Product Data Sheet, March 2014

Makrolon® UV

Patterned polycarbonate sheet

Your benefits:

- excellent weathering resistance
- extreme impact strength
- resistance to a wide range of temperatures

Makrolon® UV patterned sheets are clear transparent polycarbonate sheets with UV protection on both sides, and a patterned surface. They offer extreme impact strength that exceeds the physical properties of other products of their class. **Makrolon** sheets resist temperatures of -100 to +120 °C.

Makrolon® UV clear 2099 RH is a clear transparent sheet with high light transmission, a raindrop pattern on one side, and a haircell pattern on the other side.

Makrolon® UV clear 2099 P, sheet has a pearl pattern on one side, and is smooth on the other side.

Makrolon® UV clear 2099 GX, sheet has a haircell pattern on one side, and a prism pattern on the other side.

Applications:

Typical applications for **Makrolon® UV** patterned sheets include lighting fixtures, luminair covers, balcony guards, wall and door partitions. The sheets offer protection against involuntary breakage and wilfull destruction. The patterned surfaces offer a solution wherever sight screens are required to let in light.

	Test Conditions	Typical values[1]	Unit	Standard
PHYSICAL				
Density		1200	kg/m³	ISO 1183-1
Water absorption saturation	water at 23 °C	0.30	%	ISO 62
Water absorption equilibrium	23 °C, 50% relative humidity	0.12	%	ISO 62
Refractive index	Procedure A	1.587	–	ISO 489
MECHANICAL				
Tensile modulus	1 mm/min	2350	MPa	ISO 527-1,-2
Yield stress	50 mm/min	› 60	MPa	ISO 527-1,-2
Yield strain	50 mm/min	6	%	ISO 527-1,-2
Nominal strain at break	50 mm/min	› 50	%	ISO 527-1,-2
Flexural modulus	2 mm/min	2350	MPa	ISO 178
Flexural strength	2 mm/min	90	MPa	ISO 178
Charpy impact strength	23 °C, unnotched	non-break	kJ/m²	ISO 179-1eU
Charpy impact strength	23 °C, 3 mm, notched	80P	kJ/m²	ISO 179-1eA
Izod impact strength	23 °C, 3.2 mm, notched	90P	kJ/m²	ISO 180-A
THERMAL				
Vicat softening temperature	50 N, 50°C/h	148	°C	ISO 306
Thermal conductivity	23°C	0.20	W/(m.K)	ISO 8302
Coefficient of linear thermal expansion	23 to 55°C	0.65	10^{-4}/K	ISO 11359-1, -2
Temperature of deflection under load	1.80 Mpa	128	°C	ISO 75-1, -2
Temperature of deflection under load	0.45 Mpa	140	°C	ISO 75-1, -2
ELECTRICAL				
Electrical strength	1 mm	34	kV/mm	IEC 60243-1
Volume resistivity		1E14	Ohm.m	IEC 60093
Surface resistivity		1E16	Ohm	IEC 60093
Relative permitivity	100 Hz	3.1	–	IEC 60250
Relative permitivity	1 MHz	3.0	–	IEC 60250
Dissipation factor	100 Hz	$5\ 10^{-4}$	–	IEC 60250
Dissipation factor	1 MHz	$95\ 10^{-4}$	–	IEC 60250

[1] These values are measured on injection molded samples, and are not intended for specification purposes.

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Bayer MaterialScience S-Line, the standard product line, represents a range of certified quality products which offer the reliable solution for most applications.

Light Transmission: Test Method according to DIN 5036
The stated thicknesses are not all available as standard. Please ask us for more information.
The stated values are typical values only.

Light transmission in % at 3 mm thickness	Makrolon® UV RH	Makrolon® UV P	Makrolon® UV GX
clear 2099	86	86	86
green 2650	67		
blue 2550	53		
bronze 2850	44		

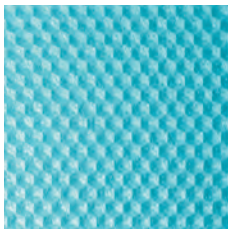
Available sizes: Makrolon® UV patterned sheets are available in thicknesses 3 – 6 mm and in following sizes; other sizes, colors and sheet thicknesses on request.

Colors:
Makrolon® UV clear 2099 P
Makrolon® UV clear 2099 GX
Makrolon® UV clear 2099 RH
Makrolon® UV green 2650 R
Makrolon® UV blue 2550 RH
Makrolon® UV bronze 2850 RH

Patterns:
Makrolon® UV clear 2099 RH

Makrolon® UV clear 2099 P

Makrolon® UV clear 2099 GX



Sizes (Standard):
3,050 x 2,050 mm (RH) 3,050 x 1,650 mm (P, GX)

Weathering Resistance: Makrolon® UV sheets show excellent weathering resistance, which guarantees their impact strength even after many years. Since their introduction in 1989, the sheets have been examined in an intensive test programm, including a real-time outdoor exposure test in a southern European climate (Bandol).

Permanent Service Temperature: The permanent service temperature without load is approx. 120 °C.

Fire Rating (*): Oxygen index (LOI) ISO 4589-2 Method A: 28%

Country	Standard	Rating	Thickness	Color
Germany	DIN 4102	B 2	≥ 0.75 mm	all Colors

Glow wire flammability index, IEC 60695-2-12, in °C (*): Makrolon® UV clear 2099 RH: 960 °C at 3 mm

(*) 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.

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