

Product Data Sheet, April 2020

Makrolon® SX Sharp

Solid polycarbonate sheet for controlling glare in lighting



Your benefits:

- extreme optical efficiency
- very good light shaping properties (de-glare) at low thickness
- good fire behaviour - self-extinguishing solution

Solid **Makrolon® SX Sharp** sheets are clear polycarbonate sheets with a microstructure optic (*patent pending*) on one side and gloss surface on the other. It is specifically designed for glare control function in lighting. **Makrolon® SX Sharp** features a combination of high light transmission and light shaping. When compared to other prismatic products, **Makrolon® SX Sharp** sheets have superior impact strength and toughness, which exceeds by far the physical properties of other thermoplastics and glass. **Makrolon® SX Sharp** sheets resist temperatures of -100 to +120 °C and have a very good flammability performance providing an additional advantage over acrylic.

Makrolon® SX Sharp comes without UV protection and is therefore the perfect choice for a long service for indoor lighting solutions.

Applications:

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

- LED fixtures for functional glare control lighting, luminaires, especially in office lighting
- LED retrofits of fluorescent lamps
- Controlled forwarding light from any kind of light source

	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 ⁻⁶ K	ISO 306 ISO 8302 ISO 11359-1,-2

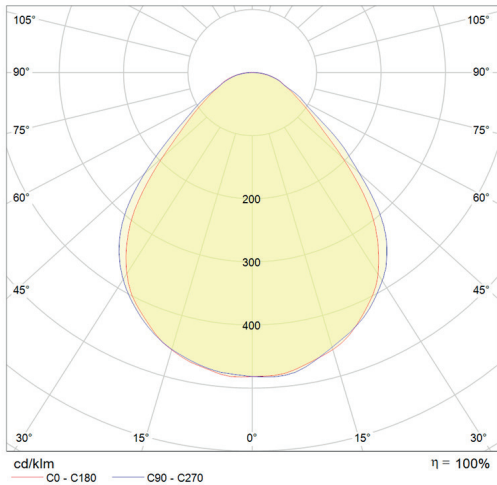
⁽¹⁾ Physical and thermal values were sourced from resin data.

Makrolon® SX Sharp

Solid polycarbonate sheet for controlling glare in 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.



The graph shows how the lenses control the light distribution to allow for efficient de-glaring.

Important to emphasize is that **Makrolon® SX Sharp** gives an even light intensity distribution (= low peak intensity). This can be verified by pointing a laserbeam at the sheet and looking at the transmitted image. It is not a sharp thin lined circular image, but more wide spread circular beam and partially filled inwards. This peak shielding gives a significant improved comfort. When looking into the luminaire, it gives a softer effect and prevents blinding.

Unfortunately, the current UGR calculation methods do not allow to quantify this peak shielding. However, it is an important issue and helps your customers outcome to appreciate the luminaires.

Light Transmission: $T_{D65} = 90\%$

Dimensions:

Thicknesses: Makrolon® SX Sharp will be available in 3 mm thickness

Sizes [W x L]: Makrolon® SX Sharp line will be available in 1.650 x 3.050 mm

Permanent Service Temperature:

The permanent service temperature without load is approx. 100 °C. A short term maximum of 120 °C is allowed.

Fire Rating*:

Country	Standard	Rating	Thickness	Color
Europe	EN13501	B s1 d0	3 mm	clear 099 S

*) Fire certificates could be limited in time and scope, always check if the mentioned certificate is valid for the purchased Polycarbonate sheet type at the date of delivery. Polycarbonate sheets may change their fire behavior due to ageing and weathering. The indicated fire rating was tested on new / unweathered Product in accordance with the indicated fire classification standards.



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