



made of
makrolon[®]
High-tech plastic from Bayer

Product Data

MAKROLON[®] GP Sheet

General Purpose Sheet

MAKROLON[®] GP Sheet is a polished surface, transparent, UV stabilized, polycarbonate product. It features outstanding impact strength, and superior dimensional stability. MAKROLON GP Sheet has a five (5) year warranty against breakage. The terms of the warranty against breakage are set forth in the GP warranty, which is available upon request.

Applications

A broad range of industrial glazing and structural applications, including thermoformed and fabricated components.

Typical Properties

Property	Test Method	Units	Values
PHYSICAL			
Specific Gravity	ASTM D792	-	1.2
Refractive Index	ASTM D542	-	1.586
Light Transmission, Clear @ 0.125"	ASTM D1003	%	86
Light Transmission, Gray, Bronze	ASTM D1003	%	50
Light Transmission, Dark Gray	ASTM D1003	%	18
Water Absorption, 24 hrs	ASTM D570	%	0.15
Poisson's Ratio	ASTM E132	-	0.38
MECHANICAL			
Tensile Strength, Ultimate	ASTM D638	psi	9,500
Tensile Strength, Yield	ASTM D638	psi	9,000
Tensile Modulus	ASTM D638	psi	340,000
Elongation	ASTM D638	%	110
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
Izod Impact Strength, Notched @ 0.125"	ASTM D256	ft-lbs/in	18
Izod Impact Strength, Unnotched @ 0.125"	ASTM D256	ft-lbs/in	60 (no failure)
Instrumented Impact, 0.125"	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
Rockwell Hardness	ASTM D785	-	M70/R118
THERMAL			
Coefficient of Thermal Expansion	ASTM D696	in/in/°F	3.75 x 10 ⁻⁵
Coefficient of Thermal Conductivity	ASTM C177	BTU-in/hr-ft ² -°F	1.35
Heat Deflection Temperature @ 264 psi	ASTM D648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D648	°F	280
Brittleness Temperature	ASTM D746	°F	-200
Shading Coefficient, Clear 0.125"	ASHRAE	-	1.02
Shading Coefficient, Gray, Bronze 0.125"	ASHRAE	-	0.70
U factor 0.25" (summer gain, winter loss)	ASTM D1363	BTU/hr-ft ² -°F	0.90, 0.96
ELECTRICAL			
Dielectric Constant, @10Hz	ASTM D150	-	2.96
Dielectric Constant @ 60Hz	ASTM D150	-	3.17
Volume Resistivity	ASTM D257	Ohm-cm	8.2 x 10 ¹⁴
Dissipation Factor @ 60 Hz	ASTM D150	-	0.0009
Arc Resistance			
Stainless Steel Strip Electrodes	ASTM D495	Seconds	10-11
Tungsten Electrodes	ASTM D495	Seconds	120
Dielectric Strength, in air @ 0.125"	ASTM D149	V/mil	380
FLAMMABILITY			
Horizontal Burn, AEB	ASTM D635	in	<1
Ignition Temperature, Self	ASTM D1929	°F	1070
Ignition Temperature, Flash	ASTM D1929	°F	870
Flame Class, Clear @ 0.060"	UL 94	-	V2
Flame Class, Clear @ 0.236"	UL 94	-	V0



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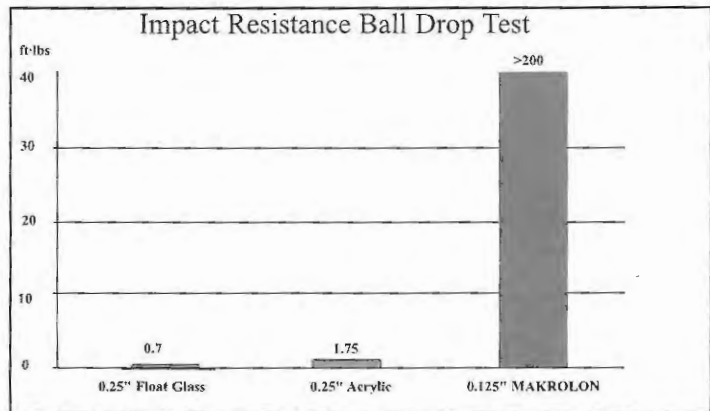
MAKROLON[®] GP Sheet

Standard Products Comparison

Property		Polycarbonate	Acrylic	Glass
Impact Resistance	Drop Ball Test, 0.5 lb	No Break	1.75 ft-lbs	0.7 ft-lbs
Cold Bend	Bend Radius	100x material thickness	180x material thickness	Not possible
Sheet Weight	0.125"	0.78 lb/ft ²	0.75 lb/ft ²	1.60 lbs/ft ²
Thermal Expansion Rate	-	3.75×10^{-5} in/in/°F	4.10×10^{-5} in/in/°F	5.0×10^{-6} in/in/°F
Shading Coefficient	0.25" clear sheet	1.02	1.01	1.03
U-Factor - Summer	0.25"	0.83 BTU/hr-ft ² ·°F	0.83 BTU/hr-ft ² ·°F	0.92 BTU/hr-ft ² ·°F
U-Factor - Winter		0.91 BTU/hr-ft ² ·°F	0.91 BTU/hr-ft ² ·°F	1.02 BTU/hr-ft ² ·°F
Sound Transmission Class	0.25"	31	30	27

Regulatory Code Compliance and Certifications for MAKROLON GP Sheet

IBC 2606.4, Class CCI for gauges 60-500 mils
Florida Building Code 2004, Category: Shutters, Sub-category: Storm Panels and Category: Sky Lights, Sub-category: Skylight
CPSC 16 CFR 1201 : Safety Standard for Architectural Glazing Materials. Category I or Category II
ANSI Z97.1-2004: American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test. Class A
UL 972: Burglary Resistant Glazing Materials UL Listed product UL File #BP2126
UL 94 Flammability File #E71069



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MAKGP 0908

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