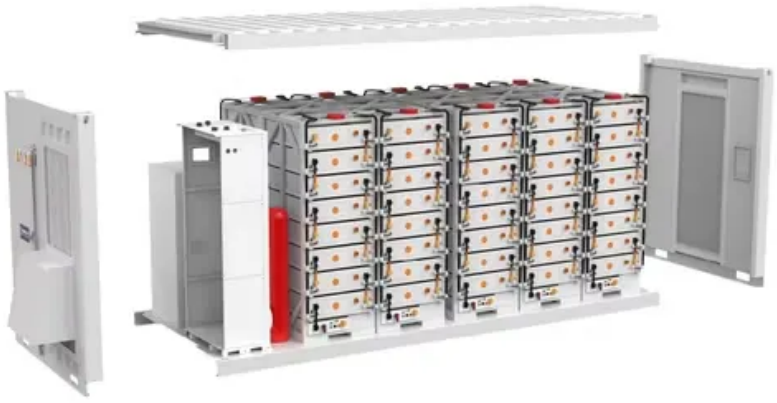
SolarTech Power Solutions

Photovoltaic modules contain fluorine on both sides



Overview

What is a PV module based on?

For some historical context, early PV modules used backsheets based on an FPF structure, with the core PET layer sandwiched between 2 fluoropolymer layers. The fluoropolymer here is nothing but the proprietary polyvinyl fluoride (PVF), commercially known as Tedlar, popularized by DuPont, the well-known US-based chemical giant.

Can a photovoltaic backsheet be chemically recycled for fluoropolymer recycling?

In this study, we investigated the feasibility of chemically recycling a fluorine-containing photovoltaic (PV) backsheet for fluoropolymer recycling.

Are fluorine-free backsheets better than fluorinated pyrolysis?

Likewise, in the pyrolysis scenario, fluorine-free backsheets show better environmental performance than fluorinated backsheets in 8 out of 12 impact categories. Pyrolysis could be a potential end-of-life treatment option for fluorine-free backsheets.

Can fluoropolymers be recycled from end-of-life PV backsheets?

Fluoropolymer recycling could be achieved by melting and extruding the recovered fluoropolymers, which in turn could be used to produce new fluoropolymers. Furthermore, we proposed a potential fluoropolymer recycling scheme from end-of-life PV backsheets.

What is a fluoropolymer?

The fluoropolymer here is nothing but the proprietary polyvinyl fluoride (PVF), commercially known as Tedlar, popularized by DuPont, the well-known US-based chemical giant. Such a backsheet structure was often referred to as TPT, which was also the first backsheet composition used for PV module applications.

Do fluorine-free backsheets improve environmental performance?

The life cycle assessment for the fluorine-free backsheets show better environmental performance compared to the fluorinated backsheets in both incineration as well as the pyrolysis EOL scenarios.

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Delamination of components for recovery of waste ...

Jan 15, 2025 · Tempered glass, EVA, backsheet, fluorinated coating, and solar cell are delaminated from each other. The rapid development of the photovoltaic industry inevitably ...

EoL pathways for PV backsheet

Jan 21, 2022 · A PV backsheet as shown in Figure 2-1 is the outermost layer of the PV module, which acts as a protective layer to shield the inner components of the module, in specific the ...

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Effectively and completely separating the waste crystalline ...

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EoL pathways for PV backsheet

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Green recycling of end-of-life photovoltaic modules

via ...

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photovoltaic

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Fluoropolymer films in the photovoltaic industry

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Effects of solar photovoltaic technology on the ...

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FLUORINATED GREENHOUSE GASES IN PHOTOVOLTAIC ...

Nov 2, 2007 · Some fluorinated gases (F-gases) which are used, or considered to be used, in crystalline silicon photovoltaic solar cell and film silicon module manufacturing have a very ...

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