

Description

Lexan Margard HLG5 sheet is a transparent 1-side hard coated 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 HLG5 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 | Unit | Value |
|--|----------------|-------------------|--------------------|
| Physical | | | |
| Density | ISO 1183 | g/cm ³ | 1.20 |
| Water absorption, 24 hours | ISO 62 | % | 10.0 |
| Mechanical | | | |
| Tensile stress, yield | ISO 527 | MPa | 60 |
| Tensile strength, break | ISO 527 | MPa | 70 |
| Tensile elongation, yield | ISO 527 | % | 6 |
| Tensile elongation, break | ISO 527 | % | 120 |
| Tensile modulus | ISO 527 | MPa | 2300 |
| Flexural strength, yield | ISO 178 | MPa | 90 |
| Flexural modulus | ISO 178 | MPa | 2300 |
| Hardness | ISO 2039/1 | MPa | 95 |
| Taber abrasion, CS-10F, 500 cycles, 500g ##) | ASTM D 1044 | % Haze | 8 |
| Thermal | | | |
| Vicat Softening Temp, Rate B | ISO 306 | °C | 145 |
| HDT, 0.45 MPa | ISO 75 | °C | 138 |
| Thermal conductivity | ASTM C 177 | W/m°C | 0.20 |
| Coeff. of Linear Therm. Expansion | DIN53752 | m/m°C | 7x10 ⁻⁵ |
| Thermal Index | UL 746B | °C | 100 |
| Optical | | | |
| Light transmission (clear 112) | ASTM D 1003 | % | 84-90 |
| Imperfections#) | DIN 52305-A-AZ | - | Pass |

Optical Performance

The optical qualities of Lexan Margard HLG5 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 HLG5 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.

♦ These property values have been derived from Lexan*resin data for the material used to produce this sheet product.

#) passing DIN 52305/AS requirements for 2.5-8 mm gauge

##) Taber abrasion conditions at 500 cycles, 500g, CS-10F wheels. Tested for abrasion resistance, Lexan Margard HLG5 sheet exhibits significantly less hazing, compared to uncoated polycarbonate sheet.

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Chemical Resistance

Although Lexan Margard HLG5 sheet 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 Optigard ULG1003.

Fire Test Performance

Lexan Margard HLG5 sheet has good fire performance against many national fire codes dependent on thickness and color; please check with the local sales office for details.

Flat applications only

Due to its mar-resistant coating, Lexan Margard HLG5 sheet cannot be used in curved applications. It is intended for flat applications only.

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.

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 HLG5 sheet is to cast a polymer between the different substrates. During the polymerisation process, adhesion takes place between glass and Lexan sheet.

Product Availability

Product Code : HLG 5 sheet
Standard Size : 2000 x 2920 mm
Thicknesses : 2.5, 3, 4, 5, 6, 8 mm (9.5 and 12mm are optional)
Standard Colors : Clear (112).

For HLG5 different colors and dimensions can be made available by prior arrangements. Such arrangement may affect prices and/or conditions of sale.



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Americas:
SABIC Innovative Plastics
Specialty Film & Sheet
One Plastics Avenue
Pittsfield, MA 01201
USA
Tel. (1) (413) 448 5400
Fax. (1) (413) 448 7506

Europe:
SABIC Innovative Plastics
Specialty Film & Sheet
Plasticslaan 1
NL - 4612 PX Bergen op Zoom
The Netherlands
Tel. (31) (164) 292911
Fax. (31) (164) 293272

Pacific:
SABIC Innovative Plastics
Specialty Film & Sheet
1266 Nanjing Road (W)
16th Floor, Plaza 66
200040 Shanghai, China
Tel. (86) 21 6288 1088
Fax. (86) 21 6288 0818

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