Celcon® M90™

Acetal (POM) Copolymer

Celanese Corporation

PROSPECTOR®

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Technical Data

Product Description

Celcon acetal copolymer grade M90™ is a medium viscosity polymer providing optimum performance in general purpose injection molding and extrusion of thin walled tubing and thin gauge film. This grade provides overall excellent performance in many applications.

Chemical abbreviation according to ISO 1043-1: POM

Please also see Hostaform® C 9021.

General

Material Status	• Commercial: Active		
Literature [1]	• Technical Datasheet - ASTM (English) • Technical Datasheet - ISO (English)		
UL Yellow Card [2]	• E113269-100967688 • E38860-239310 • E38860-101305515		
Search for UL Yellow Card	• Celanese Corporation • Celcon®		
Availability	• Latin America	• North America	
Features	• General Purpose	• Medium Viscosity	
Uses	• General Purpose	• Thin-walled Parts	• Tubing
RoHS Compliance	• Contact Manufacturer		
Processing Method	• Injection Molding		
Multi-Point Data	• Isochronous Stress vs. Strain (ISO 11403-1)	• Isothermal Stress vs. Strain (ISO 11403-1)	
Resin ID (ISO 1043)	• POM		

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity			
--	1.41	1.41 g/cm³	ASTM D792
--	1.41 g/cm³	1.41 g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR)	9.0 g/10 min	9.0 g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	0.488 in³/10min	8.00 cm³/10min	ISO 1133
Molding Shrinkage			
Flow	0.022 in/in	2.2 %	ASTM D955
Across Flow	0.018 in/in	1.8 %	ASTM D955
Across Flow	1.9 %	1.9 %	ISO 294-4
Flow	2.0 %	2.0 %	ISO 294-4
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.75 %	0.75 %	
Equilibrium, 73°F (23°C), 50% RH	0.20 %	0.20 %	

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	400000 psi	2760 MPa	ISO 527-2/1A/1
Tensile Strength			
Yield, -40°F (-40°C)	13700 psi	94.5 MPa	ASTM D638
Yield, 73°F (23°C)	8800 psi	60.7 MPa	ASTM D638
Yield, 160°F (71°C)	5000 psi	34.5 MPa	ASTM D638
Yield	9570 psi	66.0 MPa	ISO 527-2/1A/50
Tensile Strain (Yield)	10 %	10 %	ISO 527-2/1A/50
Tensile Creep Modulus			ISO 899-1
1 hr	355000 psi	2450 MPa	
1000 hr	196000 psi	1350 MPa	
Flexural Modulus (73°F (23°C))	370000 psi	2550 MPa	ISO 178

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Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	2.9 ft·lb/in²	6.0 kJ/m²	
73°F (23°C)	2.9 ft·lb/in²	6.0 kJ/m²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F (-30°C)	86 ft·lb/in²	180 kJ/m²	
73°F (23°C)	89 ft·lb/in²	190 kJ/m²	
Notched Izod Impact Strength (73°F (23°C))	2.7 ft·lb/in²	5.7 kJ/m²	ISO 180/1A

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Heat Deflection Temperature			
66 psi (0.45 MPa), Unannealed	316 °F	158 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	230 °F	110 °C	ASTM D648
264 psi (1.8 MPa), Unannealed	214 °F	101 °C	ISO 75-2/A
Melting Temperature [4]	329 °F	165 °C	ISO 11357-3 ASTM D3418
CLTE			ISO 11359-2
Flow	6.7E-5 in/in/°F	1.2E-4 cm/cm/°C	
Transverse	6.7E-5 in/in/°F	1.2E-4 cm/cm/°C	

Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity	3.0E+16 ohm	3.0E+16 ohm	IEC 60093
Volume Resistivity			
--	1.0E+14 ohm·cm	1.0E+14 ohm·cm	ASTM D257
--	8.0E+14 ohm·cm	8.0E+14 ohm·cm	IEC 60093

Fill Analysis	Nominal Value (English)	Nominal Value (SI)	Test Method
Density of Melt	74.91 lb/ft³	1.200 g/cm³	Internal Method
Ejection Temperature	329 °F	165 °C	Internal Method
Specific Heat Capacity of Melt	0.528 Btu/lb/°F	2210 J/kg/°C	Internal Method
Thermal Conductivity of Melt	1.1 Btu·in/hr/ft²/°F	0.16 W/m/K	Internal Method

Additional Information	Nominal Value (English)	Nominal Value (SI)	Test Method
Effective Thermal Diffusivity	0.0485 cSt	0.0485 cSt	Internal Method

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	176 to 212 °F	80.0 to 100 °C
Drying Time	3.0 hr	3.0 hr
Rear Temperature	338 to 356 °F	170 to 180 °C
Middle Temperature	356 to 374 °F	180 to 190 °C
Front Temperature	356 to 374 °F	180 to 190 °C
Nozzle Temperature	374 to 392 °F	190 to 200 °C
Processing (Melt) Temp	356 to 392 °F	180 to 200 °C
Mold Temperature	176 to 248 °F	80.0 to 120 °C
Injection Pressure	8700 to 17400 psi	60.0 to 120 MPa
Injection Rate	Slow-Moderate	Slow-Moderate
Holding Pressure	8700 to 17400 psi	60.0 to 120 MPa
Back Pressure	0.00 to 72.5 psi	0.00 to 0.500 MPa

Injection Notes

Manifold Temperature: 180 to 200°C
Zone 4 Temperature: 190 to 200°C

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Notes

[1] These links provide you with access to supplier literature. We work hard to keep them up to date; however you may find the most current literature from the supplier.

[2] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

[3] Typical properties: these are not to be construed as specifications.

[4] 10°C/min

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Where to Buy

Supplier

Celanese Corporation
Florence, KY USA
Telephone: 800-833-4882
Web: http://www.celanese.com/engineered-materials

Distributor

Amco Polymers
Telephone: 800-262-6685
Web: http://www.amcopolymers.com/
Availability: North America

Channel Prime Alliance
Telephone: 800-247-8038
Web: http://www.channelpa.com/
Availability: North America

Entec Polymers
Telephone: 800-375-5440
Web: http://www.entecpolymers.com/
Availability: North America

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