

# **Solar glass back electrode layer**





## Overview

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AIC of a-Si is a promising method for preparing high-quality poly-Si seed layers on glass at low temperature ( $\sim 450^{\circ}\text{C}$ ). To realise substrate-type thin-film poly-Si solar cells, the AIC process has to be performed.

What is a bilayer structured back electrode?

In summary, we present an innovative bilayer structured back electrode composed of a layer of low-cost Ni-doped natural graphite for interfacial charge extraction and a fusible metal alloy layer for charge transport.

Can a bilayer back electrode be deposited in a vacuum-free approach?

Here, we report a bilayer back electrode configuration consisting of an Ni-doped natural graphite layer with a fusible Bi-In alloy. This back electrode can be deposited in a vacuum-free approach and enables PSCs with a power conversion efficiency of 21.0%.

Can gold be used as a back metal electrode?

At present, gold is commonly used as the back metal electrode in state-of-the-art n-i-p structured PSCs due to its compatible work function, chemical inertness, and high conductivity. However, the high cost of gold and the expensive and time-consuming vacuum-based thin-film coating facilities may impede large-scale industrialization of PSCs.

How thick is a thin film solar cell?

Since the undercoat is not in direct contact with the solar cell, film's thicknesses varied in the range 10–200 nm. For the cell, we consider high-efficiency, thin-film solar cells, namely perovskite solar cells (PSCs), with optimal band-gap ( $\sim 1.4\text{--}1.5\text{ eV}$ ) and PCE  $> 20\%$ .



## Solar glass back electrode layer

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### Back electrode formation for poly-Si thin film solar cells on glass

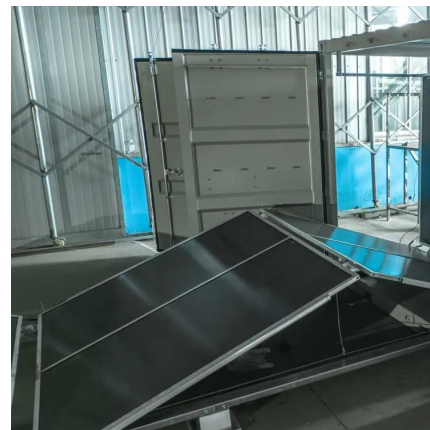
Abstract Various conductive materials (Al, Mo and TiN) were deposited onto glass substrates to evaluate whether poly-Si seed layers can be formed on such substrates by ...

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