Celanese
The chemistry inside innovation™

CELCON® WR90Z

UV resistant - automotive and outdoor applications, general purpose
Celcon® WR90Z is a standard nominal 9 melt flow rate based acetal copolymer stabilized to provide maximum ultraviolet radiation resistance in outdoor applications while retaining a good balance of properties. Available in black only.

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
Yield stress, 50mm/min	63	MPa	ISO 527-1/-2
Yield strain, 50mm/min	8	%	ISO 527-1/-2
Flexural Modulus	2550	MPa	ISO 178
Flexural Stress at 3.5%	70	MPa	ISO 178
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
Temp. of deflection under load, 1.8 MPa	95	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	152	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h, 50N	161	°C	ISO 306
Coeff. of linear therm. expansion, parallel	100	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	110	E-6/K	ISO 11359-1/-2

Other properties

Density	1410	kg/m^3	ISO 1183

Injection

Drying Temperature	100 - 120	°C
Drying Time, Dehumidified Dryer	3 - 4	h
Max. mould temperature	80 - 120	°C
Back pressure	4	MPa
Injection speed	slow-medium	

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Additional information

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.

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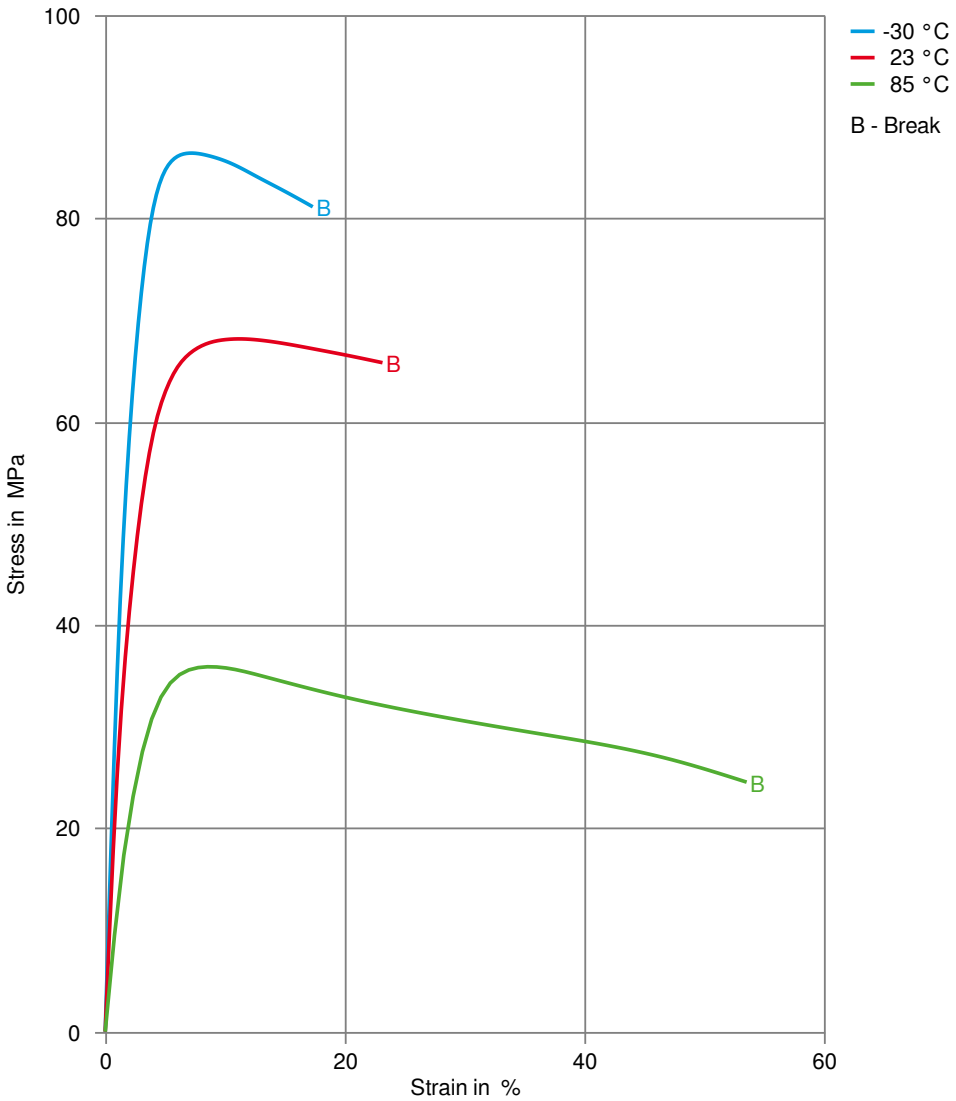
Stress-strain



