

# LEXAN™ MARGARD™ SOUNDGLAZE™ SC SHEET

## PRODUCT DATASHEET

### DESCRIPTION

For demanding applications, such as in an urban area where antigraffiti properties are needed or in a railway station, rail track or petrol station area where higher levels of cleaning and chemical resistance are needed, then LEXAN™ MARGARD™ SOUNDGLAZE SC is the ideal choice. LEXAN™ MARGARD™ SOUNDGLAZE SC combines the impact strength of LEXAN polycarbonate with the abrasion and UV resistant properties provided by the proprietary hard coating applied to both sides of the sheet. Due to the hard coating, LEXAN MARGARD SOUNDGLAZE SC is only recommended for flat soundscreen designs, but line bending is a possible option to consider. The hard coating provides significantly improved abrasion resistance and chemical resistance to oils, paints and other fluids compared with uncoated polycarbonate. The unique coating provides a surface that can be easily cleaned, even including the removal of spray painted graffiti. LEXAN MARGARD SOUNDGLAZE SC is backed by a ten year limited warranty\* against breakage and a five year limited warranty against yellowing and lost of light transmission.

\* See warranties for full details

### TYPICAL PROPERTY VALUES

PROPERTY	TEST METHOD	UNITS	VALUE
<b>PHYSICAL</b>			
Density	ISO 1183	g/cm <sup>3</sup>	1.20
Water absorption, 50% RH, 23 °C	ISO 62	%	0.15
Water absorption, saturation, 23°C	ISO 62	%	0.35
<b>MECHANICAL</b>			
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
<b>THERMAL</b>			
Vicat softening temperature, rate B/120	ISO 306	°C	145
Temperature of deflection under load (type A), 1.8 MPa, flat	ISO 75 /Be	°C	138
Thermal conductivity	ASTM C 177	W/m°C	0.20
Coefficient of linear thermal expansion, 23-55°C	ASTM D 696	1/°C	7x10 <sup>-5</sup>
Ball pressure test 125 ±2°C	UL 746B	°C	100
<b>ELECTRICAL</b>			
Volume resistivity	IEC 60093	Ohm.cm	>10 <sup>15</sup>
Dielectric strength, in oil, 3.2 mm	IEC 60243-1	kV/mm	18

PROPERTY	TEST METHOD	UNITS	VALUE
<b>OPTICAL</b>			
Light transmission 2 mm	ASTM D1003	%	93
Light transmission 3 mm	ASTM D1003	%	92
Light transmission 4 mm	ASTM D1003	%	92
Light transmission 5 mm	ASTM D1003	%	91
Light transmission 6 mm	ASTM D1003	%	90
Light transmission 8 mm	ASTM D1003	%	88
Light transmission 9.5 mm	ASTM D1003	%	87
Light transmission 12 mm	ASTM D1003	%	85
Light transmission 15 mm	ASTM D1003	%	82

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

## SOUND REDUCTION

Tests have been carried out to determine the sound reduction properties of LEXAN™ polycarbonate sheet. SOUNDGLAZE™ and SOUNDGLAZE SC provide the noise reduction and insulation properties as shown in the following tables.

### SOUND TRANSMISSION CLASS (STC dB) ISO 717 / DIN 52210

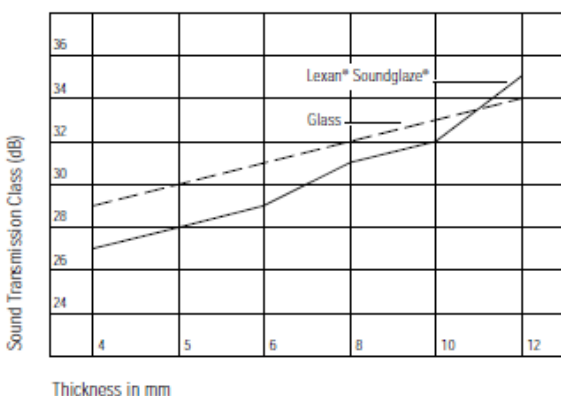
Sheet thickness	8 mm	9,5 mm	12 mm
STC	31,0 dB	32,0 dB	35,0 dB
ZTV Lsw Noise reduction*	25,9 dB	26,2 dB	28,6 dB

