

PIENAAR ENERGY (PTY) LTD

Solar energy collection and phase change thermal storage



Overview

This paper briefly reviews recently published studies between 2016 and 2023 that utilized phase change materials as thermal energy storage in different solar energy systems by collecting more than 74 examples from the open literature. This device is a spherical encapsulated paraffin phase change heat exchanger device (stainless. Taking the heating of a driving school building in the suburbs of Baiyin, Gansu as a case study, and using typical meteorological data for the local heating season, we simulated the indoor thermal load of the building using DEST software. In order to facilitate their melting/ curing heat transfer process in solar thermal.

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Study on Phase Change Materials Heat Transfer Characteristics ...

Hence, the primary goal of this study is to experimentally investigate the energy storage capacity of two blended phase-change materials (parafin and barium hydroxide octahydrate) through

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Study of the Phase-Change Thermal-Storage Characteristics of a ...

Phase-change energy storage involves the use of phase-change materials (PCMs) that store or release energy during the phase-change process to achieve spatiotemporal energy transfer, improve the ...



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International Journal of Energy Research

In recent times, the significance of renewable energy generation has increased and photovoltaic-thermoelectric (PV-TE) technologies have emerged as a promising solution. However, the ...

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Integrating thermal phase-change material energy storage with solar

This study reviews the integration of solar collectors with thermal energy storage (TES) tanks that utilize phase change materials (PCMs). It emphasizes their technologies and applications, ...



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Research and optimisation of focused solar heating system with phase

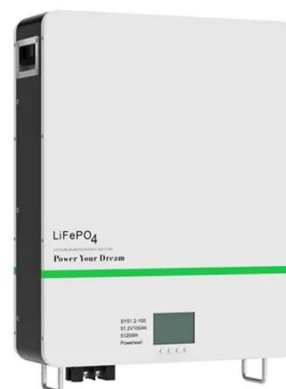
To overcome the shortcomings of the existing systems, this paper proposes a focused solar heating system containing phase change thermal storage.

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Recent Advances, Development, and Impact of Using Phase Change

Investigations into the use of phase change materials in solar applications for the purpose of storing thermal energy are still being carried out to upgrade the overall performance.

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Research Progress in the Thermal Energy Storage of Phase ...



ABSTRACT: In this paper, we have overviewed the research conducted to date on phase change materials (PCMs) for photothermal power collection and storage, especially their applications as ...

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Research on the performance of phase change energy storage ...

This article designs a high-altitude border guard post that can fully utilize the heat absorbed by solar collectors to continuously store thermal energy during the day and stably release ...



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Performance investigation of a solar-driven cascaded phase change ...

Utilizing phase change materials with high energy density and stable heat output effectively improves energy storage efficiency. This study integrates cascaded phase change with a

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