

Makrolon® SX Line

Solid polycarbonate sheet for LED lighting



I Line
Innovative

Your benefits:

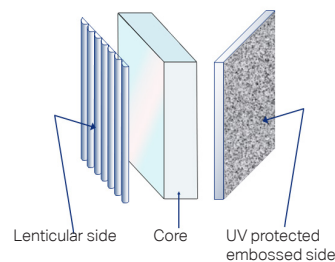
- extreme optical efficiency
- very good light shaping properties at low thickness
- resistance to wide range of temperature

Solid **Makrolon® SX** sheets are clear polycarbonate sheets with a concave linear micro-prismatic optic on one side and embossed surface on the other, and is specifically designed for LED lighting. **Makrolon® SX** features a combination of high light transmission and light shaping. If used as double layer, **Makrolon® SX** features full light diffusion at a very low design profile and de-glaring property. When compared to other micro-prismatic products, **Makrolon® SX** sheets have superior impact strength and toughness, which exceeds the physical properties of other thermoplastics and glass. **Makrolon® SX** sheets resist temperatures of -100 to +120 °C and have a very good flammability performance providing an additional advantage over acrylic. **Makrolon® SX** comes with a UV-protection on one side, to improve the durability for those applications where the sheets are put very near to LED types with a high radiant flux output in the blue range of the light.

Applications:

Typical applications for **Makrolon® SX** sheets are:

- LED fixtures for functional and decorative lighting, luminaires,
- LED retrofits of fluorescent lamps,
- non-lighting design applications.



	Test Conditions	Typical Values ⁽¹⁾	Unit	Test Method
PHYSICAL Density Water absorption saturation Water absorption equilibrium Refractive Index	water at 23°C 23°C, 50 % RH Procedure A	1200 0.3 0.12 1,586	kg/m ³ % % -	ISO 1183-1 ISO 62 ISO 62 ISO 489
MECHANICAL Tensile modulus Yield stress Yield strain Nominal strain at break	1 mm/min 50 mm/min 50 mm/min 50 mm/min	2100 >54 5,6	MPa MPa %	ISO 527-1,-2 ISO 527-1,-2 ISO 527-1,-2
THERMAL Vicat softening temperature Thermal conductivity Coefficient of linear thermal expansion	50 N; 50°C/h 23°C 23 to 55°C	145 0.2 0.7	°C W/(mK) 10 ⁻⁴ K	ISO 306 ISO 8302 ISO 11359-1,-2

⁽¹⁾ Physical and thermal values were sourced from resin data.

Makrolon® SX Line

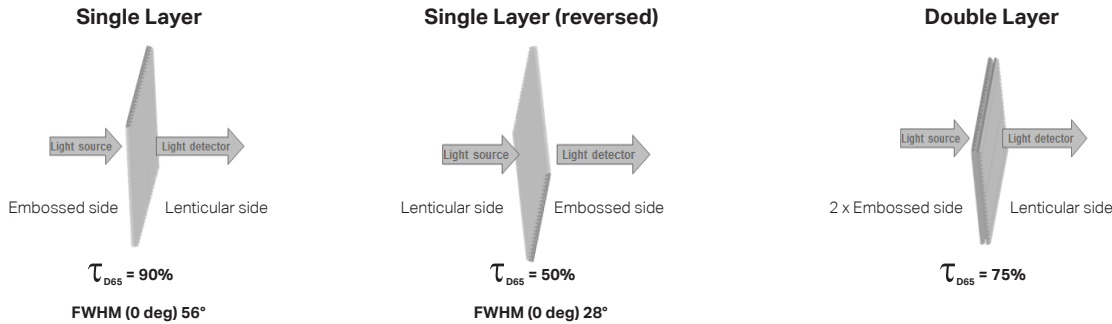
Solid polycarbonate sheet for LED lighting



Ideas, innovative, intelligent, interesting... Exolon Group i-line represents the next generation of quality products. This seal guarantees innovative and intelligent first-class solutions at all times for a multitude of requirements.

Optical Properties:

Test method for light transmission according to CIE 130-1998, on a spherical photometer with a diameter of 1.5 m. Please ask us for more information. The stated values are typical values only. Depending on the installation of the sheet the light transmission varies, therefore you can get as much light as you need.



The diffusion properties of the double layer, meaning horizontal and vertical full width at half maximum (FWHM) were extracted from the BTDF measurements of the sample for a series of incident angles. The photogoniometer OMS4 confirmed the spectrum measurements.

Light diffusion:

Incidence angle (deg)	FWHM horizontal (deg)	FWHM vertical (deg)
5	62	90
10	59	91
20	66	93
30	62	93
40	61	87
50	54	86

Dimensions:

Thicknesses: **Makrolon® SX** line will be available in 1.35 mm

Sizes [W x L]: **Makrolon® SX** line will be available in 1,280 x 750 mm

Attention: the light ray is rendered perpendicular to the lenticular micro-prism, along the sheet width.

Permanent Service Temperature:

The permanent service temperature without load is approx. 120 °C.

Glow Wire Flammability Tests:

Glow Wire Flammability Index (GWFI): 1.35 mm: 850°C

Glow Wire Ignition Test (GWIT): 1.35 mm: 875°C



Exolon Group GmbH
Rommerskirchener Str. 21
50259 Pulheim
Germany

www.exolongroup.com
sales@exolongroup.com

The manner in which you use and the purpose to which you put and utilize our products, technical assistance and information (whether verbal, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond our control. Therefore, it is imperative that you test our products, technical assistance, information and recommendations to determine to your own satisfaction whether our products, technical assistance and information are suitable for your intended uses and applications. This application-specific analysis must at least include testing to determine suitability from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by Exolon Group. Unless we otherwise agree in writing, all products are sold strictly pursuant to the terms of our standard conditions of sale which are available upon request. All information and technical assistance is given without warranty or guarantee and is subject to change without notice. It is expressly understood and agreed that you assume and hereby expressly release us from all liability, in tort, contract or otherwise, incurred in connection with the use of our products, technical assistance, and information. Any statement or recommendation not contained herein is unauthorized and shall not bind us. Nothing herein shall be construed as a recommendation to use any product in conflict with any claim of any patent relative to any material or its use. No license is implied or in fact granted under the claims of any patent.

Makrolon® is a registered trademark, owned and licensed by Covestro Group