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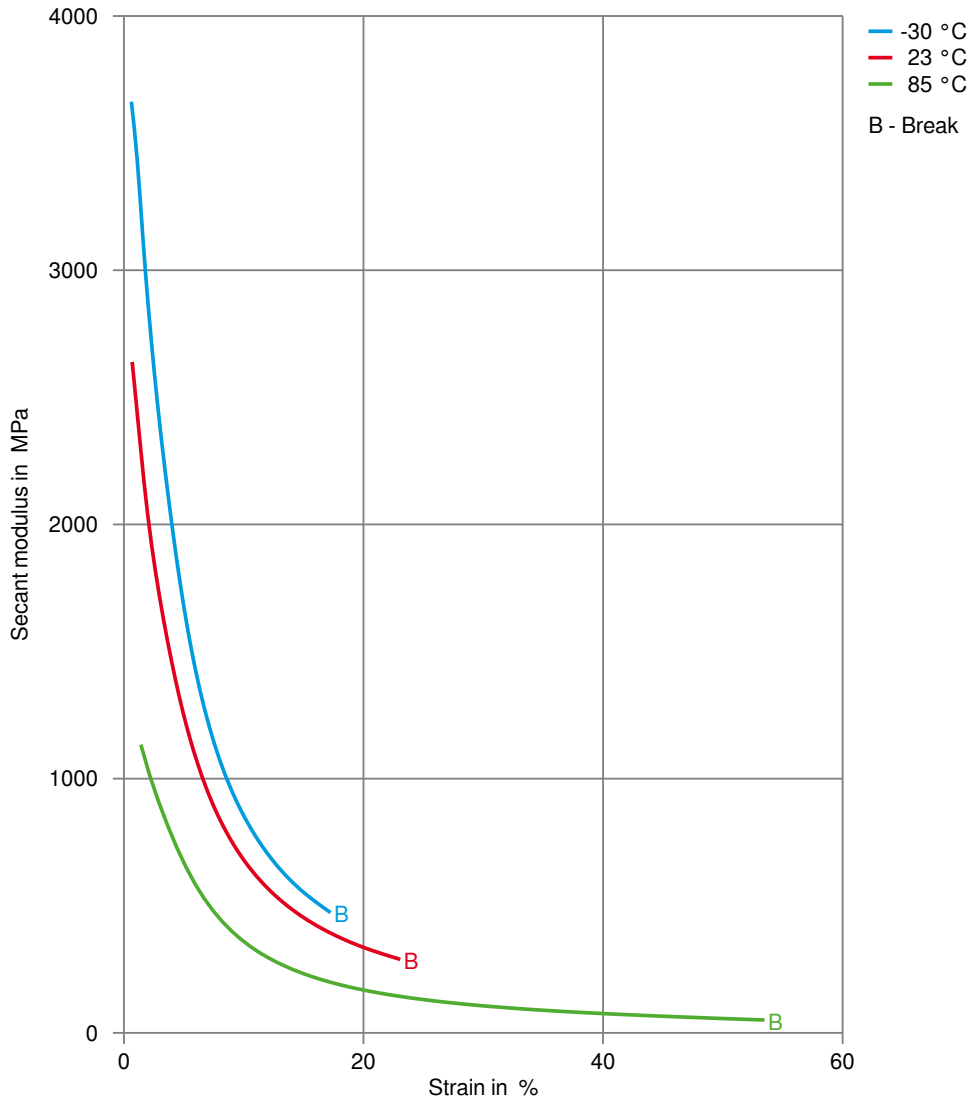
Secant modulus-strain



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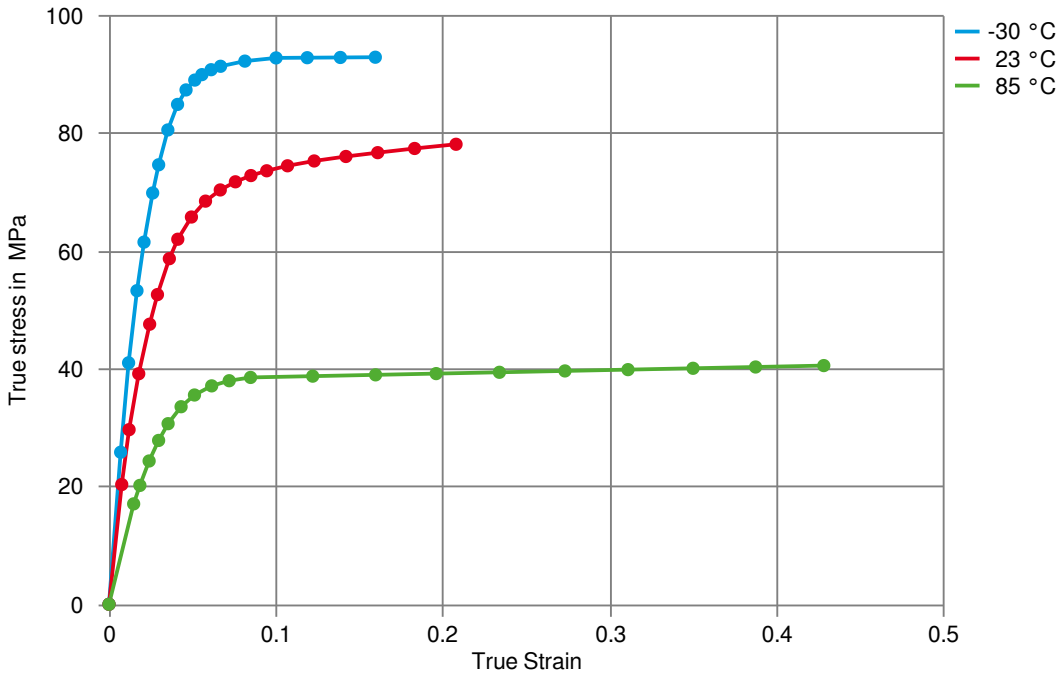
True stress-strain



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Processing Texts

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.
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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%
Injection molding Postprocessing	Postprocessing conditioning and moisturizing are not required. It may be necessary to fixture large or complicated parts with varying wall thickness to prevent warpage while cooling to ambient temperature.

Other Approvals

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OEM	Specification	Additional Information
Stellantis - Chrysler	CPN 3694	100% color match
Geely	Q/JLY J7110235B	2018
GM	GMW22P-POM-C2L	

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Honda		Exterior
Toyota	TSM5515G-1	Black

Revised: 2023-02-23 Source: Celanese Materials Database