

## CELCON<sup>®</sup> M50

Intermediate grade for improved toughness

Celcon® M50 is a extrusion and injection molding grade with an intermediate viscosity for good processability with higher toughness than general purpose grades.

Chemical abbreviation according to ISO 1043-1: POM

### **Rheological properties**

Melt volume-flow rate Temperature Load Moulding shrinkage, parallel Moulding shrinkage, normal	4.3 190 2.16 2.2 2.1	kg %	ISO 1133 ISO 294-4, 2577 ISO 294-4, 2577
	2.1	/0	130 294-4, 2377
Typical mechanical properties			
Tensile Modulus	2500		ISO 527-1/-2
Yield stress, 50mm/min		MPa	ISO 527-1/-2
Yield strain, 50mm/min Flexural Modulus	12 2400		ISO 527-1/-2 ISO 178
Flexural Stress at 3.5%		MPa	ISO 178
Charpy notched impact strength, 23°C		kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength, 23°C		kJ/m <sup>2</sup>	ISO 180/1A
Thermal properties			
Melting temperature, 10°C/min	166	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa		°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	161	°C	ISO 306
Coeff. of linear therm. expansion, parallel		E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	100	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	1410	kg/m³	ISO 1183
Injection			
Drying Temperature	100 - 120	°C	
Drying Time, Dehumidified Dryer	3 - 4		
Max. mould temperature	80 - 120		
Back pressure		MPa	
Injection speed	slow-medium		



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#### Additional information

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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.
Film 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 melt homogeneity. The design should be approximately 35% each for feed and metering sections with the remaining 30% as the transition zone.
	Melt temperature: 160-220 C (320-430 F)
Blow molding	Consult product information services.
Calandering	Consult product information services.
Compression molding	Consult product information services.
Processing Texts	
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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Printed: 2023-08-07	Page: 2 of 3



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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.

#### Printed: 2023-08-07

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Page: 3 of 3

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design for any use contemplated by a motical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, 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. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to he lowest that texist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and

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