

Concrete is the construction material most widely used in the world and the huge volumes produced every year have a high impact on the environment. In this context, there is a ...

As shown in Table 1, the elemental composition of materials significantly influences the performance of solar cells, particularly in the context of hybrid solar cells enhanced by biochars derived from ...

The application of biomass-derived carbon materials (e.g., biochar) into soil is considered as an attractive and sustainable strategy to enhance carbon sequestration in soil and to ...

However, the materials used in the solar absorption layer and substrate are typically expensive and difficult to produce, which is not conducive to large-scale application. Herein, a novel ...

Considerable carbon emissions from the cement industry pose a notable challenge to achieving long-term sustainable development and creating an enriched social environment. Biochar ...

Carbon materials such as porous carbon material, doped biochar, carbon nanotubes, graphene, and carbon quantum dots can be prepared via physical and chemical modification of ...

Using biochar to replace peat moss as a container substrate for greenhouse/nursery production could provide environmental and economic benefits. Biochar could be derived from ...

In this direction, biochar derived from abundantly available biomass feedstocks has been explored to develop form-stable, environmentally compatible energy storage materials. Biochar ...

By delving into the latest advancements, challenges, and opportunities, this review seeks to advance the adoption of biochar-based materials as sustainable solutions in the rapidly ...

Biochar, a carbon-rich material derived from the pyrolysis of organic matter, possesses unique structural characteristics that contribute to its remarkable carbon sequestration capabilities ...

A novel thermal energy storage material is developed by encapsulating paraffin-based Phase Change Material (PCM) in porous biochar to improve thermal conductivity and prevent ...

It is anticipated that the results of this study will offer some theoretical support and a practical foundation for the development and advancement of solar thermal energy storage materials, ...

In the paper, we crafted a unique eco-friendly composite phase change material (PCM) with superior

leak-proof performance by integrating modified biochar, carbon nanotubes (CNTs) of ...

Till now, a wide range of application-specific modification strategies have been meticulously developed (Tian et al., 2020). For instance, biochar materials with high specific surface ...

One-pot pyrolysis and enhanced efficient solar evaporation of Cu/Cu<sub>2</sub>O/biochar Solar water evaporation has attracted increasing attention owing to its clean water production applications. In comparing the ...

This review summarizes the synthesis of biochar and biochar-based composite PCMs in detail, as well as their application. Importantly, the prospect of biochar-based composite PCMs ...

Biochar is easy to make with solar power - just directed heat from the sun can reach 1000 degrees F. Hot enough to make biochar. For wastefree23 biochar is very important - biochar is a good ...

A solution is proposed to advance the applicability of latent heat energy storage, charged through direct solar absorption, by use of a well-designed CCPC under low radiation ...

For biochar (short for bio-charcoal), Lehmann and Joseph defined it as " a carbon (C)-rich product when biomass such as wood, manure or leaves is heated in a closed container with little ...

Phase change Materials (PCMs) available in various temperature range have proved efficient in solar thermal energy storage situations. Incorporating PCMs in solar applications resulted ...

Biochar has been analyzed and found to be a low-cost carbon material that has the potential to be used as an efficient solar absorber, enhancing water evaporation using solar energy.

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