

# PV RECYCLING SIMPLY WITH LIGHT: NEW, INNOVATIVE AND ECONOMIC

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Producers of solar photovoltaic panels have become responsible for the disposal and recycling of the modules they sell in EU Member States if they follow the publication of the latest revision of the EU waste legislation (WEEE). Beside this we have a few other reasons for the recycling of all used materials in general. Every process of recycling expends energy – and that already begins from the gathering process and transport. We like to follow the “zero waste concept”. Our procedure is another building block for a comprehensive recycling, because it saves raw materials.

This is possible by using a combination of physical and chemical technologies. First of all by application of optical technologies succeeds easily the sandwich structure to open. This means that the glass panels do not have to be destroyed.

This is important, because the price depends primarily on how much money you can generate for secondary raw material glass. This is also the decisive criterion for the recycling route we have to go. Usually two different grades of glass are used in one thin film photovoltaic module - front glass and rear glass. The front glass is of high quality, because it is also free of iron. This is obvious, that a pure-grade secondary material of front glass has more value as a mixture with the ferrous back glass.

Contrary to conventional technologies, like shredding, we do not break the glass. Using technologies from the field of optical nanotechnology it has been possible to fully open the sandwich structure, without damaging the glass.

To clean the glass panels we are using alkane sulfonic acids which can extract in every case all used metals in a very short reaction time. Our hydrometallurgical extraction operates at room temperature and the used alkane sulfonic acid is readily biodegradable (OECD 301 A). If necessary, you can even pull off the plastic film immediately after the wet-chemical treatment of back glass.

The method is universal and is also used for the recycling of silver from waste silicon cell applicable. We use alkane sulfonic acid as a transport system, which can be recovered. We can work without the formation of nitrous gases from how they normally occur with use of nitric acid in the field of silver recovering.

The recovery of the silver using sulfonic acids is a novel and the most effective, economical and ecologically method. A major advantage is particularly the extremely high solubility of silver salts of the corresponding sulfonic acids.

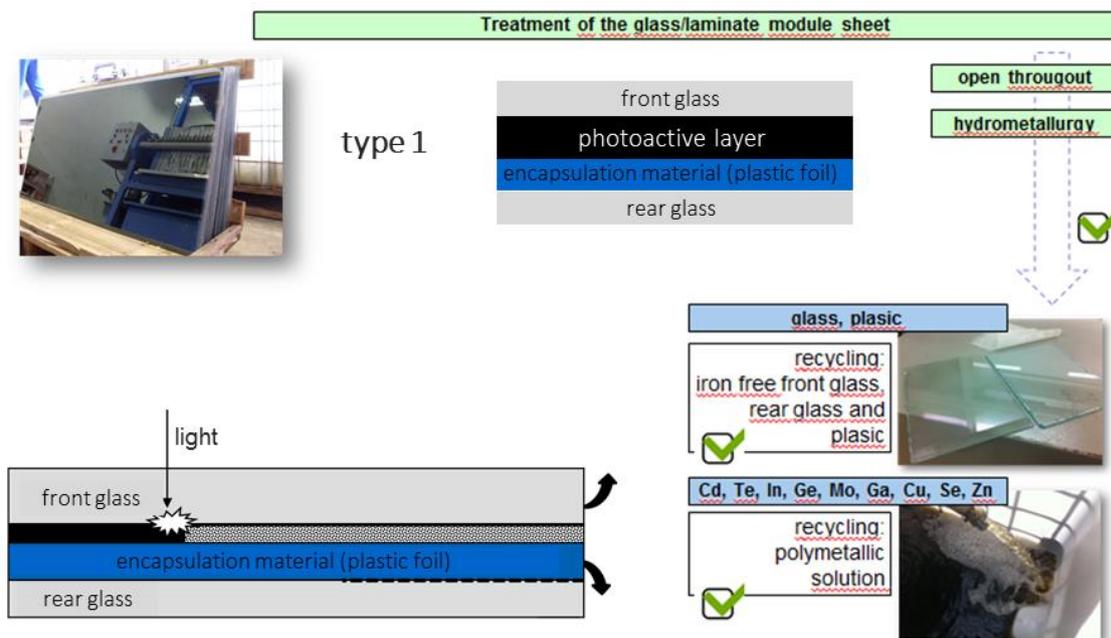


Figure 1. recycling of thin film photovoltaic modules (type 1)