POLYVANTIS

PRODUCT DATASHEET

LEXAN™ MARGARD™ HLGA2 SHEET

DESCRIPTION

High abrasion resistant, non-weatherable, LEXAN™ MARGARD™ HLGA2 sheet is an improved single-sided hard coated polycarbonate sheet offering excellent abrasion resistance, excellent dimensional stability, impact resistance, and optical clarity. It is an excellent candidate for glass-LEXAN sheet laminates where LEXAN MARGARD HLGA2 sheet is being bonded by means of PU interlayer or polymers to the glass package creating a "no spall" glass/LEXAN laminate with improved abrasion resistant properties. LEXAN MARGARD HLGA2 sheet is suitable to be screen-printed at the uncoated side using screen-print inks, being compatible with LEXAN polycarbonate sheet.

TYPICAL PROPERTY VALUES*

PROPERTY	TEST METHOD	UNITS	VALUE
PHYSICAL			
Density	ISO 1183	g/cm³	1.20
Water absorption, 50% RH, 23 °C	ISO 62	%	0.15
Water absorption, saturation, 23°C	ISO 62	%	0.35
MECHANICAL			
Yield stress 50 mm/min	ISO 527	MPa	>60
Yield strain 50 mm/min	ISO 527	%	6
Nominal strain at break 50 mm/min	ISO 527	%	>100
Tensile modulus 1 mm/min	ISO 527	MPa	2300
Flexural strength 2 mm/min	ISO 178	MPa	90
Flexural modulus 2 mm/min	ISO 178	MPa	2300
Taber haze - 100 cycles, 500-gram, CS-10F	ASTM D1044	%	0.5 - 1
Taber haze - 500 cycles, 500-gram, CS-10F	ASTM D1044	%	1-4
THERMAL			
Vicat softening temperature, B/120	ISO 306	°C	145
Temperature of deflection under load (type A), 1.8 MPa, flat	ISO 75-2	°C	127
Thermal conductivity	ISO 8302	W/m.°C	0.2
Coefficient of linear thermal expansion, 23-55°C	ISO 11359-2	1/°C	$7x10^{-5}$
Ball pressure test 125 ±2°C	IEC 60695-10-2	-	Pass
ELECTRICAL			
Volume resistivity	IEC 60093	Ohm.cm	$>10^{15}$
Dielectric strength, in oil, 3.2 mm	IEC 60243-1	kV/mm	18

PROPERTY	TEST METHOD	UNITS	VALUE
OPTICAL - SHEET			
Light transmission 1 mm	ASTM D 1003	%	92
Light transmission 1.5 mm	ASTM D 1003	%	92
Light transmission 2 mm	ASTM D 1003	%	92
Light transmission 3 mm	ASTM D 1003	%	91
Light transmission 4 mm	ASTM D 1003	%	90
Light transmission 5 mm	ASTM D 1003	%	90
Light transmission 6 mm	ASTM D 1003	%	89
Optical distortion 2-6mm	DIN 52305/-A-AZ	%	0.02
UL LISTING SHEET			
UL File# E539252			

*These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local POLYVANTIS representative or the POLYVANTIS Quality Services Department.

OPTICAL PERFORMANCE

The optical qualities of LEXAN™ MARGARD™ HLGA2 sheet are the result of constant research in order to help provide high values. This is ensured by in house testing of LEXAN sheets in 3-8 mm thickness according DIN 52305/-A-AZ which specifies optical requirements for glazing in vehicles. During the optical control phase, LEXAN MARGARD HLGA2 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 HLGA2 sheet is to cast a polymer between the different substrates. During the polymerization process, adhesion takes place between glass and LEXAN sheet.

RIPPLE ORIENTATION

Ripple direction may play an important role in the application regarding the optical performance of the sheet. For this purpose, the ripple direction is indicated on the sheet masking. The surface which is foreseen with the 2-strips indicating grade and ripple direction, is hard coated.

CHEMICAL RESISTANCE

LEXAN™ MARGARD™ HLGA2 sheet has high resistance at the coated side to most chemicals. In applications where it will come into contact with aggressive chemicals, specific (application related) testing of the material is strongly recommended.

FLAT APPLICATIONS ONLY

Due to its mar-resistant coating, LEXAN MARGARD HLGA2 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.

PRODUCT AVAILABILITY

Product code:	**LEXAN™ MARGARD™ HLGA2**
Gauge:	1-1.5mm, standard size 1220 x 2920mm
Gauge::	2-12mm, standard size 2000 x 2920mm
Color:	Clear: color code 112; 1-2mm

POLYVANTIS

Polycarbonate products are sold globally under the trademark LEXAN™ Film & Sheet, owned by SABIC or its subsidiaries or affiliates.

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LEXAN™ POLYCARBONATE FILM & SHEET Tough, Virtually Unbreakable

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