Makrolon® 15 sheet

Extended abrasion and UV resistance

Makrolon® 15 sheet is a polycarbonate product that offers high impact resistance, weathering life, and optical quality. It provides a clear aesthetic advantage over wire glass and metal screens for security glazing. Makrolon 15 withstands vandalism, forced entry attempts, and accidental impacts to minimize the risk of theft and glass replacement in damage prone areas. Advanced manufacturing technology has resulted in high optical quality with minimal distortion in clear and standard glazing tints. The abrasion resistant coating, applied to both sides, provides up to twice the life of prior polycarbonate sheet products. Makrolon 15 sheet has a fifteen (15) year Limited Product Warranty against breakage, yellowing, and loss of light transmission. The terms of the warranty are available upon request.

Typical Properties*

Property	Test Method	Units	Values
PHYSICAL			
Specific Gravity	ASTM D 792	–	1.2
Light Transmission	ASTM D 1003	%	86
Chemical Resistance	ASTM D 1308	–	Pass
Taber Abrasion, 100 Cycles CS-10F	ASTM D 1044		
Delta Haze		%	2
MECHANICAL			
Tensile Strength, Ultimate	ASTM D 638	psi	9,500
Tensile Modulus	ASTM D 638	psi	340,000
Flexural Strength	ASTM D 790	psi	13,500
Izod Impact Strength, Notched @ 0.125″	ASTM D 256	ft·lbs/in	16
Izod Impact Strength, Unnotched @ 0.125″	ASTM D 256	ft·lbs/in	60 (no failure)
Instrumented Impact @ 0.125″	ASTM D 3763	ft·lbs	>46
THERMAL			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75×10^{-5}
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280
FLAMMABILITY			
Horizontal Burn, AEB	ASTM D 635	in	<1
Ignition Temperature, Self	ASTM D 1929	°F	1022
Ignition Temperature, Flash	ASTM D 1929	°F	824

*Typical properties are not intended for specification purposes

Applications

Educational, psychiatric and medical facilities, retail and government buildings, and transportation centers at risk from breakage and vandalism

Regulatory code compliance and certifications

ICC-ES Evaluation report ESR-2728
Miami-Dade NOA #12-0605.05 Florida Building Code 2010 High Velocity Hurricane Zone Classified
CPSC 16 CFR 1201 Category I and Category II: Safety Standard for Architectural Glazing Materials
ANSI Z97.1-2004: American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test
UL 972: Burglary Resistant Glazing Materials, UL File #BP2126

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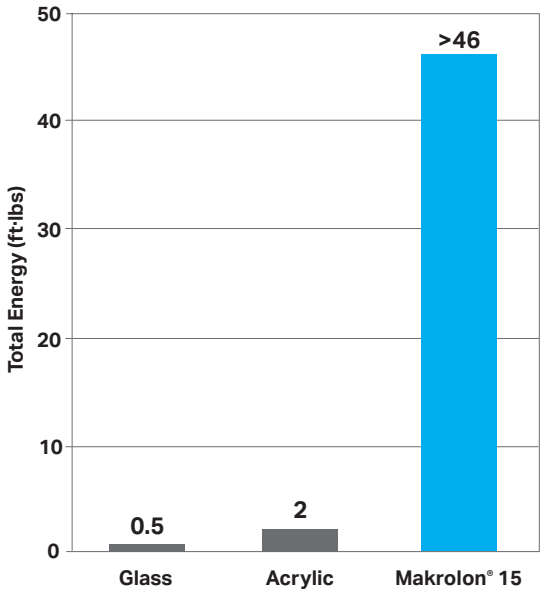
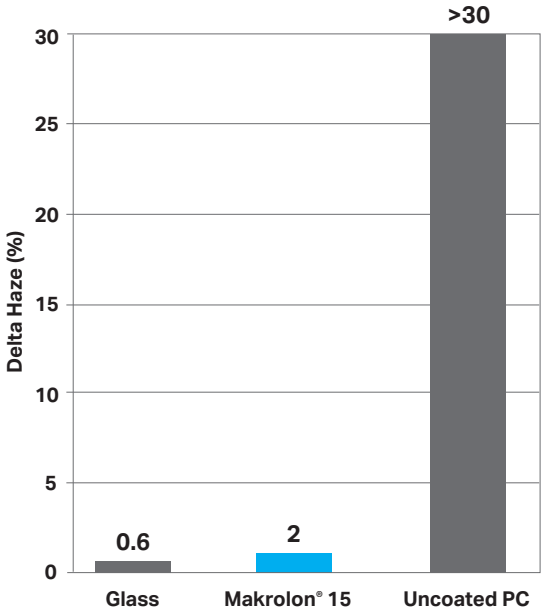
Impact Resistance*



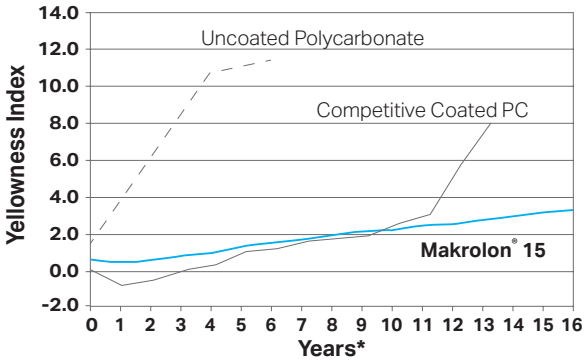
*Instrumented Impact per ASTM D 3763, sample thickness 0.125˝ nominal

Abrasion Resistance*



*Taber Abrasion per ASTM D 1044, 100 cycles, CS-10F wheel

Weather Behavior in Vertical Orientation



*Based upon Xenon WOM accelerated weathering for UV dose at mid-latitude location

Chemical Resistance*

Chemical Tested	Resistance Time
Acetone	>24 hrs
Ammonia (10% concentration)	>24 hrs
Antifreeze (50/50)	>24 hrs
Benzene	>24 hrs
Bleach (Clorox concentrated)	>24 hrs
Chloroform	>24 hrs
Denatured Alcohol	>24 hrs
Di (2-ethylhexyl) phthalate	>24 hrs
Diesel Oil	>24 hrs
Isopropyl Alcohol (IPA)	>24 hrs
Kerosene	>24 hrs
Methyl Alcohol	>24 hrs
Methyl Butyl Ketone	>24 hrs
Methyl Ethyl Ketone	>24 hrs
Methylene Chloride	>24 hrs
Naphthalene, 1-bromo-	>24 hrs
Potassium Hydroxide - Lye (10%)	>24 hrs
Sodium Hydroxide (10%)	>24 hrs
Toluene	>24 hrs
Turpentine	>24 hrs
Unleaded Gasoline (87 Octane)	>24 hrs
Vinegar	>24 hrs
Xylene	>24 hrs
Acids:	
Hydrochloric Acid (20%)	>24 hrs
Nitric Acid (20%)	>24 hrs
Sulfuric Acid (20%)	>24 hrs

*Tested in accordance to ASTM D 1308-02

Always keep hazardous chemicals away from uncoated edge of Makrolon Polycarbonate

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