

## MAKROLON® GP (Polycarbonate)

MAKROLON® GP polycarbonate sheet is a polished surface, UV stabilized polycarbonate for use in glazing and industrial applications. Offering economy and high performance, MAKROLON GP polycarbonate sheet meets or exceeds the physical properties of any product in its class. MAKROLON GP polycarbonate sheet is backed by a five-year warranty against breakage.

### APPLICATIONS

MAKROLON GP polycarbonate sheet is used extensively in school and factory glazing for protection against both accidental breakage and deliberate vandalism. In manufacturing environments, this high impact material excels in applications like machine guards, noise abatement shields, clear workstation partitions, freight doors, and other in-plant glazing.

### HIGH IMPACT STRENGTH

MAKROLON polycarbonate sheet is virtually unbreakable with 250 times the impact strength of float glass and 30 times that of acrylic.

### CODE COMPLIANCE

MAKROLON polycarbonate sheet products satisfy major building code requirements for a CC-1 rating in construction applications (BOCA, ICBO, SBCCI, and Dade County). MAKROLON polycarbonate sheet products are listed with Underwriters Laboratories for the UL flammability standard and the UL972 standard for burglary resistant glazing materials. Additionally, MAKROLON polycarbonate sheet is approved for Consumer Product Safety Commission (CPSC 16CFR 1201) categories I & II and ANSI Z97. 1-1984 Safety Glazing Standards.

Property	Test Method	Units	MAKROLON® GP
<b>Physical</b>			
Specific Gravity	ASTM D792	-	1.2
Water Absorption, Equilibrium, 24 hrs	ASTM D570	%	0.15
Refractive Index @ 72°F	ASTM D542	-	1.586
Light Transmission, Clear 1/8"	ASTM D1003	%	86
Light Transmission, Gray/Bronze	ASTM D1003	%	50
Light Transmission, Dark Gray	ASTM D1003	%	18
<b>Mechanical</b>			
Rockwell Hardness	ASTM D785	-	M70/R118
Tensile Strength, Yield	ASTM D638	psi	9,000
Tensile Strength, Ultimate	ASTM D638	psi	9,500
Tensile Modulus	ASTM D638	psi	345,000
Flexural Strength	ASTM D790	psi	13,500
Flexural Modulus	ASTM D790	psi	345,000
Compressive Strength	ASTM D695	psi	12,500
Compressive Modulus	ASTM D695	psi	345,000
Elongation	ASTM D638	%	110
Poisson's Ratio	-	-	0.38
Izod Impact Strength, Notched @ 1/8"	ASTM D256	ft-lbs/in	12-16
Izod Impact Strength, Unnotched @ 1/8"	ASTM D256	ft-lbs/in	60 (No failure)
Instrumented Impact, 1/8"	ASTM D3763	ft-lbs	>45
Shear Strength, @ Yield	ASTM D732	psi	6,000
Shear Strength, Ultimate	ASTM D732	psi	10,000
Shear Modulus	ASTM D732	psi	114,000
<b>Thermal</b>			
Coefficient of Thermal Expansion	ASTM D696	in/in/°F	3.75 x 10 <sup>-5</sup>
Coefficient of Thermal Conductivity	ASTM C177	Btu-in/hr-ft <sup>2</sup> -°F	1.35
Heat Deflection Temperature, @ 264 psi	ASTM D648	°F	270
Heat Deflection Temperature, @ 66 psi	ASTM D648	°F	280
Brittle Temperature	ASTM D746	°F	-200
Shading Coefficient, Clear 1/8"	ASHRAE	-	1.02
Shading Coefficient Gray, Bronze 1/8"	ASHRAE	-	0.7
U Value 1/4" (summer gain, winter loss)	-	-	0.90, 0.96



Property	Test Method	Units	MAKROLON® GP
<b>Electrical</b>			
Dielectric Constant, @ 10 Hz	ASTM D150	-	2.96
Dielectric Constant, @ 60 Hz	ASTM D150	-	3.17
Volume Resistivity	ASTM D257	ohm-cm	8.2 x 10 <sup>16</sup>
Dissipation Factor, @ 60 Hz	ASTM D150	-	0.0009
Dissipation Factor, @ 1 MHz	ASTM D150	-	0.01
Arc Resistance	ASTM D495	Seconds	
Stainless Steel Strip Electrode			10-11
Tungsten Electrodes			120
Dielectric Strength, in air, 125 mils	ASTM D149	V/mil	380
<b>Flammability</b>			
Horizontal Burn, AEB	ASTM D635	Inches	<1
Ignition Temperature	ASTM D1929	°F	1,070
Ignition Temperature, Flash	ASTM D1929	°F	870
UL 94, Clear @ .060"	UL 94	-	V-2
UL 94, Clear @ .220"	UL 94	-	V-0

*NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets. All values at 73°F (23°C) unless otherwise noted.*

