

MAKROCLEAR®



MAKROCLEAR®, is an extruded high quality transparent polycarbonate sheet. It has a superior impact strength at half the weight of glass. MAKROCLEAR® has more than twice the impact strength of PETG and more than 10 times the impact strength of high impact PMMA. The product has an outstanding high clarity and is more regularly replacing glass in exposed applications.

In case of a fire, a MAKROCLEAR® sheet will melt and create a passage where heat and smoke will be let out of the building. It will have no contribution to the growth of a fire through flame spread.

Qualities:

- Outstanding high clarity
- Superior impact strength
- Light weight compared to glass
- Good fire behaviour classification
- Easily screen printed
- Can easily be formed into gentle curves
- Excellent thermoforming properties
- Usable over a wide temperature range

Application areas:

The fantastic properties of MAKROCLEAR® makes it a perfect solution for machine protection, safety glazing, ice hockey rinks, vandal protection etc.

MAKROCLEAR® thermoforms very easy and is often used in signs, displays, riot shields, model cars, medical equipment, bicycle helmets etc.

Available in:

Colours (as Colorado) and textured versions (TEX™, ANTI-REFLEX™)

Cases above:

SAS aircraft transport
Machine protection

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MAKROCLEAR® Properties

Property	Unit	Value	Standard
Physical Properties			
Density	g/cm ³	1,20	ISO 1183
Light transmission (Lightsource D65, thickness 1 mm)	%	88	DIN 5036, T.3
Refractive index		1,586	ISO 489
Moisture absorption 24 hours, 23°C, 50% RH	%	0,15	
Mechanical Properties			
Tensile strength at yield (at break)	N/mm ²	63 (70)	ISO 527
Elongation at yield (at break)	%	6 (110)	ISO 527
Elastic modulus	N/mm ²	2300	ISO 527
Flexural modulus	N/mm ²	2300	ISO 178
Charpy unnotched impact strength +23°C	kJ/m ²	no break	ISO 179/2D
Charpy unnotched impact strength -40°C	kJ/m ²	no break	ISO 179/2D
Izod notched impact strength +23°C	kJ/m ²	65	ISO 180/1A
Izod notched impact strength -30°C	kJ/m ²	10	ISO 180/1A
Rockwell hardness		M70	ISO 2039-2
Thermal Properties			
Linear coefficient of thermal expansion (23-80°C)	10 ⁻⁴ x K ⁻¹	0,70	
Heat deflection temperature, HDT	A (1,80 N/mm ²)	132	ISO 75
	B (0,45 N/mm ²)	142	
VICAT temperature VST/B 120		149	ISO 306
	VST/B 50	148	
Specific heat capacity, Cp	KJ/kg, K	1,17	
Thermal conductivity	W/m,K	0,21	DIN 52612
Fire Properties			
Fire classification according to UL94	Class	HB 1,5	UL 94
Electrical Properties			
Volume resistivity, dry	Ω x cm	10 ¹⁶	IEC 93
Surface resistivity, dry	Ω	10 ¹⁵	IEC 93
Dielectric strength, dry (1 mm)	kV/mm	30	IEC 243
Dielectric constant, dry	50 Hz	3,0	IEC 250
	1MHz	2,9	
Dissipation factor (tan δ), dry	50 Hz	0,001	IEC 250
	1MHz	0,010	

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.

Arla sheets are produced from resins that are certified according to UL 94. Furthermore, several products have been tested according DIN 4102 (class B1 and B2), DIN 5510 (class S3, SR1 and SR 2, ST1 and ST2), BS 476 part 7 (class 1Y), NF P 92-501 (M2), CSE/75/A (class 1), CSE/RF/3/77 (class 1), UNE 23.727-90 (class M.4). A list of products that have been tested and their respective classification is presented on www.arlaplast.se. If information regarding classifications according to other standards is needed, it is often possible to retrieve information from our raw material suppliers. Please contact our technical support.



Model car



Screen printed signs