

Technical Information, January 2020

Makrolon® multi UV Condensation Formation

Condensation can form as a result of vapor permeability of plastic materials, even in glazing elements such as Makrolon® multi UV multiwall sheets. The formation of condensation within the rib chambers depends on weather conditions and also on the corresponding installation situation.

The relevant weather conditions include: temperature, difference between internal and external temperature, absolute humidity, relative air humidity, wind and convection characteristics as well as solar irradiation.

Excessive condensation is often the result of rainwater ingress or blocked condensation outlet openings in the channel-profile closure sections.

To eliminate such problems, take care to install the panels correctly in accordance with the applicable installation instructions, paying particular attention to the installation of the closure profile sections.

Because of the above mentioned factors, which are partially interrelated in terms of their effect, universally applicable recommendations for prevention of condensation in multiwall sheets cannot be made.

For this reason we appointed the Fraunhofer Institute in Freiburg to investigate the formation of condensation in multiwall sheets. Their detailed report (29 pages, German language) is available from us on request.

The report found that the least amount of condensation formation was achieved with sheet edges that are open at the top or that are sealed (with adhesive) on both sides. However effective sealing cannot be achieved using commercial aluminum adhesive tapes or other edge-sealing tapes because they are not vapor-tight (airtight).

A proper seal was achieved during testing by using a suitable PE joint profile on both sides, sealed with silicone rubber adhesive. This can only be achieved if the closure seal is fully airtight.

In practice you can also leave the top sheet edge open, i.e. with no seal at all, only with an aluminum cover profile. This can however lead to problems with rainwater ingress which cannot subsequently drain away.

Alternatively you can also leave both sheet edges open. However this can result in dirt and/or insects entering the rib chambers. Under certain conditions this can also lead to the long-term formation of algae within the rib chambers.

The most suitable solutions for reducing condensation are in fact those which are the least feasible or desirable in practice.

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We therefore recommend that, for the installation of multiwall sheets, the rib chambers

- are sealed at the top as tightly as possible, to prevent air circulation, so as not to affect their thermal insulating properties, and so that dirt and insects cannot enter the rib chamber
- that the underside is left as open as it is necessary for the outflow or evaporation of condensation or water that may have entered under adverse weather conditions.

We would like to point out that condensation in multiwall sheets has no negative effect on the function and quality of the panels. It can occur for various reasons, at different times, in and on the individual sheets.

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