

CELCON® M270™ | POM | Unfilled

Description

Celcon® acetal copolymer grade M270™ is a lower molecular weight, high - flow grade designed for superior moldability in multi-cavity, intricate or hard to fill molds applications.

Chemical abbreviation according to ISO 1043-1: POM

Please also see Hostaform® C 27021.

Physical properties	Value	Unit	Test Standard
Density	1410	kg/m ³	ISO 1183
Melt volume rate (MVR)	23	cm ³ /10min	ISO 1133
MVR test temperature	190	°C	ISO 1133
MVR test load	2.16	kg	ISO 1133
Mold shrinkage - parallel	1.7	%	ISO 294-4
Mold shrinkage - normal	1.6	%	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)	2800	MPa	ISO 527-2/1A
Tensile stress at yield (50mm/min)	67	MPa	ISO 527-2/1A
Tensile strain at yield (50mm/min)	8	%	ISO 527-2/1A
Tensile creep modulus (1h)	2300	MPa	ISO 899-1
Tensile creep modulus (1000h)	1300	MPa	ISO 899-1
Flexural modulus (23°C)	2750	MPa	ISO 178
Charpy impact strength @ 23°C	116.0	kJ/m ²	ISO 179/1eU
Charpy impact strength @ -30°C	108.0	kJ/m ²	ISO 179/1eU
Charpy notched impact strength @ 23°C	5.2	kJ/m ²	ISO 179/1eA
Notched impact strength (Izod) @ 23°C	5.4	kJ/m ²	ISO 180/1A

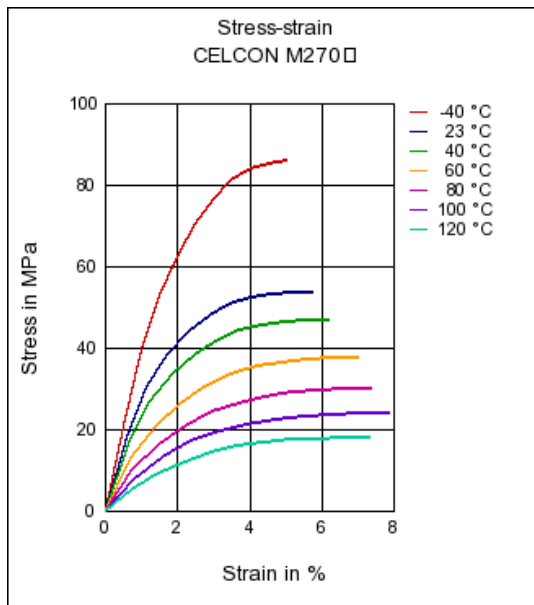
Thermal properties	Value	Unit	Test Standard
Melting temperature (10°C/min)	166	°C	ISO 11357-1,-2,-3
DTUL @ 1.8 MPa	103	°C	ISO 75-1/-2
DTUL @ 0.45 MPa	156	°C	ISO 75-1/-2
Coeff.of linear therm. expansion (parallel)	1.1	E-4/°C	ISO 11359-2
Coeff.of linear therm. expansion (normal)	1.2	E-4/°C	ISO 11359-2

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

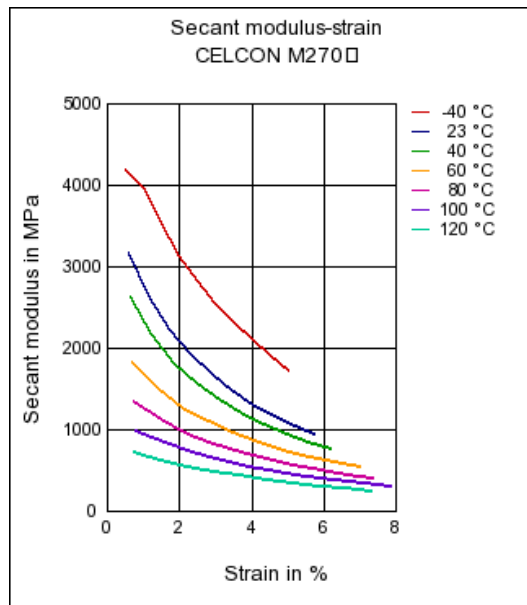
Rheological Calculation properties	Value	Unit	Test Standard
Density of melt	1200	kg/m ³	Internal
Thermal conductivity of melt	0.155	W/(m K)	Internal
Specific heat capacity of melt	2210	J/(kg K)	Internal
Ejection temperature	165	°C	Internal

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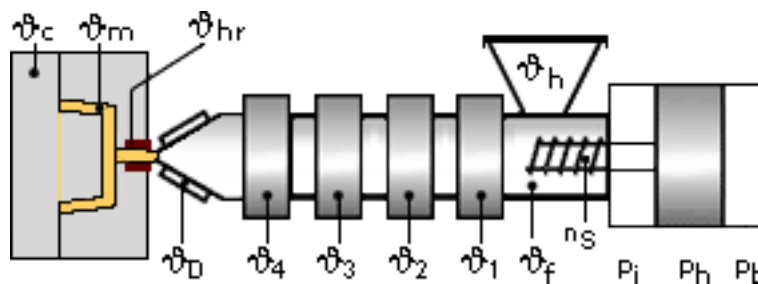
Stress-strain



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:

	\varnothing Manifold	\varnothing Mold	\varnothing Melt	\varnothing Nozzle	\varnothing Zone4	\varnothing Zone3	\varnothing Zone2	\varnothing 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.

Contact Information

Americas

Ticona North American Headquarters
Product Information Service
8040 Dixie Highway
Florence, KY 41042
USA
Tel.: +1-800-833-4882
Tel.: +1-859-372-3244
email: prodinfo@ticona.com
Ticona on the web: www.ticona.com

Customer Service

Tel.: +1-800-526-4960
Tel.: +1-859-372-3214
Fax: +1-859-372-3125

Europe

Ticona GmbH
Information Service
Tel.: +49 (0) 180-5842662 (Germany)
+49 (0) 69-30516299 (Europe)
Fax: +49 (0) 180-2021202 (Germany & Europe)
email: infoservice@ticona.de
Internet: www.ticona.com

General Disclaimer

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. Colorants or other additives may cause significant variations in data values.

Properties of molded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. 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.

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