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CELCON® WR90Z

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Celcon® WR90Z is a medium flow acetal copolymer stabilized to provide maximum ultraviolet radiation resistance in outdoor applications while retaining a good balance of properties. Available in black only.

Product information

Resin Identification	POM		ISO 1043
Part Marking Code	>POM<		ISO 11469

Rheological properties

Melt volume-flow rate	8	cm^3/10min	ISO 1133
Temperature	190	°C	
Load	2.16	kg	
Moulding shrinkage, parallel	2.2	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.9	%	ISO 294-4, 2577

Typical mechanical properties

Tensile modulus	2650	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	63	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	8	%	ISO 527-1/-2
Flexural modulus	2550	MPa	ISO 178
Flexural stress at 3.5%	70	MPa	ISO 178
Compressive stress at 1% strain	31	MPa	ISO 604
Charpy impact strength, 23°C	99	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	5.5	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	5.3	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	5.5	kJ/m^2	ISO 180/1A
Poisson's ratio	0.412		

Thermal properties

Melting temperature, 10°C/min	166	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	95	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	152	°C	ISO 75-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	100	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	110	E-6/K	ISO 11359-1/-2

Physical/Other properties

Water absorption, Immersion 24h	0.2	%	Sim. to ISO 62
Density	1410	kg/m^3	ISO 1183

Injection

Drying Recommended	no	
Drying Temperature	100	°C
Drying Time, Dehumidified Dryer	3 - 4	h
Processing Moisture Content	≤0.2	%
Melt Temperature Optimum	190	°C
Min. melt temperature	180	°C
Max. melt temperature	200	°C

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Screw tangential speed	≤0.3	m/s
Mold Temperature Optimum	100	°C
Min. mould temperature	80	°C
Max. mould temperature	120	°C
Hold pressure range	60 - 120	MPa
Back pressure	4	MPa

Characteristics

Processing	Injection Moulding
Delivery form	Pellets
Special characteristics	U.V. stabilised or stable to weather

Additional information

Injection molding

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

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necessary to fixture large or complicated parts with varying wall thickness to prevent warpage while cooling to ambient temperature.

Processing Notes

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	STANDARD	ADDITIONAL INFORMATION
General Motors		Black; Part Specific Approval, Please Contact Your CE Representative For More Details.
General Motors	GMW22P-POM-C2	Black
Honda	Exterior	
Stellantis - Chrysler	MS.50095 / CPN-3694	100% Color Match

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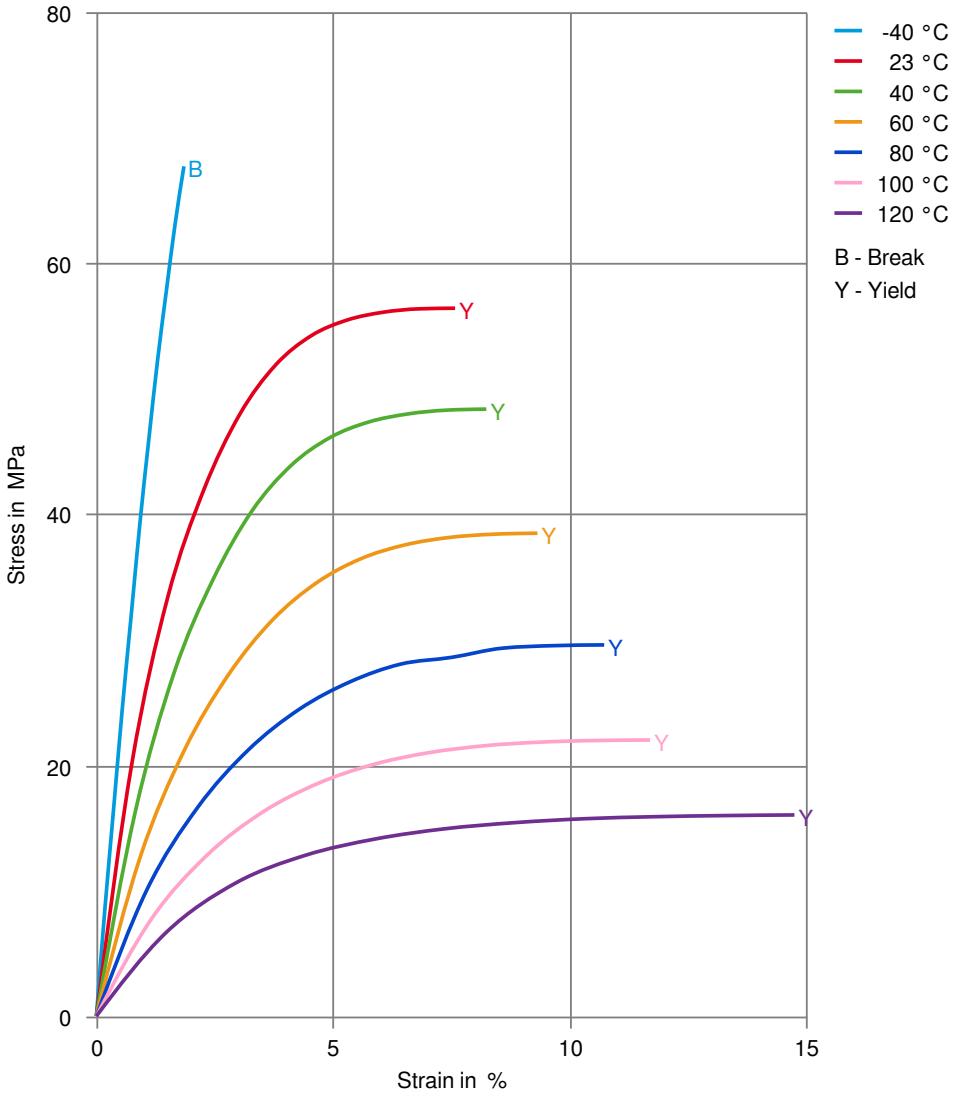
Stress-strain