\* Measured at highway traffic noise frequency

### Acoustic insulation DIN 52210-75 Rw (dB)

Sheet thickness	8 mm	9,5 mm	12 mm
LEXAN	31 dB	32 dB	35 dB
Glass	32 dB	33 dB	34 dB

### Influence of Sheet Thickness on STC (dB) ISO/17/ DIN 52210 test method



NB. ISO and DIN covers the sound frequency range from 100 Hz – 3150 Hz

## FIRE PERFORMANCE

LEXAN MARGARD SOUNDGLAZE SC sheet has very good fire behavior as polycarbonate has a limiting oxygen index of 25 and so does not contribute significantly to the initiation and spread of fire, nor does it generate toxic gases.

## PRODUCT AVAILABILITY

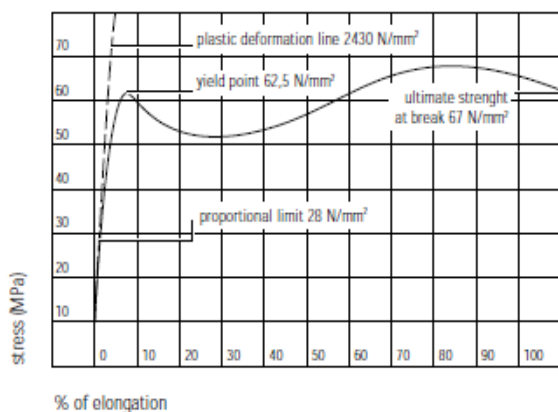
GRADE	STANDARD SIZE (MM)	THICKNESS (MM)	STANDARD COLOUR	LIGHT TRANSMISSION
LEXAN™ MARGARD™ SOUNDGLAZE™ SC	2000	3,4,6,8,9,5,12,15	112 – clear	89,88,87,85,84,83
UV protected and abrasion-resistant	x		5109 – bronze#	50

Alternatives are available when required.

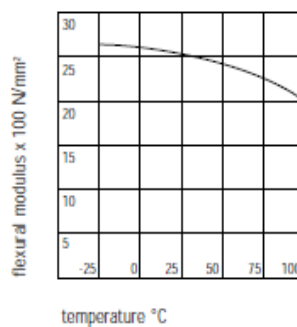
\* Typical values only - light transmission values may vary ± 3%; details available on request.

# Made to order on request, subject to minimum quantity.

Stress-strain diagram for LEXAN Solid Sheet



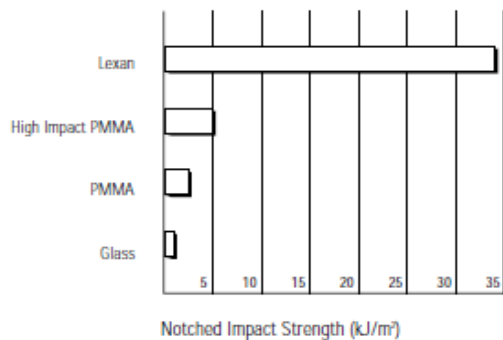
Flexural modulus vs. temperature



## IMPACT PROPERTIES

LEXAN MARGARD SOUNDGLAZE SC is virtually unbreakable products, being up to 250 times the impact strength of glass and 30 times that of acrylic.

Comparison of LEXAN Polycarbonate Impact Strength vs. other materials (ISO 179/20 DIN 52612)



### Steel Ball Impact test for security glazing: prEN 356

LEXAN polycarbonate sheet meets the highest impact performance required by the European Norm prEN 356 for security glazing. The test involves a steel ball of 4.11 kg and a diameter of 100 mm being dropped repeatedly from different heights onto the test sheet.

