

## Solar Energy South Africa

# Photovoltaic panel delamination process



## Overview

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How does delamination affect a PV module?

Apart from module reliability and performance, delamination can have a severe impact on the safety of the PV module. It has been reported that delamination at the edge of the PV module can cause electrical risk that can affect the module as well as its installation .

Can thermal load control the delamination process of PV panels?

As a result of the analysis, the application of proper thermal loads during the treatment at low temperature allows to control the delamination process of layers. This proof can represent a change in the paradigm of PV panel dismantling, largely improving the sustainability of the decommission process of these products.

What are the types of interfacial delamination in PV modules?

Types of interfacial delamination in PV modules Based on the interface/location of occurrence, delamination in the PV module has been observed between glass-encapsulant, encapsulant-cell, encapsulant-backsheet, and within backsheet layers. However, encapsulant-backsheet delamination is less prominent in the PV module.

Does backsheet delamination affect the optical performance of PV modules?

Backsheet delamination does not have a direct impact on the optical performance of the PV module, however, delamination at the front-side at cell-encapsulant or glass-encapsulant interface can directly impacts the module operation. In this regard, the grey appearance along the front side delamination has been investigated in detail.

What is the hot knife delamination process of c-Si PV modules?

The hot knife delamination process of c-Si PV modules is automated in a PV module disassembly line that consists of a junction box (J-box) separator, a

frame separator, and a glass separator (hot knife technology), and it involves the following three steps: – Removal of the J-box, after which cables are removed from the separated J-box.

Are PV modules delaminated?

Multiple studies have examined delamination in PV modules based on their origin [ , , ], type [10, 17], operating mechanism [ , , ], environmental factors responsible [ , , ], and testing techniques [ , , , ].

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### of Crystalline Silicon Photovoltaic Module Delamination with ...

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## Life Cycle Assessment of Crystalline Silicon Photovoltaic Module

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## Delamination-and Electromigration-Related Failures in ...

The reliability of photovoltaic (PV) modules operating under various weather conditions attracts the manufacturer's concern since several studies reveal a degradation rate higher than 0.8% per year for the silicon ...



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