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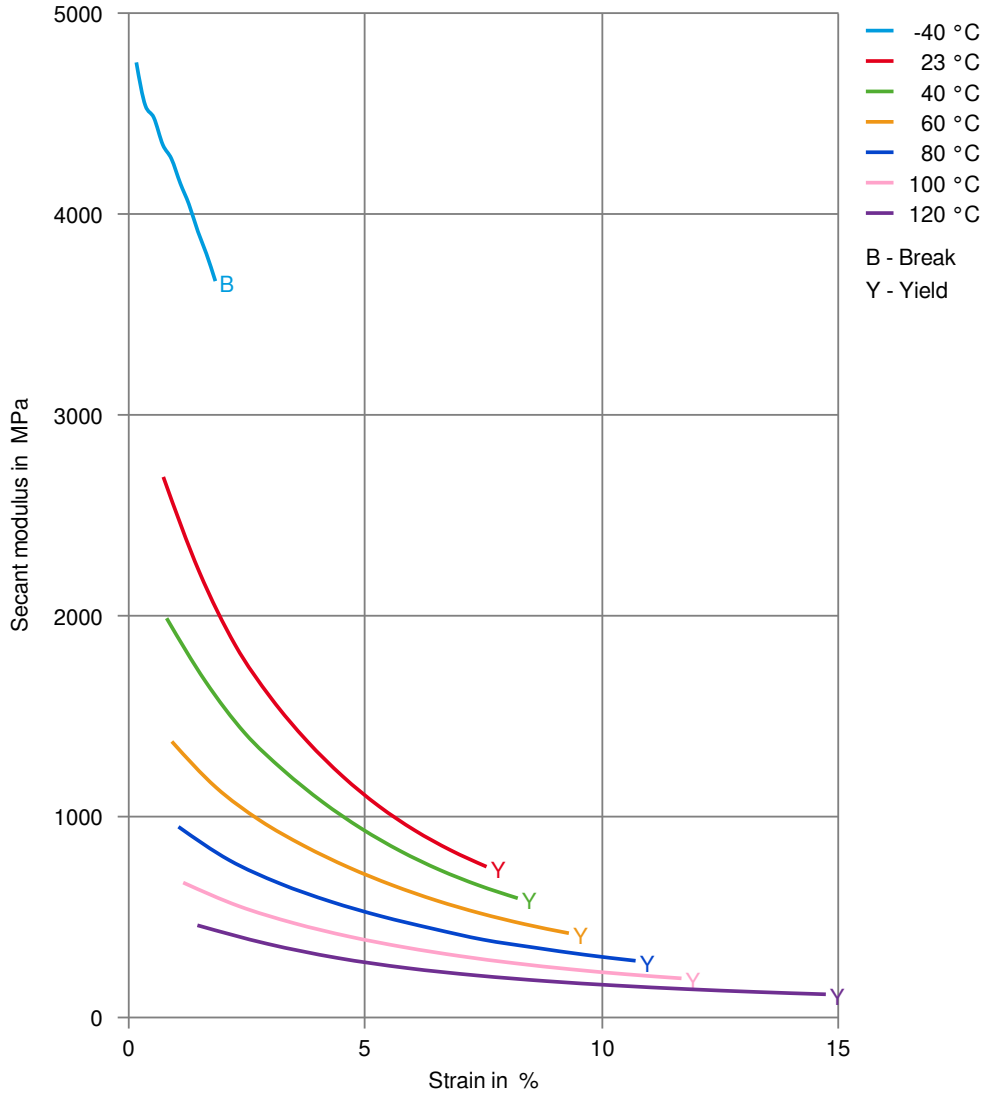
Secant modulus-strain