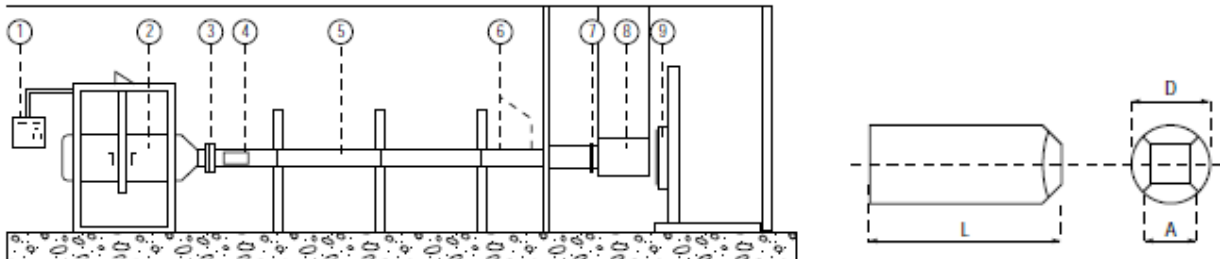
CATEGORY OF RESISTANCE	DROP HEIGHT	NUMBER OF STRIKES	CODE DESIGNATION	IMPACT ENERGY PER STROKE
P1A	1500 mm	3 in a triangle	EN 356 P1A	62 Joule
P2A	3000 mm	3 in a triangle	EN 356 P2A	123 Joule
P3A	6000 mm	33 in a triangle	EN 356 P3A	247 Joule
P4A	9000 mm	3 in a triangle	EN 356 P4A	370 Joule
P5A	9000 mm	3x3 in a triangle	EN 356 P5A	370 Joule

## PROJECTILE IMPACT TESTING ON LEXAN SHEETS

The test is aimed at reproducing the hazard that occurs when components or machine parts are flung out at high speed onto LEXAN™ sheet. The cylindrical projectile is propelled for allowing a defined impact velocity onto the test specimen.

### Shooting equipment for prEN 12415 test

### Projectile



- 1 display
- 2 pressure barrel (Pmax=10 bar)
- 3 membrane
- 4 cartridge with projectile
- 5 shooting barrel, caliber 150 mm
- 6 measuring device
- 7 brake system
- 8 collector
- 9 test specimen

LEXAN sheet thickness	8 mm	9,5 mm	12 mm
Projectile dimensions in mm (DxLxA)	40x128x25	30x114x19	50x164x30
Projectile mass	1,25 kg	0,625 kg	2,5 kg
Projectile speed	50 m/s	80 m/s	63 m/s
Shock energy	1562 J	2000 J	4960 J

## CHEMICAL RESISTANCE

### LEXAN MARGARD SOUNDGLAZE SC sheet

The hard coating on LEXAN MARGARD SOUNDGLAZE SC is a highly effective chemical barrier which significantly improves its chemical resistance to a range of chemical agents that under normal circumstances would be detrimental to an uncoated LEXAN polycarbonate sheet. The comparative chemical properties between LEXAN MARGARD SOUNDGLAZE and SOUNDGLAZE SC sheet are shown in the table.

CHEMICALS	EXELL-D	SOUNDGLAZE SC
Toluene	W/S	V
Acetone	S	V
Methylethylketone	S	V
Dichloromethane	W/S	V
Sulphuric acid (95-97%)	V	V
Hydrochloric acid (32%)	V	V
Ammonia (25%)	V	V
Thinner (Sikkens 1-2-3)	W/S	V
Super Gasoline (Esso)	W/S	V
Diesel Fuel (Esso)	V	V
Fuel C	V	V

W = surface whitening / S = surface dissolution

V = no reaction

In case of doubt about any aspect of the chemical compatibility of the LEXAN sheet range, always consult your nearest SABIC Sales Office for further information and conduct compatibility testing.

## Test Certification for LEXAN Sound Barriers

IBMB extension cert. valid till 09/07/06, for original cert. 2225 / 421-2, covering stability & shape under heat & load testing for ZTV-Lsw 88 parts 3 / 4 tested on 12 mm LEXAN™ sheet, clamped on two sides, and one side with a 45 degree bend.

