

# Makrolon AR Product Details



**MAKROLON® AR** polycarbonate sheet is an abrasion and enhanced UV resistant sheet that offers glass-like surface hardness coupled with the impact strength of polycarbonate. Additionally, MAKROLON AR polycarbonate sheet offers enhanced resistance from yellowing and hazing for longer service life in high profile architectural glazing.

## APPLICATIONS

Typical applications for MAKROLON AR polycarbonate sheet include school, hospital and bus shelter glazing, and is also used extensively in correctional and psychiatric facilities. MAKROLON AR polycarbonate sheet also performs well for view windows and machine guards in harsh chemical environments. However, due to its abrasion-resistant coating, MAKROLON AR polycarbonate sheet cannot be formed like MAKROLON GP and SL polycarbonate sheets.

## Typical Physical Properties

Property	Test Method	Units	MAKROLON
<b>PHYSICAL</b>			
Specific Gravity	ASTM D792	-	1.2
Light Transmission, Clear 1/8"	ASTM D1003	%	86
Light Transmission, Gray/Bronze	ASTM D1003	%	50
Chemical Resistance	ANSI Z26.1	-	pass
Taber Abrasion, 100 Cycles CS10F, Delta Haze	ASTM D1044	%	1-2
<b>MECHANICAL</b>			
Tensile Strength, Ultimate	ASTM D638	psi	9,500
Flexural Strength	ASTM D790	psi	13,500
Compressive Strength	ASTM D695	psi	12,500
Modulus of Elasticity	ASTM D638	psi	340,000
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
<b>THERMAL</b>			
Coefficient of Thermal Expansion	ASTM D696	In/in/F	3.75 x 10 <sup>-5</sup>
Heat Deflection Temperature, @ 264 psi	ASTM D648	F	270
Heat Deflection Temperature, @ 66 psi	ASTM D648	F	280
<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, Self	ASTM D1929	F	1070
Ignition Temperature, Flash	ASTM D1929	F	870
Flame Class @ .060"	UL 94	-	HB
Flame Class @ .236"	UL 94	-	HB

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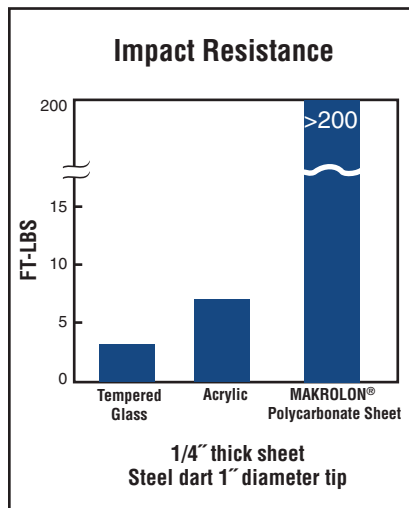
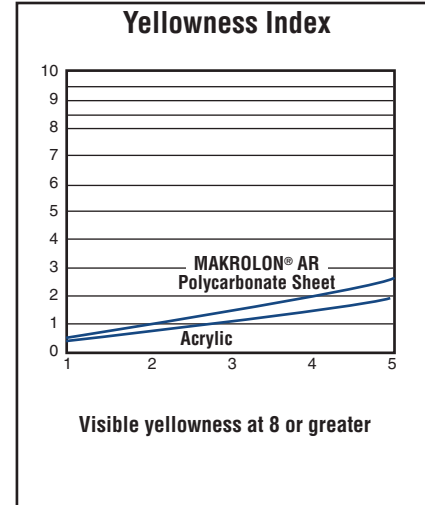
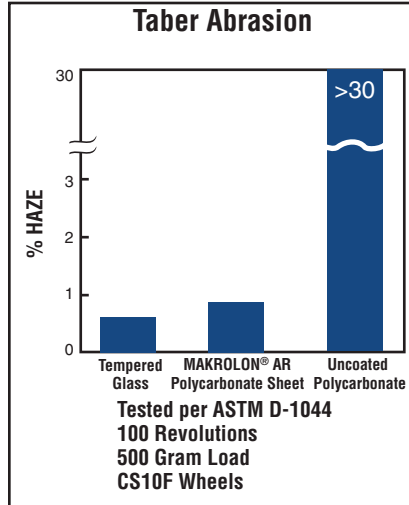
## HIGH IMPACT STRENGTH

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.

MAKROLON polycarbonate sheet is approved for Consumer Product Safety Commission (CPSA 16CFR 1201) categories I & II and ANSI Z97.1-1984 Safety Glazing Standards. Additionally, MAKROLON AR polycarbonate sheet meets the requirements for FRA Type I & II Transportation Glazing.



### Chemical Resistance

ASTM D-1308

Chemical	Resistance Time
Acetone	>24 hrs.
Ethylene Dichloride	>24 hrs.
Unleaded Gasoline	>24 hrs.
Hydrochloric Acid (10%)	>24 hrs.
Methyl Alcohol	>24 hrs.
Methylene Chloride	>24 hrs.
Methyl Ethyl Ketone	>24 hrs.
Nitric Acid (100%)	<24 hrs.
Sodium Hydroxide (10%)	<24 hrs.
Sulfuric Acid (1%)	>24 hrs.
Toluene	>24 hrs.
Isopropanol	>24 hrs.
Kerosene	>24 hrs.