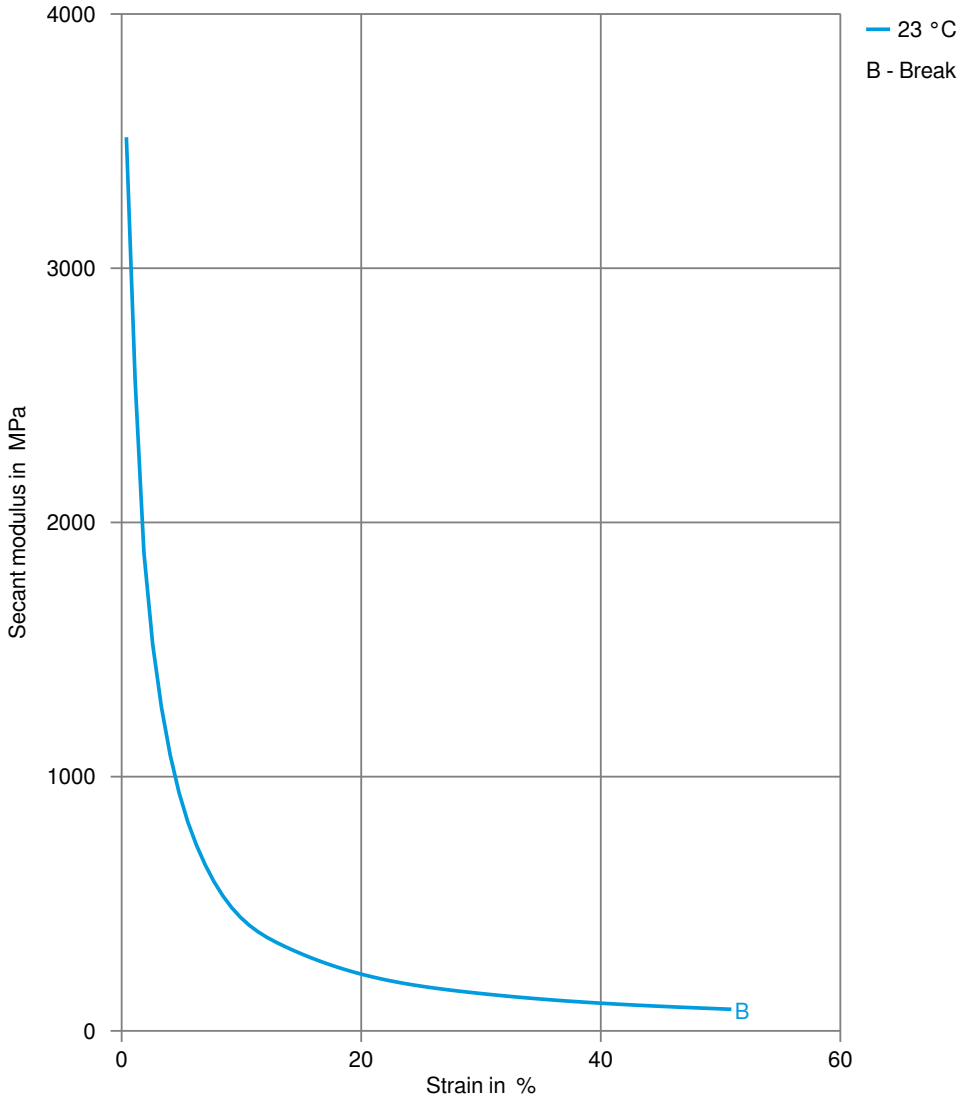
Secant modulus-strain



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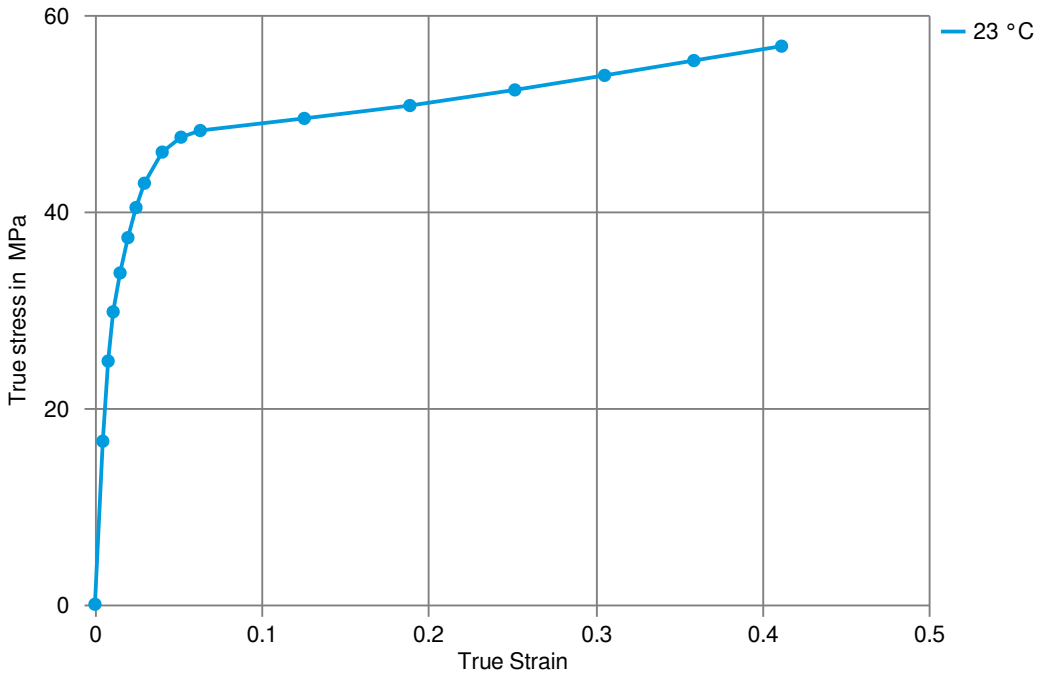
True stress-strain



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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.