

**Warranty, November 2004**

## Makrolon® AR Abrasion-resistant solid polycarbonate sheet

5 years warranty against delamination and weathering and  
10 years warranty against breakage

### Product definition

Makrolon® AR sheets with **surface protection on both sides** for improved abrasion and weather resistance.

### Scope of warranty

We guarantee solid sheets made from Makrolon® AR for 5 years against delamination and weathering and for 10 years against breakage.

### Warranty statements

#### 1. Makrolon® AR retains its light transmission

This means that the sheets will have a transmittance after 5 years which is not more than 7% lower than at the time of delivery. The transmittance is measured on clean, unscratched specimens according to DIN 5036.

#### 2. Makrolon® AR retains its abrasion resistance

This means that within a period of 5 years no delamination will occur between the scratch resistant layer and the base polycarbonate sheet, which can be recognized by naked eye.

#### 3. Makrolon® AR retains its rigidity

This means that sheets will have a modulus of elasticity of  $\geq 2100$  MPa after 10 years. The elastic modulus is measured in the tensile test according to ISO 527 at 23°C, as the average value established for 5 specimens with parallel faces which have been conditioned to the equilibrium state in the standard climate of 23°C and 50% RH.

#### Note

The specimen thickness must be between 3 and 4 mm. The specimen surfaces, obtained by mechanical treatment, need to be smooth and polished.

### Conditions of warranty

Makrolon® AR sheets

- must be stored, transported, fabricated and installed (or used) in a manner that suits the material,
- must not be (adversely) affected by connecting, fixing and/or sealing elements,
- must be protected against the adverse influences of chemicals,
- must not be thermoformed,
- must be installed as plane glazing.

The above conditions being met, drilled or riveted sheets are covered by the 5 year warranty on weather resistance only.

This warranty is valid for all European countries.



**Warranty, April 2005****Makrolon® AR**  
Abrasion-resistant solid polycarbonate sheet**Applicability**

A complaint under this warranty will be considered,

- a) if caused within the warranty period despite demonstrable observance of the conditions of warranty,
- b) if made without delay during the warranty period, and
- c) if an invoice issued by the salesperson is presented, showing the name and address of the buyer, the purchase date, complete product description and number of sheets purchased.

**If the claim is justified, we will replace the material free of charge ex works as stipulated on the right.**

If replacement material cannot be supplied, the customer will be refunded with the original purchase price according to the same pattern. Further claims are excluded.

**Replacement of faulty material  
in case of the 10 year warranty**

<b>Period after purchase date</b>	<b>Percentage replaced</b>
up to 5 years	100 %
within 6 <sup>th</sup> year	75 %
within 7 <sup>th</sup> year	60 %
within 8 <sup>th</sup> year	45 %
within 9 <sup>th</sup> year	30 %
within 10 <sup>th</sup> year	15 %