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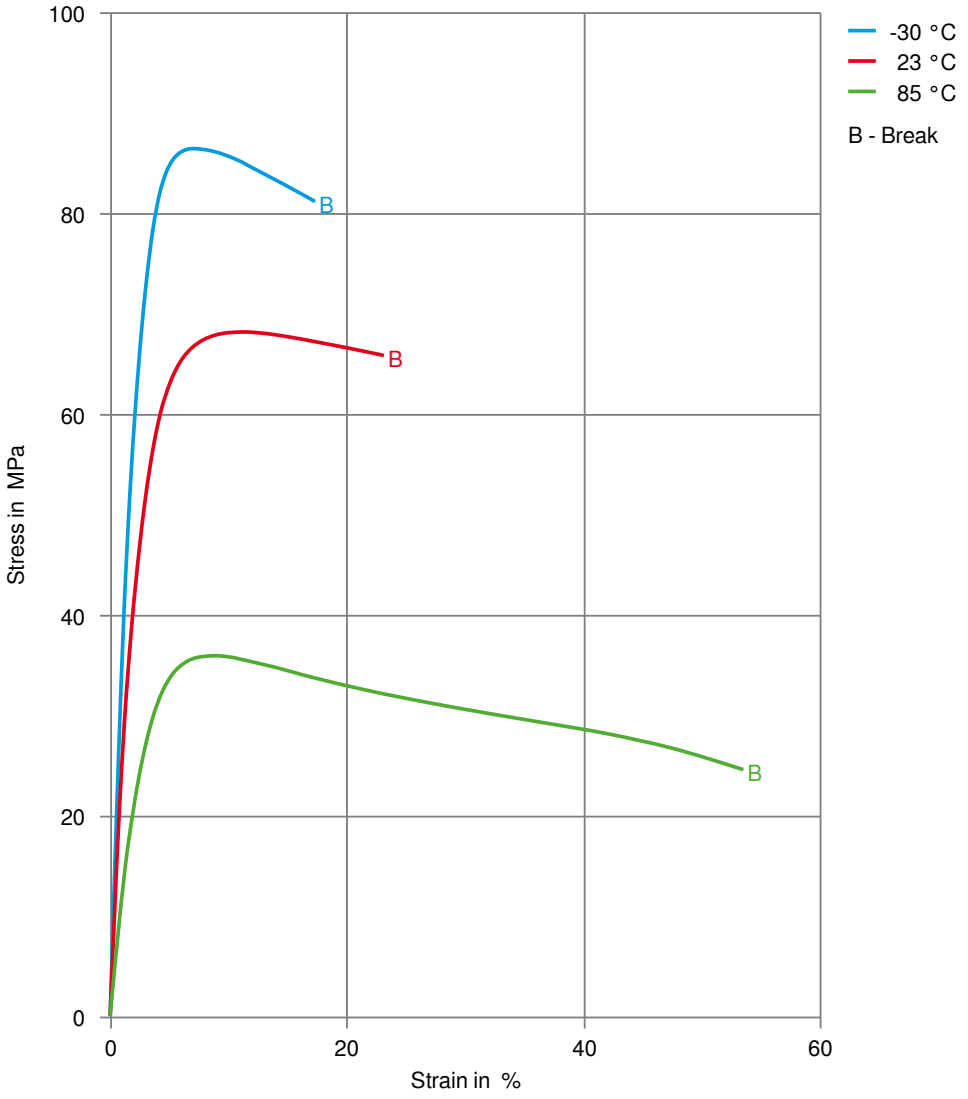
Stress-strain, 50mm/min



