

Technical Data

Product Description

General purpose, good optimization of properties

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		
UL Yellow Card ²	• E38860-101305515 • E38860-239310		
Search for UL Yellow Card	• Celanese Corporation • Celcon®		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Uses	• Automotive Applications • Blow Molding Applications	• Film • Lighting Applications	• Profiles • Sheet
Forms	• Pellets		
Processing Method	• Blow Molding • Calendering • Extrusion	• Film Extrusion • Injection Molding • Profile Extrusion	• Sheet Extrusion
Multi-Point Data	• Creep Modulus vs. Time (ISO 11403-1) • Isochronous Stress vs. Strain (ISO 11403-1)	• Isothermal Stress vs. Strain (ISO 11403-1) • Secant Modulus vs. Strain (ISO 11403-1)	• Specific Volume vs Temperature (ISO 11403-2)

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.41 g/cm ³	1.41 g/cm ³	ISO 1183
Melt Volume-Flow Rate (MVR) (190°C/2.16 kg)	8.0 cm ³ /10min	8.0 cm ³ /10min	ISO 1133
Molding Shrinkage			ISO 294-4
Across Flow	1.9 %	1.9 %	
Flow	2.0 %	2.0 %	
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 527-1
Tensile Stress (Yield)	9430 psi	65.0 MPa	ISO 527-2/50
Tensile Strain (Yield)	10 %	10 %	ISO 527-2/50
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
Flexural Stress (3.5% Strain)	10600 psi	73.0 MPa	ISO 178
Compressive Stress			ISO 604
1% Strain	3770 psi	26.0 MPa	
6% Strain	12800 psi	88.0 MPa	



Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			ISO 179/1eA
-22°F (-30°C)	2.9 ft·lb/in ²	6.0 kJ/m ²	
73°F (23°C)	2.9 ft·lb/in ²	6.0 kJ/m ²	
Charpy Unnotched Impact Strength			ISO 179/1eU
-22°F (-30°C)	86 ft·lb/in ²	180 kJ/m ²	
73°F (23°C)	89 ft·lb/in ²	190 kJ/m ²	
Notched Izod Impact Strength			ISO 180/1A
-22°F (-30°C)	2.6 ft·lb/in ²	5.5 kJ/m ²	
73°F (23°C)	2.7 ft·lb/in ²	5.7 kJ/m ²	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed	316 °F	158 °C	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	214 °F	101 °C	ISO 75-2/A
Ball Pressure Test (302°F (150°C))	Pass	Pass	IEC 60695-10-2
Melting Temperature ⁴	331 °F	166 °C	ISO 11357-3
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	
Effective Thermal Diffusivity	7.52E-5 in ² /s	4.85E-8 m ² /s	Internal Method
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity (73°F (23°C))	3.0E+16 ohms	3.0E+16 ohms	IEC 62631-3-2
Volume Resistivity (73°F (23°C))	8.0E+12 ohms·m	8.0E+12 ohms·m	IEC 62631-3-1
Fill Analysis	Nominal Value (English)	Nominal Value (SI)	Test Method
Melt Density	1.20 g/cm ³	1.20 g/cm ³	Internal Method
Melt Specific Heat	0.528 Btu/lb/°F	2210 J/kg/°C	Internal Method
Melt Thermal Conductivity	1.1 Btu·in/hr/ft ² /°F	0.16 W/m/K	Internal Method
Ejection Temperature	284 °F	140 °C	Internal Method
Additional Information	Nominal Value (English)	Nominal Value (SI)	
Flow Temperature	345 °F	174 °C	
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	212 to 248 °F	100 to 120 °C	
Drying Time	3.0 to 4.0 hr	3.0 to 4.0 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	
Injection Zone 4 Temperature	374 to 392 °F	190 to 200 °C	
Nozzle Temperature	374 to 392 °F	190 to 200 °C	
Processing (Melt) Temp	356 to 374 °F	180 to 190 °C	
Mold Temperature	176 to 248 °F	80 to 120 °C	
Injection Rate	Slow-Moderate	Slow-Moderate	
Back Pressure	< 580 psi	< 4.00 MPa	
Hot Runner	356 to 392 °F	180 to 200 °C	

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

