



Product Data Sheet, October 2004

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	Unit	Test Method
PHYSICAL				
Density		1.2	g/cm ³	ISO 1183-1
Moisture absorption	after storage in standard climate 23 °C/ 50 % RH	0.15	%	ISO 62-4
	after storage in water at 23 °C until saturation	0.35	%	ISO 62-1
MECHANICAL				
Tensile stress at yield		> 60	MPa	ISO 527-2/1B/50
Elongation at yield		6	%	ISO 527-2/1B/50
Tensile strengt		> 60	MPa	ISO 527-2/1B/50
Elongation at break		> 70	%	ISO 527-2/1B/50
Elastic modulus		2400	MPa	ISO 527-2/1B/1
Limiting flexural stress		ca. 90	MPa	ISO 178
THERMAL				
Vicat softening temperature	Method B50	148	°C	ISO 306
Thermal conductivity		0.2	W/m K	DIN 52612
Coeff. of linear thermal expansion		0.065	mm/m K	DIN 53752-A
Heat deflection temperature under load	Method A: 1.80 MPa	127	°C	ISO 75-2
	Method B: 0.45 MPa	139	°C	ISO 75-2
ELECTRICAL				
Dielectric strength		35	kV/mm	IEC 60243-1
Volume resistivity		10 ¹⁶	Ohm-cm	IEC 60093
Surface resistivity		10 ¹⁴	Ohm	IEC 60093
Dielectric constant	at 10 ³ Hz	3.1		IEC 60250
	at 10 ⁶ Hz	3		IEC 60250
Dissipation factor	at 10 ³ Hz	0.0005		IEC 60250
	at 10 ⁶ Hz	0.009		IEC 60250

The mechanical properties were measured on sheets of 4 mm thickness.

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makrolon®
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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	77		
blue 2550	61		
bronze 2850	50		

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 RH

Makrolon® UV blue 2550 RH

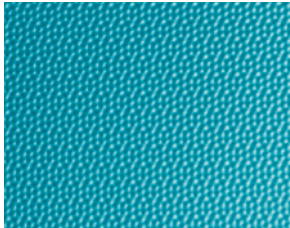
Makrolon® UV bronze 2850 RH

Patterns:

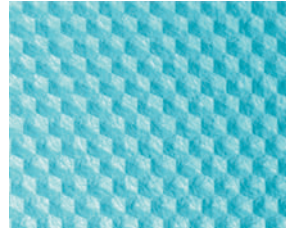
Makrolon® UV clear 2099 RH



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 program, including a real-time outdoor exposure test in a southern European climate (Bandal) and in hot and humid regions (Florida and Singapore).

Permanent Service Temperature:

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

Fire Rating (*)

Oxygen index (LOI) 28%, ISO 4589-2 Method A

Country	Standard	Rating	Thickness	Color
Germany	DIN 4102	B2	≥ 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 are limited in time, always check if the mentioned certificate is still valid

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