

Celanese Celcon[®] M25

Celcon[®] acetal copolymer grade M25 is a high molecular weight, higher toughness and impact resistance grade primarily used for extrusion and selected injection molding applications.
Information provided by Celanese

Physical Properties	Metric	English	Comments
Specific Gravity	1.41 g/cc	1.41 g/cc	ASTM D792
Density	1.41 g/cc	0.0509 lb/in ³	ISO 1183
Density of Compound	1.20 g/cc	0.0434 lb/in ³	
Moisture Absorption	0.200 %	0.200 %	23°C/50%RH; ISO 62
Water Absorption at Saturation	0.75 %	0.75 %	ISO 62
Linear Mold Shrinkage, Flow	0.022 cm/cm	0.022 in/in	ASTM D955
	0.022 cm/cm	0.022 in/in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.018 cm/cm	0.018 in/in	ASTM D955
	0.018 cm/cm	0.018 in/in	ISO 294-4
Melt Flow	2.5 g/10 min	2.5 g/10 min	ASTM D1238
	2.2 g/10 min @Load 2.16 kg, Temperature 190 °C	2.2 g/10 min @Load 4.76 lb, Temperature 374 °F	[cm ³ /10min]; ISO 1133

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield	60.7 MPa	8800 psi	ASTM D638
	63.0 MPa	9140 psi	50mm/min; ISO 527-2/1A
	34.5 MPa @Temperature 71.1 °C	5000 psi @Temperature 160 °F	ASTM D638
	94.5 MPa @Temperature -40.0 °C	13700 psi @Temperature -40.0 °F	ASTM D638
Elongation at Yield	12 %	12 %	50mm/min; ISO 527-2/1A
Tensile Modulus	2.46 GPa	357 ksi	50mm/min; ISO 527-2/1A
Flexural Modulus	2.43 GPa	352 ksi	ISO 178
	2.59 GPa	375 ksi	ASTM D790
	0.689 GPa @Temperature 104 °C	100 ksi @Temperature 220 °F	ASTM D790
	1.24 GPa @Temperature 71.1 °C	180 ksi @Temperature 160 °F	ASTM D790
Izod Impact, Notched	0.801 J/cm	1.50 ft-lb/in	ASTM D256
	0.641 J/cm @Temperature -40.0 °C	1.20 ft-lb/in @Temperature -40.0 °F	ASTM D256
Izod Impact, Notched (ISO)	8.30 kJ/m ²	3.95 ft-lb/in ²	ISO 180/1A
Charpy Impact Unnotched	25.0 J/cm ²	119 ft-lb/in ²	partial break; ISO 179/1eU
	19.0 J/cm ² @Temperature -30.0 °C	90.4 ft-lb/in ² @Temperature -22.0 °F	ISO 179/1eU
Charpy Impact, Notched	0.910 J/cm ²	4.33 ft-lb/in ²	ISO 179/1eA

Tensile Creep Modulus, 1 hour	2100 MPa	305000 psi	ISO 899-1
Tensile Creep Modulus, 1000 hours	1100 MPa	160000 psi	ISO 899-1
Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+14 ohm-cm	1.00e+14 ohm-cm	ASTM D257
Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	120 $\mu\text{m}/\text{m}^{\circ}\text{C}$	66.7 $\mu\text{in}/\text{in}^{\circ}\text{F}$	ISO 11359-2
CTE, linear, Transverse to Flow	120 $\mu\text{m}/\text{m}^{\circ}\text{C}$	66.7 $\mu\text{in}/\text{in}^{\circ}\text{F}$	ISO 11359-2
Specific Heat Capacity	2.21 J/g $^{\circ}\text{C}$	0.528 BTU/lb $^{\circ}\text{F}$	
Thermal Conductivity	0.155 W/m-K	1.08 BTU-in/hr-ft 2 $^{\circ}\text{F}$	
Melting Point	165 $^{\circ}\text{C}$	329 $^{\circ}\text{F}$	ASTM D3418
	166 $^{\circ}\text{C}$	331 $^{\circ}\text{F}$	10 $^{\circ}\text{C}/\text{min}$; ISO 11357-1,-2,-3
Deflection Temperature at 1.8 MPa (264 psi)	94.0 $^{\circ}\text{C}$	201 $^{\circ}\text{F}$	ISO 75-1, -2
	110 $^{\circ}\text{C}$	230 $^{\circ}\text{F}$	ASTM D648
Processing Properties	Metric	English	Comments
Processing Temperature	80.0 - 120 $^{\circ}\text{C}$	176 - 248 $^{\circ}\text{F}$	cavity
	180 - 200 $^{\circ}\text{C}$	356 - 392 $^{\circ}\text{F}$	hot runner
Zone 1	170 - 180 $^{\circ}\text{C}$	338 - 356 $^{\circ}\text{F}$	
Zone 2	180 - 190 $^{\circ}\text{C}$	356 - 374 $^{\circ}\text{F}$	
Zone 3	180 - 190 $^{\circ}\text{C}$	356 - 374 $^{\circ}\text{F}$	
Zone 4	190 - 200 $^{\circ}\text{C}$	374 - 392 $^{\circ}\text{F}$	
Die Temperature	190 - 200 $^{\circ}\text{C}$	374 - 392 $^{\circ}\text{F}$	
Melt Temperature	180 - 200 $^{\circ}\text{C}$	356 - 392 $^{\circ}\text{F}$	
Ejection Temperature	140 $^{\circ}\text{C}$	284 $^{\circ}\text{F}$	
Drying Temperature	80.0 - 100 $^{\circ}\text{C}$	176 - 212 $^{\circ}\text{F}$	
Dry Time	3.00 hour	3.00 hour	
Injection Pressure	60.0 - 120 MPa	8700 - 17400 psi	
Hold Pressure	60.0 - 120 MPa	8700 - 17400 psi	
Back Pressure	$\leq$ 4.00 MPa	$\leq$ 580 psi	