

SolarTech Power Solutions

The relationship between silicon sulfide and photovoltaic glass



Overview

Why do we need crystalline silicon for photovoltaic (PV) energy conversion?

Crystalline silicon is needed in large and ever-increasing amounts, in particular for photovoltaic (PV) energy conversion. Efficient thin-film absorbers, for example, based on abundant and stable compound semiconductors, were considered to reduce material consumption.

Can low-cost solar cells be used for PV glazing?

Traditional PV glazing systems are mostly produced from crystalline silicon solar cells (c-SiPVs). The development of low-cost PV cells for the production of cost-effective and energy-saving glass systems has been of great interest.

Can thin-film silicon absorbers save energy compared to full-silicon-wafer technology?

Alternatively, thin-film multicrystalline (mc) silicon on glass can help to save both energy and material consumption compared to full-silicon-wafer technologies. Competitive PV conversion efficiencies can be expected on thin-film silicon absorbers (10 – 15 μm) using a photonic-crystal light-trapping structure.

What is photovoltaic glazing?

The photovoltaic (PV) glazing technique is a preferred method in modern architecture because of its aesthetic properties besides electricity generation. Traditional PV glazing systems are mostly produced from crystalline silicon solar cells (c-SiPVs).

How does glass composition affect Ag/Si contact?

In this paper, the significant effects of these glass compositions on the Ag/Si contact are demonstrated by discussing their influences on the formation of Ag colloids in the interface, the erosion of glass to Si, the glass phase conductivity, and the glass passivation performance at the contact interface.

Which metallization contact quality is important for c-Si solar cells?

Solar cells with crystalline silicon (c-Si) have been widely developed in photovoltaic (PV) industry [1, 2]. The metallization contact quality of front Ag paste electrode is of vital importance for the improvement of electrical performance of c-Si solar cells [3, 4].

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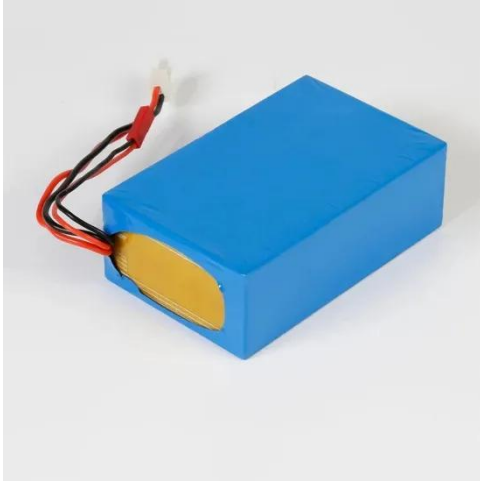
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