

# Makrolon® Solid Sheet AR

Polycarbonate

Covestro - Polycarbonates

## Message:

Makrolon® AR sheet is an abrasion and enhanced UV resistant polycarbonate sheet that offers glasslike hardness coupled with the impact strength of standard polycarbonate. Additionally, Makrolon® AR offers on both surfaces enhanced resistance against yellowing and hazing for an extended service life in high profile architectural glazing. Makrolon® AR has a 10-years warranty against breakage and 5-years warranty against delamination and weathering.

## Applications:

Typical applications for Makrolon® AR sheet include transparent sound barriers, school and hospital shelter glazing. Makrolon® AR is also used extensively in correctional and psychiatric facilities. Additionally, the product performs well for view windows and machine guards in harsh chemical environments. Due to its scratch-resistant coating, Makrolon® AR cannot be formed like other Makrolon® sheets.

General Information			
UL YellowCard	E351891-101049030	E351891-101049035	
Features	Impact resistance, high		
	Good UV resistance		
	Good wear resistance		
	Good weather resistance		
	Definition, high		
Uses	Assembled glass		
Forms	Sheet		
Physical	Nominal Value	Unit	Test Method
Density	1.20	g/cm <sup>3</sup>	ISO 1183
Water Absorption			ISO 62
Saturated, 23°C	0.30	%	ISO 62
Equilibrium, 23°C, 50% RH	0.12	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	2350	MPa	ISO 527-2/1
Tensile Stress (Yield)	> 60.0	MPa	ISO 527-2/50
Tensile Strain (Yield)	6.0	%	ISO 527-2/50
Nominal Tensile Strain at Break	> 50	%	ISO 527-2/50
Flexural Modulus <sup>1</sup>	2350	MPa	ISO 178
Flexural Stress <sup>2</sup>	90.0	MPa	ISO 178
Wear resistance-Delta Haze			
-- <sup>3</sup>	1 - 4	%	ASTM D1044
-- <sup>4</sup>	4 - 9	%	ANSI Z26.1
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength <sup>5</sup> (23°C, Partial Break)	80	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy Unnotched Impact Strength (23°C)	No Break		ISO 179/1eU
Notched Izod Impact <sup>6</sup> (23°C, Partial Break)	90	kJ/m <sup>2</sup>	ISO 180/A

Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature			
0.45 MPa, not annealed	140	°C	ISO 75-2/B
1.8 MPa, not annealed	128	°C	ISO 75-2/A
Vicat Softening Temperature	148	°C	ISO 306/B50
CLTE - Flow (23 to 55°C)	6.5E-5	cm/cm/°C	ISO 11359-2
Thermal Conductivity (23°C)	0.20	W/m/K	ISO 8302
Flammability	Nominal Value		Test Method
Flame Rating			UL 94
> 1.5 mm, ALL	HB		UL 94
0.8 to 1.4mm, ALL	V-2		UL 94
> 10.0 mm, Clear 8099	V-0		UL 94
Optical	Nominal Value		Test Method
Refractive Index <sup>7</sup>	1.587		ISO 489
NOTE			
1.	2.0 mm/min		
2.	2.0 mm/min		
3.	100 cycles, 500 g, CS-10F Wheel		
4.	500 cycles, 500 g, CS-10F Wheel		
5.	3 mm		
6.	3.2 mm		
7.	Method A		

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