POLYVANTIS

PRODUCT DATASHEET

LEXAN™ MARGARD™ MR5E SHEET

DESCRIPTION

LEXAN™ MARGARD™ MR5E sheet is a transparent UV and mar resistant glazing material for flat applications only. The intrinsic properties of LEXAN polycarbonate combined with its dual hard coated surface provide: high impact strength and forced entry protection, graffiti resistance, excellent all weather performance, unique ten (10) year warranty against breakage and seven (7) year limited warranty against yellowing, loss of light transmission and coating failure.

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	%	1 - 3
Taber haze - 500 cycles, 500-gram, CS-10F	ASTM D1044	%	3-8
Taber haze - 1000 cycles, 500-gram, CS-10F	ASTM D1044	%	<10
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
FLAMMABILITY			
Limited Oxygen Index (LOI)	ISO 4589	%	30
Fire propagation	BS 476, Part 6	-	6 & 9.5mm pass
TRANSPORTATION			
Automotive - Type approval Homologation	ECE R118 - Annex 6,7 & 8	-	3-6mm pass

PROPERTY	TEST METHOD	UNITS	VALUE
OPTICAL - SHEET			
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
Light transmission 8 mm	ASTM D 1003	%	87
Light transmission 9.5 mm	ASTM D 1003	%	86
Light transmission 12 mm	ASTM D 1003	%	85
Light transmission 15 mm	ASTM D 1003	%	82
Diopter 2-8 mm	DIN52305/AZ		<0.06
UL LISTING SHEET			
UL File# E539252 - Flammability properties	UL94	-	3-12mm
UL File# E539252 - UV Exposure & Water Immersion;	UL746C	-	f1

*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.

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IMPACT STRENGTH

Virtually unbreakable, LEXAN™ MARGARD™ MR5E sheet has up to 250 times the impact strength of glass and 30 times that of acrylic. LEXAN sheet offers outstanding impact strength and complies with the majority of international standards. With a thickness of 4 mm and upwards it complies with DIN 52290 part 4.

DIN 52290 PART 4

LEVEL OF RESISTANCE	DROP HEIGHT	STRIKING ENERGY PER DROP (J)	TOTAL ENERGY STRIKING ENERGY PER LEVEL (J)
A1	3500 mm	141	423
A2	6500 mm	262	786
A3	9500 mm	383	1149

FIRE TEST PERFORMANCE

LEXAN MARGARD MR5E has good fire performance against many national fire codes dependent on thickness and color; please check with the local sales office for details.

WEATHERING

Weathering data showed that the Yellowing Index (DYI), as per ASTM D1925, is less than 0.2 points after an accelerated weathering period of 2000hrs (ISO 11341).
The product is covered with a warranty of 7 years, for details please see actual warranty document.

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.

FLAT APPLICATIONS ONLY

Due to its mar-resistant coating, LEXAN™ MARGARD™ MR5E sheet cannot be used in curved applications. It is intended for flat applications only.

CHEMICAL RESISTANCE

LEXAN MARGARD MR5E sheet's unique coating provides immunity to many chemicals. Surface contact tests on LEXAN MARGARD MR5E sheet with a wide range of chemicals have proven to have no effect on impact resistance during falling dart testing, proving the excellent fit for LEXAN MARGARD for industrial or aggressive environments. In applications where the product will come into contact with aggressive chemicals, specific testing of the material is always advised.

CLEANING

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 sheet products in hot sun or at elevated temperatures. For removal of paints, marking pen, inks, lipstick etc. use Butyl Cellusolve. To remove labels, stickers etc. the use of kerosene, naphta, or white spirits 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.

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™ MR5E**
Standard gauges:	3-12 mm
Standard size:	2000 x 3000mm
Color:	Clear 112, Bronze 5109

For MR5E different colors and dimensions can be made available by prior arrangements.
Such arrangement may affect prices and/or conditions of sale.

POLYVANTIS

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

www.polyvantis.com

LEXAN™ POLYCARBONATE FILM & SHEET | Tough, Virtually Unbreakable

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