IBMB extension valid till 09/07/06, for original cert. 2225 / 421-3, covering stability & shape under heat & load testing versus ZTV-Lsw 88 parts 7.2.3 / 4 tested on 12 mm LEXAN™ sheet, clamped on two sides, and one side with a stiffener bar 500 mm from the top edge.

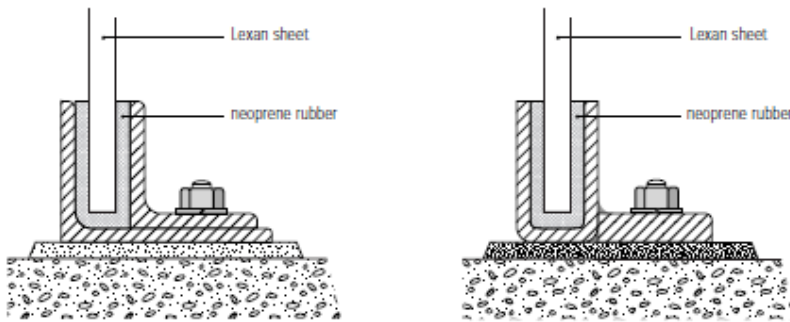
IBMB extension valid till 09/07/06, for original cert. 2225 / 421-4, covering stability & shape under heat & loading testing for ZTV-Lsw 88 parts 7.2.3 / 4 tested on 12 mm LEXAN™ sheet, clamped on two sides and one side with a stiffener bar 1000 mm from the top edge.

ALU cert. 1040/3/83/91 of 02/05/91 covering sound reduction properties for ZTV-Lsw 88 part 7.2.1 tested on 12 mm LEXAN™ sheet.

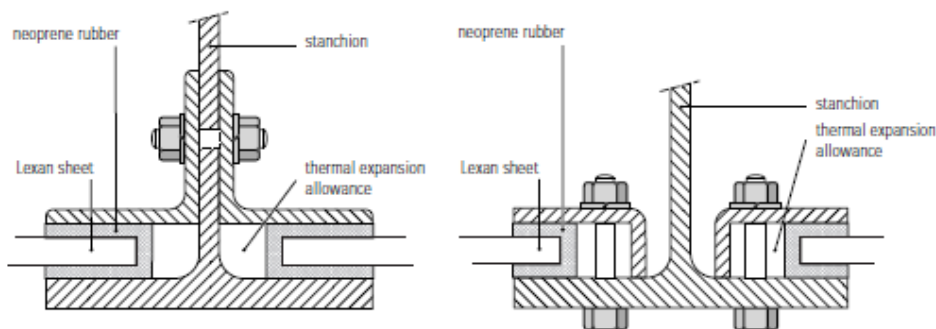
## INSTALLATION GUIDELINES

### Thermal Expansion Allowance

When installing LEXAN MARGARD SOUNDGLAZE SC sheet into a sound barrier frame, an allowance should be made to allow for free expansion and contraction of the sheet. In general, the thermal expansion is approximately 3 mm per linear meter.



Lexan sheet fixing proposals to concrete upstand



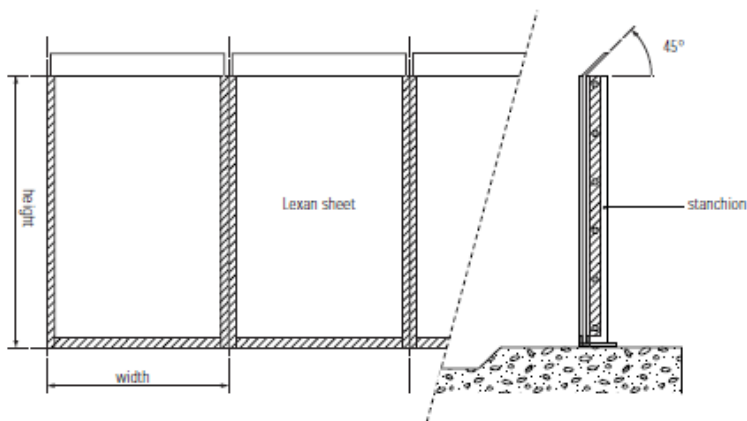
Lexan sheet fixing proposals to metal stanchions

### Sheet Edge Engagement

The required sheet edge engagement for LEXAN™ MARGARD™ SOUNDGLAZE™ SC sheet in a sound barrier profile is approximately 25 mm.

