



# MAKROLIFE™

MAKROLIFE™ is a clear transparent polycarbonate sheet with double sided UV-protection. The sheet is produced with vast knowledge of our production team extrusion experience.

In 1994 Arla Plast pioneered the UV-protection co-extrusion technique in Europe, which has given us unparalleled experience with UV protected sheets.

The product is virtually unbreakable with extremely high impact resistance and high temperature performance. It has a UV protection layer against UV radiation and yellowing hence excellent for outdoor applications where glass is used today.

MAKROLIFE™ provides designers, specifiers, and architects with possibilities to use transparent polycarbonate sheets in outdoor applications where high clarity and high impact resistance is required.

Excellent fire performance complying requirements to EN 13501-1 (European fire classification for building and construction). In case of fire, the sheet will melt and allow venting where heat and smoke will be let out and therefore reduce the growth of fire by flame spread.

## MAKROLIFE™ BENEFITS:

- Double-sided UV-protection
- Half the weight of glass
- More than 10 times the impact strength of high impact PMMA
- Easy to thermoform or fabricate
- Good fire classification
- 10-year warranty

## APPLICATION AREAS:

MAKROLIFE™ is used in barrel vaults, roof lights, wide span architectural glazing, bus shelters, poster protection, skylights, greenhouses, covered walkways and sport arenas.

MAKROLIFE™ has set the industrial standard in applications for vending machines, lamps, outdoor signs, stairs, sound protection walls and many others.

## DELIVERY PROGRAM:

Standard sizes: 2050 x 3050 mm

Thickness range: 2 – 20 mm

Colour: Clear

Special sizes, special thicknesses, and textures on request

## MAKROLIFE™ TYPICAL PROPERTY VALUES

Property	Value	Unit	Standard
<b>Physical properties</b>			
Density	1,2	g/cm <sup>3</sup>	ISO 1183
Refractive index (20 °C)	1,586		ISO 489
Moisture absorption 24 h, 23 °C, 50% RH	0,15	%	ISO 62
<b>Mechanical properties</b>			
Tensile strength at yield (at break)	60 (70)	N/mm <sup>2</sup>	ISO 527
Elongation at yield (at break)	6 (110)	%	ISO 527
Elastic modulus	>2300	N/mm <sup>2</sup>	ISO 527
Flexural modulus	>2300	N/mm <sup>2</sup>	ISO 178
Charpy unnotched impact strength -40 °C	NB	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength -30 °C	11	kJ/m <sup>2</sup>	ISO 179/1eA
Izod notched impact strength +23 °C	65	kJ/m <sup>2</sup>	ISO 180/1A
Izod notched impact strength -30 °C	10	kJ/m <sup>2</sup>	ISO 180/1A
<b>Thermal properties</b>			
Coefficient of linear thermal expansion (20-70 °C)	65x10 <sup>-6</sup>	K <sup>-1</sup>	ISO 11359-2
Heat deflection temperature, HDT A (1,80 N/mm <sup>2</sup> )	132	°C	ISO 75
Heat deflection temperature, HDT B (0,45 N/mm <sup>2</sup> )	142	°C	ISO 75
Vicat temperature VST/B 120	149	°C	ISO 306
Vicat temperature VST/B 50	148	°C	ISO 306
Thermal conductivity	0,20	W/m.K	ISO 8302
<b>Electrical properties</b>			
Volume resistivity, dry	>10 <sup>14</sup>	Ω.m	IEC 62631
Surface resistivity, dry	10 <sup>16</sup>	Ω	IEC 62631
Dielectric strength, dry	30	kV/mm	IEC 60243
Dielectric constant, dry 50 Hz	3		IEC 62631
Dielectric constant, dry 1 MHz	2,9		IEC 62631
Dissipation factor (tan δ), dry 50 Hz	0,001		IEC 62631
Dissipation factor (tan δ), dry 1 MHz	0,01		IEC 62631

Properties reported here are typical values for polycarbonate. Arla Plast makes no representation that the material in any particular shipment will conform exactly to the values given. The above information is based upon experience and given in good faith. Due to many factors which are outside our knowledge and control, no warranty is given or is to be implied with respect to such information. Detailed product specification and technical manual/information is available on request.