POLYVANTIS

PRODUCT DATASHEET

LEXAN™ MARGARD™ HLG10 SHEET

DESCRIPTION

LEXAN™ MARGARD™ HLG10 sheet is a transparent 1-side hard coated UV protected lamination grade offering excellent optical properties for lamination with glass in mainly asymmetrical bullet resistant security glazing panels. It can be specified to match specific levels of threat and has excellent optical clarity. For cleaning instructions, consult guidelines. Do not use abrasive or highly alkaline cleaners, never scrape the sheet with squeegees, razor blades or other sharp instruments. Do not clean LEXAN MARGARD HLG10 sheet in hot sun or at elevated temperatures. For removal of paints, marking pen, inks, lipstick, labels, stickers etc. the use of kerosene, naphtha or white spirit is generally effective. Afterwards, a warm final wash should be made, using a mild soap solution and ending with a thorough rinsing with cold water.

TYPICAL PROPERTY VALUES*

PROPERTY	TEST METHOD	UNITS	VALUE
Physical			
Specific Gravity (color dependent)	ASTM D792	-	1.20
Light Transmission (Average), 1/8" Thick	ASTM D1003	%	88
Chemical Resistance	ANSI Z26.1	-	Passes#
Mechanical			
Tensile Strength, Ultimate	ASTM D638	psi	9,500
Flexural Strength	ASTM D790	psi	13,500
Flexural Endurance @ 1,800 Cycles/Min,			
73°F, 50% RH	ASTM D671	psi	1,000
Compressive Strength	ASTM D696	psi	12,500
Modulus of Elasticity	ASTM D638	psi	345,000
Drop Ball Impact Strength‡	POLYVANTIS Test	ft-lbs	
@ 73°F			>200
@ 32°F			>200
@ 0°F			>200
Thermal			
Coefficient of Thermal Expansion	ASTM D696	in/in/°F	3.75×10^{-5}
Heat Deflection Temperature @ 264 psi	ASTM D648	°F	270
Flammability			
Horizontal Burn (Flame Spread)	ASTM D635	in	
AEB			<1
Ignition Temperature	ASTM D1929	°F	
Flash			873
Self			1,076
Optical			

Light transmission .118	ASTM D1003	%	88
Light transmission .236	ASTM D1003	%	85
Light transmission .375	ASTM D1003	%	83
Light transmission .500	ASTM D1003	%	80

◆ These property values have been derived from LEXAN™ resin data for the material used to produce this sheet product.

OPTICAL PERFORMANCE

The optical qualities of LEXAN™ MARGARD™ HLG10 sheet are the result of constant research in order to help provide high values. During the optical control phase, LEXAN MARGARD HLG10 sheets are examined against a special background, called image magnification, for proper identification of optical imperfections. Our internal manufacturing specifications are under constant supervision of our ISO 9002 approved Quality Management department.

PROCESSING

Glass/LEXAN security glazing panels can be produced using different systems for bonding purposes. The autoclaving process is the most common way of laminating glass and LEXAN sheets by means of a polyurethane based interlayer. The differences in thermal behavior between glass and polycarbonate require a sufficient thick interlayer in order to avoid a high stress level. The glass surface needs to be primed for better bond strength with the polyurethane film; contact between primer and LEXAN must be avoided. To avoid air-inclusions, it is recommended to place the construction in a vacuum bag with constantly measured negative pressure of .9 bar during the lamination process. A different way of bonding glass and LEXAN MARGARD HLG10 sheet is to cast a polymer between the different substrates. During the polymerization process, adhesion takes place between glass and LEXAN sheet.

FIRE TEST PERFORMANCE

LEXAN MARGARD HLG10 sheet has good fire performance against many national fire codes dependent on thickness and color; please check with the local sales office for details.

UL File Number: E539157

CHEMICAL RESISTANCE

Although LEXAN MARGARD HLG10 sheet coated side has resistance to most mineral oils, greases, aliphatic hydrocarbons and acids under low or moderate stress levels, we strongly recommend testing in case of applications where the products will come into contact with these or other aggressive chemicals. For symmetrical configurations where both the LEXAN surfaces will be bonded to glass, we advise to apply our non-hard coated product LEXAN ULG1003A.

ABRASION RESISTANCE COMPARISON

LEXAN MARGARD HLG10 sheet exhibits significantly less hazing than uncoated polycarbonate sheet as shown in the abrasion resistance chart.

		% Haze		
	Test Method	**Uncoated Polycarbonate**	**LEXAN MRAC Sheet**	**Glass**
TABER ABRASION 100 CYCLES CS 10F	ASTM D 1044 Z26.1	35.0	1-3	0.5

ǂ The Taber Abrader test measures the percent of change in haze that results from the grinding action of two abrasive impregnated wheels on the test samples. A constant load of 500 grams is maintained as the samples rotate on a turntable for a predetermined number of revolutions.

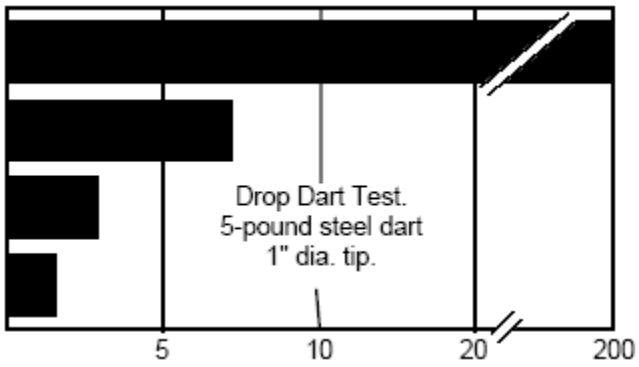
IMPACT RESISTANCE

¼" LEXAN™ MARGARD HLG10 sheet

¼" Acrylic

¼" Tempered

¼" Laminated Glass



Measured in foot-

PRODUCT AVAILABILITY

Product Code : HLG 10 sheet
Standard Size : 8'X4', 8'X5', 8'X6'
Thicknesses : .118, .177, .220, .236, .375, .500
Standard Colors : Clear (112)

For HLG10 different dimensions can be made available by prior arrangements. Such arrangement may affect prices and/or conditions of sale.

RIPPLE ORIENTATION

Ripple direction may play an important role in the optical performance of the sheet. This direction is indicated on the sheet masking.

FLAT APPLICATIONS ONLY

Due to its mar-resistant coating, LEXAN™ MARGARD™ HLG10 sheet cannot be used in curved applications. It is intended for flat applications only.

SAFETY

The processing guidance given in this documentation is given in good faith and the trust that in all cases you wear the correct Personal Protective Equipment (PPE), e.g. helmet, proper gloves, safety goggles etc. to safely fabricate, e.g. (but not limited to) sawing, cutting, forming our sheets and films. In all cases you should follow local and national regulations around the wear of PPE's prescribed or mandatory to perform these tasks in a safely manor.

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