

Product Data Sheet, January 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

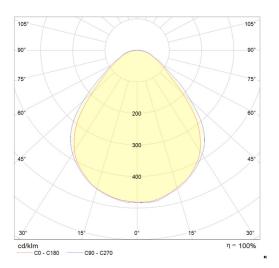
	Test Conditions	Typical Values ⁽¹⁾	Unit	Test Method
PHYSICAL				
Density		1200	kg/m³	ISO 1183-1
Water absorption saturation	water at 23°C	0.3	%	ISO 62
Water absorption equilibrium	23°C, 50 % RH	0.12	%	ISO 62
Refractive Index	Procedure A	1,586	-	ISO 489
MECHANICAL				
Tensile modulus	1 mm/min	2100	MPa	ISO 527-1,-2
Yield stress	50 mm/min	>54	MPa	ISO 527-1,-2
Yield strain	50 mm/min	5,6	%	ISO 527-1,-2
Nominal strain at break	50 mm/min			
THERMAL				
Vicat softening temperature	50 N; 50°C/h	145	°C	ISO 306
Thermal conductivity	23°C	0.2	W/(mK)	ISO 8302
Coefficient of linear thermal expension	23 to 55°C	0.7	10 ⁴ K	ISO 11359-12

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

Makrolon® SX Sharp Solid polycarbonate sheet for controlling glare in lighting

I I

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 an 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*:

Oxygen index (LOI) 27% ISO 4589-2 Method A.



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 verbai, written or by way of production evaluations), including any suggested formulations and recommendations, are beyond ou 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 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 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 ort, contract or otherwise, incurred is subject to use any product in contineing with our advance of our products, technical assistance, and information. Any statement or ecommendation not contained merein is hull 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