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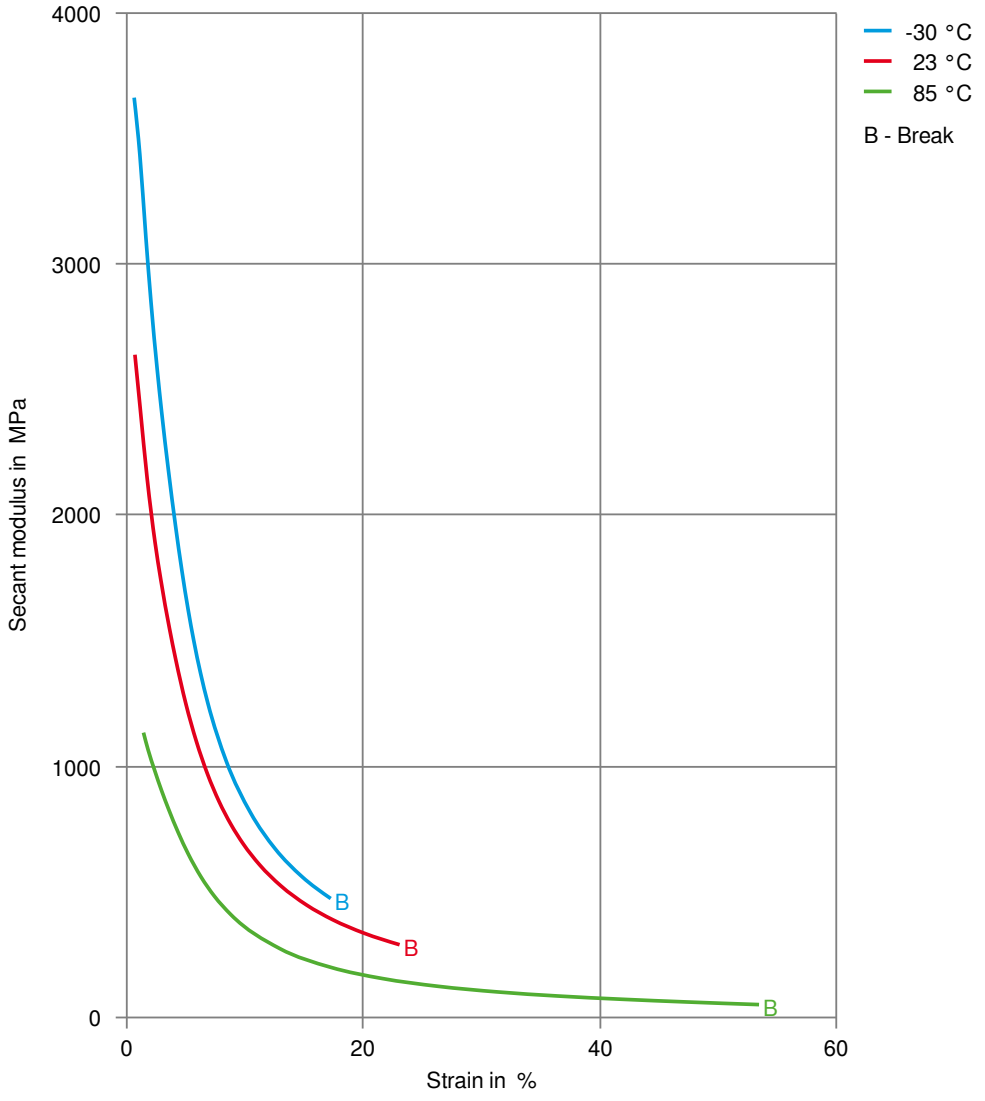
Secant modulus-strain, 50mm/min



Revised: 2024-07-08 Source: Celanese Materials Database