

Makrolon GP Product Details



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 work station partitions, freight doors, and other in-plant glazing.

Typical Physical Properties

| Property | Test Method | Units | MAKROLON |
|---|-------------|------------------------------|-------------------------|
| PHYSICAL | | | |
| Specific Gravity | ASTM D792 | - | 1.2 |
| 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 |
| Rockwell Hardness | ASTM D785 | - | M70/R118 |
| Water Absorption, Equilibrium, 24 hrs | ASTM D570 | % | 0.15 |
| MECHANICAL | | | |
| Tensile Strength, Yield | ASTM D638 | psi | 9000 |
| Tensile Strength, Ultimate | ASTM D638 | psi | 9500 |
| Tensile Modulus | ASTM D638 | psi | 345000 |
| Flexural Strength | ASTM D790 | psi | 13500 |
| Flexural Modulus | ASTM D790 | psi | 345000 |
| Compressive Strength | ASTM D695 | psi | 12500 |
| Compressive Modulus | ASTM D695 | psi | 345000 |
| 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 | 6000 |
| Shear Strength, Ultimate | ASTM D732 | psi | 10000 |
| Shear Modulus | ASTM D732 | psi | 114000 |
| 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 |
| 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 |

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HIGH IMPACT STRENGTH

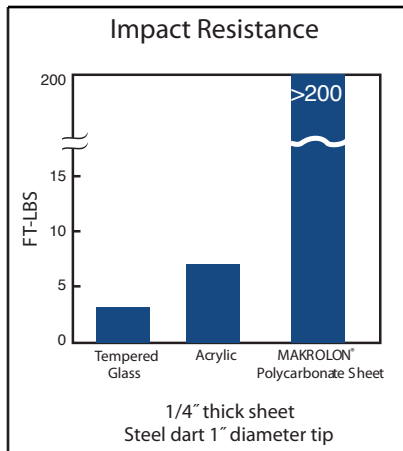
MAKROLON polycarbonate sheet is virtually unbreakable with 250 times the impact strength of float glass and 30 times that of acrylic.

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.

Typical Physical Properties *(continued)*

| Property | Test Method | Units | MAKROLON |
|---------------------------------------|-------------|---------|----------------------|
| ELECTRICAL | | | |
| Dielectric Constant, @ 10 Hz | ASTM D150 | - | 2.96 |
| Dielectric Constant, @ 60 Hz | ASTM D150 | - | 3.17 |
| Volume Resistivity | ASTM D257 | Ohm-cm | 8.2×10^{16} |
| 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 |
| FLAMMABILITY | | | |
| Horizontal Burn, AEB | ASTM D635 | Inches | <1 |
| Ignition Temperature, Self | ASTM D1929 | F | 1070 |
| Ignition Temperature, Flash | ASTM D1929 | F | 870 |
| UL 94, Clear @ .060" | UL 94 | - | HB |



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