Oil-salt heat exchanger solar power generation

Can a solar thermal power system use oil and molten salt?

In this work, we propose a solar thermal power system that incorporates a dual-solar field with oil and molten salt as HTFs to utilize solar energy, the system thermodynamic and preliminary economic performances are investigated, and the main research findings can be outlined as follows:

Do molten salt heat exchangers have flow dead zones?

Addressing the issue of flow dead zones in molten salt heat exchangers in concentrating solar power generation systems, this study focuses on the conventional shell and tube heat exchanger using molten salt and heat transfer oil as the working medium. The flow dynamics of molten salt within the heat exchanger are analyzed.

How can molten salt heat exchangers improve performance?

In the context of molten salt heat exchangers,which are subject to harsh operating conditions and stringent performance requirements,these techniques have the potential to overcome the limitations of traditional designs,thereby facilitating more efficient,compact,and reliable heat transfer.

Do molten salt pches have a heat exchanger?

Ding et al. conducted numerical simulations to study the heat transfer in molten salt PCHEs and found that the performance of the heat exchanger is largely influenced by the pressure drop in the molten salt channels and the heat transfer resistance in the low-temperature channels.

We supply the 3rd configuration of our steam generation system for thermal oil CSP plants and the 4th configuration for molten salt CSP plants as well as the oil-to-salt heat exchanger for TES capacity.

In this paper, a new parabolic trough solar power system that incorporates a dual-solar field with oil and molten salt as heat transfer fluids (HTFs) is proposed to effectively utilize the solar ...

Current concentrating solar power (CSP) systems operate below 550°C, achieving annual electricity generation efficiencies of 10% -20%, which primarily employs nitrate molten salts ...

1. Introduction The use of renewable energy has been continuously increasing in the electricity generation because of the environmental issues associated with the conventional methods ...

Novel modular design of a 300 kW flue gas-molten salt heat exchanger. Flow and heat transfer experiments of both flue gas side and molten salt side. New correlations of heat transfer ...

These characteristics are available state-of-the-art technologies in heat transfer fluids for concentrated solar power (CSP) plants, which is the solar energy technology of immense importance ...

A thermal energy storage system is a critical component in concentrating solar power plants (CSPP), owing to

which concentrating solar power (CSP) has superiorities over photovoltaic and...

This paper provides a comprehensive review of recent advancements in molten salt heat exchanger technology, focusing on their application in nuclear energy, concentrated solar power, and ...

Addressing the issue of flow dead zones in molten salt heat exchangers in concentrating solar power generation systems, this study focuses on the conventional shell and tube heat ...

Abstract Shell-and-tube heat exchangers (HXs) for steam generation from molten salts in concentrating solar power (CSP) plants experience thermal fatigue due to significant temperature ...

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