



Makrolon® FP sheet

Frit Polycarbonate

Makrolon® Frit Polycarbonate is a hard coated polycarbonate product that includes a customizable black-out border to allow for innovative installation methods, eliminating the common threaded hardware, clips and glazing channels. The material can be configured to provide a direct replacement for fritted glass. State-of-the-art manufacturing and inspection processes deliver low optical distortion. The advanced hard coat technology offers excellent abrasion and chemical resistance, and long lasting outdoor weathering performance. In addition, the black frit provides a bondable surface for the life of the product. Makrolon® FP is available in clear, standard, and custom tints.

Applications

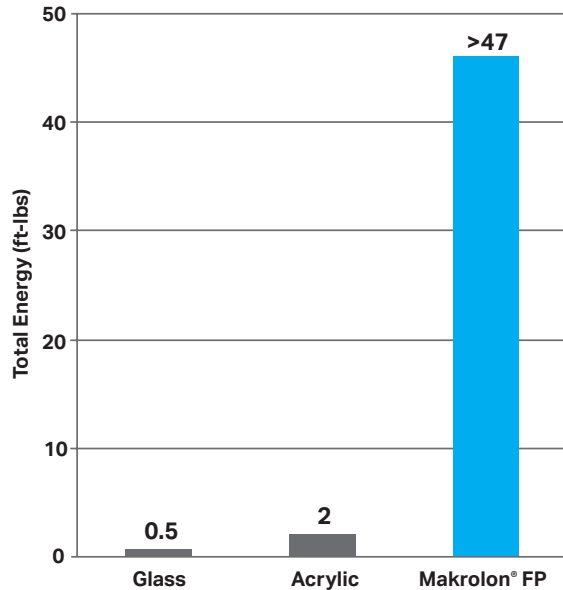
Heavy equipment cab safety glazing,
marine and mass transit glazing

Typical Properties*			
Property	Test Method	Units	Values
PHYSICAL			
Specific Gravity	ASTM D 792	–	1.2
Light Transmission, Clear, 0.375"	ASTM D 1003	%	80
Light Transmission, Clear, 0.500"	ASTM D 1003	%	77
Light Transmission, blackout surface	ASTM D1003	%	<0.3%
Chemical Resistance	ANSI Z26.1	–	Pass
Taber Abrasion @ 100 Cycles, Delta Haze CS-10F Wheel @ 500 g load	ASTM D 1044	%	2
MECHANICAL			
Tensile Strength, Break	ASTM D 638	psi	9,500
Flexural Strength	ASTM D 790	psi	13,500
Compressive Strength	ASTM D 695	psi	12,500
Modulus of Elasticity	ASTM D 638	psi	340,000
Poisson's Ratio	–	–	0.38
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 break)
Instrumented Impact @ 0.125"	ASTM D 3763	ft·lbs	>47
THERMAL			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75 x 10 ⁻⁵
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280

*Typical properties are not intended for specification purposes

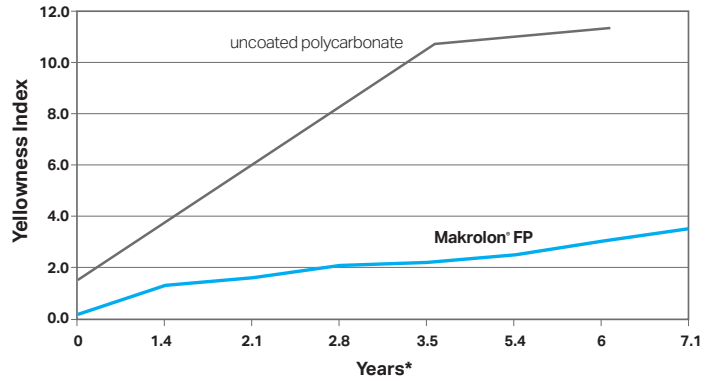
Makrolon® FP sheet

Impact Resistance*



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

Weathering Behavior of Makrolon® in Vertical Orientation



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

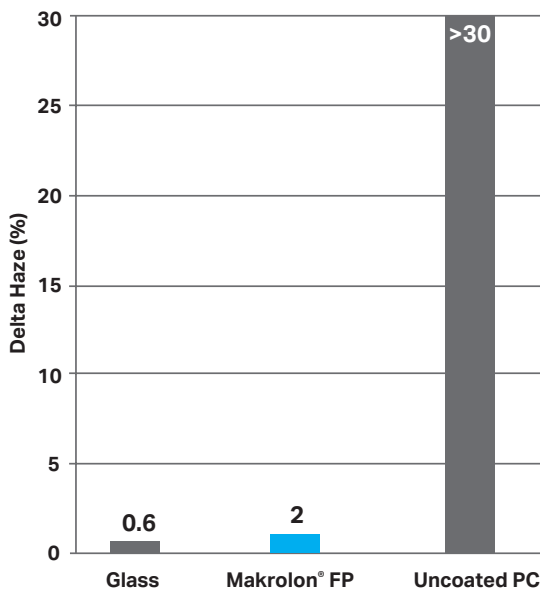
Chemical Resistance*

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

Abrasion Resistance*



*Taber Abrasion per ASTM D 1044, 100 cycles using CS-10F wheels at 500 g load



119 Salisbury Road
Sheffield, MA 01257
Toll Free: 800.254.1707
Fax: 800.457.3553
sfdinfo@covestro.com
sheets.covestro.com

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Covestro.

Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

With respect to health, safety and environment precautions, the relevant Safety Data Sheets (SDS) and product labels must be observed prior to working with our products.