

Introduction to Mobike Photovoltaic Epoxy Board

What is a glass-free photovoltaic (PV) module?

This work focuses on the development of a lightweight, glass-free photovoltaic (PV) module (6 kg/m^2) composed of a composite sandwich back-structure and a polymeric front layer. Sandwich structures are usually manufactured with a vacuum bag process and thermosetting liquid glues (e.g. epoxy resin).

What is PVB encapsulation?

PVB is a thermoplastic polymer which has been used since the early 80s as a PV module encapsulant. It represents the second most processed encapsulation material, with similar material costs to EVA.

How can a lightweight PV module be made?

In a previous work, it was demonstrated the possibility to produce a lightweight PV module with a weight of 5 kg/m^2 , by substituting the typical front glass with a thin polymer sheet and the standard backsheet by a composite sandwich structure.

Which material is used to encapsulate PV modules?

Ethylene vinyl acetate (EVA), a copolymer of ethylene and vinyl acetate is the predominating material of choice for manufacturing the encapsulate film since the early eighties, and nearly 80% of PV modules are encapsulated with EVA film [4,13,29].

Can cellulose microfibrils encapsulate a PV module?

In a study, Surlin (a copolymer of ethylene & methacrylic acid) has been reinforced by cellulose microfibrils, and the composite material was used as encapsulate for the PV module.

What are the applications of PVB in the photovoltaic industry?

The main applications of PVB in the photovoltaic industry are building-integrated photovoltaics (BIPV) and thin-film technology with a glass-glass configuration. Silicones are mixed inorganic-organic polymers which include the elements silicon, carbon, hydrogen and oxygen as the main constituents.

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