



## **Coveme Launched Snail Trails Free Backsheet at SNEC 2015 with lower WVTR**

In recent years the defect known in the PV sector as "snail trails" or "snail traces" has been one of the most troublesome issues for most PV module producers.

"Snail trails" usually appear on the PV cells as dark streaks which are the visual result of a brownish color discoloration of the cells grid fingers occurring along the cell edges or close to cells micro-cracks.

According to the most valuable theories and experiments, if some moisture manages to reach the cells through these micro-cracks or cell edges the water might trigger a reaction with the silver ions contained in the grid fingers therefore creating some Silver nanoparticles (AgNP) with a typical brownish color.

When these silver nanoparticles get accumulated in the area of the encapsulation foil directly in contact with the grid fingers they then cause the discoloration phenomenon known as "snail trail".

Even though a direct correlation between backsheet material and snail trails hasn't been proven yet, it is common knowledge that reducing the WVTR (Water Vapor Transmission Rate) of the backsheet could consequently decrease the chances of moisture transmission through cell edges or micro-cracks.

That's why Coveme developed a backsheet with a special primer which provides a WVTR of <math><2 \text{ gr/sqm. per day}</math> (38 C/90% HR with Mocon Permatran).

Besides that, there might be chances for the encapsulation materials and for the backsheet to facilitate the formation of "snail trails" if these materials contain some organo-metallic compounds with some specific elements like S, Se and Cl. These compounds can lead to the formation of AgNP on the cells surface.

Samples of Coveme backsheet with above mentioned special primer were then submitted to the maximum authority for snail trail studies, the Fraunhofer Center for Silicon Photovoltaics CSP in Germany.

Fraunhofer CSP developed a test to evaluate whether the backsheet could trigger the formation of snail trails considering the presence of Silver nanoparticles (AgNP) on the cells.

All single samples and all laminated samples of Coveme backsheets were considered negative in this AgNP test, leading to the conclusion that Coveme backsheet is not snail trail sensitive and it is therefore suitable to be used in PV modules for anti-snail trail properties.

**For more information please contact:**

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