

The role of lightweight flexible solar front sheet





Overview

Can GFRP front-sheets be used to design lightweight and impact-resistant PV modules?

This research serves as a proof-of-concept study for the design of lightweight and impact-resistant PV modules using GFRP front-sheets with promising optical transmission.

Can glass fiber-reinforced polymers be used as a front-sheet for PV modules?

While other groups investigated the usage of glass fibers in encapsulant and back sheets [6, 7], in this work we aim to investigate and provide a proof-of-concept for using glass fiber-reinforced polymers (GFRP) directly as a front-sheet for PV modules.

What are the advantages of fabricated solar cells?

The fabricated modules have flexible properties. The lightweight and flexible modules exhibit high reliability under both high temperature and high humidity conditions. Lightweight and flexible solar cell modules have great potential to be installed in locations with loading limitations and to expand the photovoltaics market.

What are polymer frontsheets used for?

For crystalline silicon cells, polymer frontsheets have been implemented to provide protection for supporting lattices like glass fiber reinforced polymer (GFRP) structures. For thin film technologies like copper indium gallium selenide (CIGS), flexible substrates and polymer frontsheets have been applied as durable insulation.



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