### Wind Loading Sheet Dimensions

Calculations based onto 4 sides clamped sheet into a profile system offering a sheet edge engagement of 25 mm. Maximum sheet deflection at calculated wind loading: 50 mm.



#### Note

If LEXAN sheet, installed as shown in the diagram above, is 3 side clamped on the bottom and both vertical sides, with the sheet top side line bent at an angle of 45 degrees, the wind load tables sheet width must be 100 mm less.

#### Wind loading 1000 N/m<sup>2</sup>

SHEET THICKNESS	WIDTH	HEIGHT
8 mm	1600 mm	2000 mm
8 mm	1500 mm	2500 mm
8 mm	1400 mm	> 3000 mm
9,5 mm	2000 mm	2000 mm
9,5 mm	1750 mm	2500 mm
9,5 mm	1650 mm	> 3000 mm
12 mm	2000 mm	> 3000 mm

#### Wind loading 1500 N/m<sup>2</sup>

SHEET THICKNESS	WIDTH	HEIGHT
8 mm	1400 mm	2000 mm
8 mm	1300 mm	2500 mm
8 mm	1200 mm	> 3000 mm
9,5 mm	1700 mm	2000 mm
9,5 mm	1600 mm	2500 mm
9,5 mm	1500 mm	> 3000 mm
12 mm	2000 mm	2000 mm
12 mm	1900 mm	2500 mm
12 mm	1800 mm	> 3000 mm

## Gaskets / Sealants

Silicone sealants or compatible Neoprene, EPT or EPDM rubber gaskets with an approximate Shore hardness of A65 are generally recommended for use with LEXAN™ MARGARD™ SOUNDGLAZE™ SC sheet. Compatible reports for different rubber types are available on request. Recommended gasket systems and sealants are given in the following tables.

### Recommended Sealants

SEALANT	SUPPLIER
Silpruf	GE Silicones

\* more grades available

### Recommended Gasket Systems

GASKET TYPE	SUPPLIER
EPDM R27*, Chloropene, RZ4-35-81	Helvoet
EPDM 4330, 4431, 5530, 5331	Vredestein
EPDM 3300/670, 64470	Phoenix

\* more grades available

### N.B. Do Not Use PVC gasket!

Due to migration of additives of soft PVC which can chemically affect LEXAN polycarbonate sheet, resulting in surface cracks or even sheet breakage.

### Cleaning Recommendations

Cleaning of LEXAN MARGARD SOUNDGLAZE SC sheets after installation can be easily done on site without the need for specialist cleaning agents, unless it is to remove graffiti. Recommended procedures for general cleaning of LEXAN MARGARD SOUNDGLAZE SC sheet is given below.

#### Procedure 1 - Small Area

- Rinse sheet with lukewarm water.
- Wash sheet with a mild soap solution or compatible household detergent in lukewarm water, using a soft cloth or sponge to loosen any dirt and grime.
- Final rinse with cold water, and dry with a soft cloth to help prevent water spotting.

#### Procedure 2 - Large Areas

- Clean surface with a high pressure water and/or steam cleaner.
- Use of any cleaning additives to the water should be restricted to those compatible with LEXAN.

#### Point to Remember

- Do not use abrasive or highly alkaline cleaners.
- Never scrape the sheet with squeegees, razor blades or other sharp instruments.
- Do not clean sheet in hot sun or at elevated temperatures as this can lead to staining.

For special advise on cleaning or cleaners, please contact your nearest DiverseyLever office, as listed on next page opposite.

