Journal of solar container materials

What is solar energy materials & solar cells?

An International Journal Devoted to Photovoltaic, Photothermal, and Photochemical Solar Energy Conversion Solar Energy Materials & Solar Cells is intended as a vehicle for the dissemination of research results on materials science and technology related to photovoltaic, photothermal and photoelectrochemical solar energy conversion.

Can phase-change material be used in solar refrigeration systems?

Due to its uneven temporal distribution,it is difficult to ensure continuous 24 h operation when relying solely on solar energy. To address this issue,thermal energy storage technology has emerged as a viable solution. This paper presents a comprehensive systematic review of phase-change material (PCM) applications in solar refrigeration systems.

How much does solar energy materials & solar cells cost?

Solar Energy Materials & Solar Cells is intended as a vehicle for the dissemination of research results on materials science and technology related to photovoltaic, photothermal and photoelectro... Article Publishing Charge (APC): USD 4,150 (excluding taxes). The amount you pay may be reduced during submission if applicable.

What is materials science?

Materials science is taken in the broadest possible sense and encompasses physics, chemistry, optics, materials fabrication and analysis for all types of materials. Solar Cells, covering single crystal, polycrystalline and amorphous materials utilising homojunctions and heterojunctions, Schottky barriers, liquid junctions and their applications.

What is new in solar PV material discovery?

These publications explore the frontiers of new classes of solar PV materials, including organic PVs and metal halide perovskites, and they also span different aspects from understanding photophysics, to improving device lifetimes, and exploiting robotics-based material screening for high-throughput PV material discovery.

Can phase-change materials be integrated with solar collectors?

The integration of phase-change materials with solar collectors remains relatively uncommonin current practice,with existing implementations often necessitating solution pump operation that introduces additional electrical power consumption.

This study aims to present the performance of solar container cold storage of perishable goods and food supplied by photovoltaic systems. This system ...

García-Gil, Ángela, Valverde, Rafael, García-Muñoz, Rafael A., McGuigan, Kevin

G., Marugán, Javier (2020) Solar water disinfection in high-volume containers: Are naturally occurring ...

Transparent containers are filled with contaminated water and placed in direct sunlight for at least 6 h, after which time it is safe to drink. Solar disinfection containers (reactors) can be glass ...

Public health concern associated with the ingestion of microplastics (MPs) released from water packaging materials is increasing. The use of plastic materials for solar disinfection (SODIS) ...

This study evaluates the effectiveness of phase change materials (PCMs) inside a storage tank of warm water for solar water heating (SWH) system through the theoretical simulation ...

Abstract. This study presents the design and fabrication of an urban solar food cooking system with a phase change material (PCM) as a heat ...

This study presents a comprehensive numerical investigation into the efficiency improvement of photovoltaic (PV)-thermoelectric generator (TEG) system combined with V-trough ...

This study evaluates the proposal of a concrete storage tank as molten salt container, for concentrating solar power applications. A characterization of the thermal and mechanical properties including ...

In this study, four distinct container configurations were employed, alongside the introduction of fins, with two variations: solid and hollow. In this regard, Paraffin RT58, with its melting ...

BACKGROUND Solar water disinfection (SODIS) is a point-of-use water treatment that consists of exposing microbiologically-contaminated water in plastic bottles to sunlight. Replacing ...

Therefore, the UV transmission properties of container materials play an important role in SODIS, as the process is mainly driven by UV photons transmitted through container walls [10]. In ...

Compatibility of storage and container materials is a well-known problem for high-temperature thermal energy storage (TES) technology, which often lim...

Materials Materials is an international peer-reviewed, open access journal on materials science and engineering published semimonthly online by MDPI.

This review focuses on PCM"s melting and solidification in different container geometries and their orientations for heat storage in solar thermal systems.

In recent years, solar stills systems have garnered a lot of interest and have been thoroughly researched. It is currently thought that using Nano-enhanced phase change materials (NE ...

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In this work we present first ever dynamic corrosion tests for Solar salt doped with alumina nanoparticles (1% wt.). Carbon Steel A516 and SS347, used in double-tank system, were tested.

This review highlights recent breakthroughs in flexible organic solar cells (F-OSCs), with a particular emphasis on the relevant material design strategies, morphology optimization, and ...

Solar water disinfection (SODIS) is one the cheapest and most suitable treatments to produce safe drinking water at the household level in resource-poor settings. ...

Renewable energy plays a pivotal role for mankind in the times of adverse climate change and global warming. However, renewable energy such as solar e...

Aims & Scope An International Journal Devoted to Photovoltaic, Photothermal, and Photochemical Solar Energy Conversion Solar Energy Materials & Solar Cells is intended as a ...

Request PDF | A review on container geometry and orientations of phase change materials for solar thermal systems | Phase change materials (PCM) are employed to store thermal ...

Home Journals Heat Transfer Research Volume 56, 2025 Issue 6 EXPERIMENTAL INVESTIGATION OF HORIZONTAL SOLAR STILLS USING CENTRAL CONTAINER AND TRANSPARENT ...

Solar photocatalytic water disinfection of Escherichia coli, Enterococcus spp. and Clostridium Perfringens using different low-cost devices Correspondence to: S. Gutiérrez-Alfaro, ...

: Phase change materials (PCM) are employed to store thermal energy in solar collectors, heat pumps, heat recovery, hot and cold storage. PCMs are encapsulated primarily in shell-and-tube, ...

Although the cell container material types would greatly affect the degree of stress concentration during the cell assembly, operation, and maintenance, a quantitative assessment on ...