

## CELCON<sup>®</sup> M90AW

### CELCON®

Celcon® M90AW is a low wear grade designed for gears and other low wear applications, especially where reducing noise and wear in low load-high velocity applications. Celcon® M90AW is an option where silicone or PTFE based wear resistant products are not acceptable.

#### Product information **Resin Identification** POM ISO 1043 Part Marking Code >POM< ISO 11469 Rheological properties Melt volume-flow rate 8 cm<sup>3</sup>/10min ISO 1133 190 °C Temperature Load 2.16 kg Moulding shrinkage, parallel 1.9 % ISO 294-4, 2577 Moulding shrinkage, normal 1.4 % ISO 294-4, 2577 Typical mechanical properties Tensile modulus 2430 MPa ISO 527-1/-2 Tensile stress at yield, 50mm/min 55 MPa ISO 527-1/-2 Tensile strain at yield, 50mm/min 9 % ISO 527-1/-2 Flexural modulus 2400 MPa **ISO 178** Flexural stress at 3.5% 79 MPa ISO 178 Charpy impact strength, 23°C 90 kJ/m<sup>2</sup> ISO 179/1eU Charpy impact strength, -30°C 91 kJ/m<sup>2</sup> ISO 179/1eU Charpy notched impact strength, 23°C 5 kJ/m<sup>2</sup> ISO 179/1eA Charpy notched impact strength, -30°C 4.7 kJ/m<sup>2</sup> ISO 179/1eA Izod notched impact strength, 23°C 5.2 kJ/m<sup>2</sup> ISO 180/1A Poisson's ratio 0.419 Thermal properties Melting temperature, 10°C/min 166 °C ISO 11357-1/-3 86 °C Temperature of deflection under load, 1.8 MPa ISO 75-1/-2 110 E-6/K ISO 11359-1/-2 Coefficient of linear thermal expansion (CLTE), parallel Coefficient of linear thermal expansion (CLTE), 110 E-6/K ISO 11359-1/-2 normal Physical/Other properties ISO 1183 Density 1360 kg/m<sup>3</sup> Injection **Drying Recommended** no **Drying Temperature** 100 °C Drying Time, Dehumidified Dryer 3-4 h **Processing Moisture Content** ≤0.2 % 190 °C Melt Temperature Optimum 180 °C Min. melt temperature 200 °C Max. melt temperature Screw tangential speed ≤0.3 m/s

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Mold Temperature Optimum Min. mould temperature Max. mould temperature Hold pressure range Back pressure

#### Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Special characteristics	Low wear / Low fric

#### Additional information

Injection molding

	100	°С
	80	°C
	120	°C
60 -	120	MPa
	4	MPa

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### 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%

#### 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 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.

### Postprocessing

Postprocessing conditioning and moisturizing are not required. It may be necessary to fixture large or complicated parts with varying wall thickness to

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**Processing Notes** 

prevent warpage while cooling to ambient temperature.

#### **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.

#### Automotive

OEM General Motors

**General Motors** 

Stellantis - Chrysler

STANDARD Black; Special Parts Approval, See Your CE Account Representative for Further Details. Natural; Special Parts Approval, See Your CE Account Representative for Further Details.

MS.50095 / CPN-4931

ADDITIONAL INFORMATION

Natural

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#### Revised: 2024-05-14 Source: Celanese Materials Database

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 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 groucts. 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 the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. 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

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