#### Recommended Solvent Cleaners

- White Spirit
- Petroleum Ether (BP65 deg.)

**Special instructions for Cleaning Graffiti for LEXAN™ MARGARD™ SOUNDGLAZETM SC sheet**

The hard coating provides an effective chemical barrier, and even most graffiti such as spray paint can be easily removed.

However, to avoid damaging the coating the use of abrasive cleaners and/or cleaning implements must be avoided. The recommended cleaning procedure for the removal of graffiti, etc., is as follows:

- Paints, marking pens, inks, lipstick, etc.: use a non abrasive graffiti remover.
- Labels, stickers: use kerosene or white spirit.
- In all instances, do a final wash with warm soap solution, followed by a rinse with clean water.

**Recommended Graffiti Removers for LEXAN MARGARD SOUNDGLAZE SC sheet**

SUPPLIER	PRODUCT	APPLICATION
Chematlex	Vandalex	spray/hand
Nucoat	AG2	hand/cloth
Jumbo J.T.	Graffiti	spray/hand/cloth

**Cleaner & Graffiti Remover suppliers**

<b>Johnson Wax</b> P.O. Box 22 3640 AA Mijdrecht The Netherlands Tel. 0297 - 29 25 00 Fax 0297 - 29 25 90	<b>Jumbo Totaal bv</b> Achterzeedijk 57 2992 SB Barendrecht The Netherlands Tel. 0180 - 61 90 09 Fax 0180 - 61 94 73	<b>DiverseyLever AG</b> CH-9542 Münchwilen Switzerland Tel. 071 - 969 27 27	<b>DiverseyLever</b> Calle Rosselon 174-176 08036 Barcelona Spain Tel. 93 - 323 10 54	<b>Nucoat</b> Dudley road Wolverhampton UK Tel. 0902 - 33 65 65 Fax 0902 - 33 73 51
<b>Chemalex</b> 432 Hillington Road Glasgow G52 4BL UK Tel. 041 - 882 - 9938 Fax 041 - 810 - 5163	<b>DiverseyLever</b> Wienerbergstrasse 7 A-1103 Vienne Austria Tel. 01 - 60 55 70	<b>DiverseyLever Divizia</b> Odborárska 52 Sk-831 02 Bratislava Slovakia Tel. 07 - 501 29 88 Tel. 07 - 525 48 95	<b>DiverseyLever SRO</b> Táborská 5/979 140 00 Praha 4 Czech Republic Tel. 02 - 61 22 25 24	<b>DiverseyLever AB</b> Röntgenvägen 3 S-14152 Huddinge Sweden Tel. 08 - 779 93 00
<b>DiverseyLever</b> Jamestown Road Finglas Dublin 11 Ireland Tel. 01 - 836 19 66	<b>DiverseyLever A/S</b> Smedenholm 3-5 DK-2730 Herlev Denmark Tel. 044 - 85 61 00	<b>DiverseyLever</b> Haachtsteenweg 672 B-1910 Kampenhout Belgium Tel. 016 - 61 77 77	<b>DiverseyLever France</b> 9-11, Avenue du Val de Fontanay 94133 Fontanay Sous Bois France Tel. 01 - 45 14 76 76	<b>DiverseyLever (Offices)</b> Via Meucci 40 20128 Milan Italy Tel. 02 - 258 01
<b>DiverseyLever Sp. z.o.o.</b> UI Zupnica 17 03-821 Warsaw Poland Tel. 022 - 670 24 32	<b>DiverseyLever</b> Rautatienkarn 9-11 FIN-20200 Turku Finland Tel. 02 - 269 72 22	<b>DiverseyLever</b> General Offices Weston Favell Centre Northampton NN3 8PD United Kingdom Tel. 01604 - 40 53 11	<b>DiverseyLever</b> Mallaustrasse 50-56 Postfach 81 03 60 D-68219 Mannheim Germany Tel. 0621 - 875 70	<b>DiverseyLever</b> Maarssenbroeksedijk 2 3606 AN Maarssen The Netherlands Tel. 030 - 247 69 11



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