LEXAN™ MARGARD™ HLGA2 Sheet

PRODUCT DATASHEET

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, optical clarity and passes DIN 52305 A-AZ‡ for a specific gauge range. 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 - 3
Thermal			
Vicat softening temperature, rate 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
Optical			
Light transmission 1 mm	ASTM D1003	%	92
Light transmission 1.5 mm	ASTM D1003	%	92
Light transmission 2 mm	ASTM D1003	%	92
Light transmission 3 mm	ASTM D1003	%	91
Light transmission 4 mm	ASTM D1003	%	90
Light transmission 5 mm	ASTM D1003	%	90
Light transmission 6 mm	ASTM D1003	%	89
Light transmission 12 mm	ASTM D1003	%	85
Optical distortion 2 – 6 mm	DIN 52305/-A-AZ		0.02

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

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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 2 - 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 9001 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 0.9 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 polymerisation process, adhesion takes place between glass and LEXAN sheet.

RIPPLE ORIENTATION

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

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.

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.

PRODUCT AVAILABILITY

Product Code:	HLGA2 sheet
Thicknesses :	1, 1.5 mm; standard size: 1220 x 2920 mm
Thicknesses:	2, 2.5, 3, 4, 5, 6, 8, 9.5, 12mm: Standard size: 2000 x 2920 mm
Standard Color:	Clear 112

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