

Zelux® (polycarbonate)

Zelux polycarbonate is an engineering plastic with excellent dimensional stability and good strength and stiffness over a wide range of service temperatures. Zelux is often used for structural applications when clarity and impact strength are essential including lenses, manifolds, site glasses, and machine guards. Zelux is used for a wide variety of electrical applications since it has low moisture absorption, good insulating properties, and an excellent flammability rating. Zelux is easy to fabricate, paint, and glue.

The following physical property information is based on typical values of the base polycarbonate resin.

Mechanical Properties

	Units	ASTM Test	Zelux M	Zelux W
Compressive Strength	psi	D695	12,500	12,500
Flexural Modulus	psi	D790	340,000	340,000
Flexural Strength @ yield	psi	D790	13,500	13,500
Hardness-Rockwell M	-	D785	M70-78	M70-78
Hardness-Rockwell R	-	D785	R118	R118
Izod Impact Strength Notched	ft-lbs/in	D256	16.0	16.0
Charpy Index	ft-lbs/ _{1/8} "x1"	D256	no break	no break
Tensile Elongation @break	%	D638	110.0	110.0
Tensile Elongation @yield	%	D638	7.0	7.0
Tensile Strength @break	psi	D638	9,500	9,500
Tensile Strength @yeild	psi	D638	8,400	8,400

Thermal Properties

	Units	ASTM Test	Zelux M	Zelux W
Coefficient of Thermal Expansion	in/in/°F	D696	3.8x10 ⁻⁵	3.8x10 ⁻⁵
Flam. Rating-UL94 @11.5mm	-	-	V-0	V-0
Heat Deflection Temp. @66 psi	°F	D648	280	280
Heat Deflection Temp. @264 psi	°F	D648	275	275
Thermal Conductivity	(BTU•in)/(hr•ft ² •°F)	C177	1.35	1.35

Electrical Properties

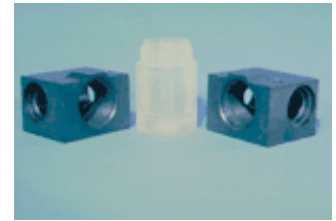
	Units	ASTM Test	Zelux M	Zelux W
Dielectric Constant @60Hz	-	D150	2.9	2.9
Dielectric Constant @1MHz	-	D150	2.9	2.9
Dielectric Strength	V/mil	D149	380	380
Volume Resistivity	ohm•cm	D257	>1.0X10 ¹⁷	>1.0X10 ¹⁷

Optical Properties

	Units	ASTM Test	Zelux M	Zelux W
Haze	%	D1003	0.5 -2.0	0.5 -2.0

Other Properties

	Units	ASTM Test	Zelux M	Zelux W
Specific Gravity	-	D792	1.20	1.20
Water Absorption @24 hours	%	D570	0.15	0.15
Water Absorption @ Equilibrium	%	D570	0.35	0.35



Applications Include:

- Site glasses
- Viewing windows
- Impact shields
- Fluid handling components
- Manifolds
- Scientific and analytical instrument components
- Electrical components
- Housings and covers

Advantages of Zelux®:

- Optical clarity (window grade)
- Excellent impact resistance
- Excellent dimensional stability
- Low moisture absorption
- Easy to machine
- Good strength and stiffness over a wide range of service temperatures
- Good electrical insulating properties
- Easy to fabricate, paint and glue

Manufacturing Capabilities:

Rod: 1/8" to 15" diameter
Sheet: 3/8" to 4" thick
Film: .001" to .029" thick

Color/Grades:

Zelux W – Window grade (optically clear)
Zelux M – Machine grade, stressrelieved (natural and black)
Zelux M-GF – 10%, 20%, 30%, and 40% Glass-filled grades (black)
FDA compliant grades and colors are available on a custom basis

*In addition to our standard capabilities, Westlake also has the ability to process custom resins in various sizes and colors with some exceptions.