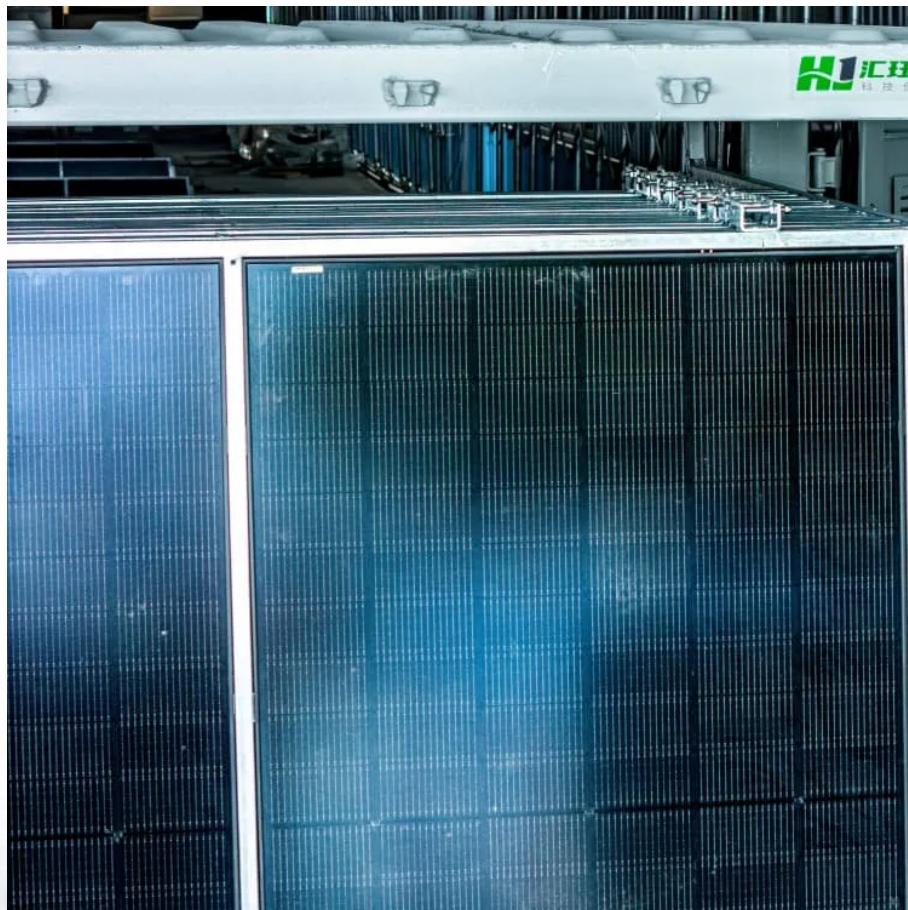




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Comparison of High-Temperature Resistant Solar Container Types





Overview

Thermal applications are drawing increasing attention in the solar energy research field, due to their high performance in energy storage density and energy conversion efficiency. In these application.

What are the different types of thermal energy storage containers?

Guo et al. [19] studied different types of containers, namely, shell-and-tube, encapsulated, direct contact and detachable and sorptive type, for mobile thermal energy storage applications. In shell-and-tube type container, heat transfer fluid passes through tube side, whereas shell side contains the PCM.

How to choose a thermal storage material?

The choice of storage material depends on the desired temperature range, application of thermal storage unit and size of thermal storage system. Low temperature heat storage system uses organic phase change materials while inorganic phase change materials are best suited for high temperature heat storage.

What is the difference between a solar collector and a thermal storage system?

Solar collectors need to have good optical performance (absorbing as much heat as possible) , whilst the thermal storage subsystems require high thermal storage density (small volume and low construction cost), excellent heat transfer rate (absorb and release heat at the required speed) and good long-term durability , .

What makes a solar thermal energy storage system feasible?

Excellent technical properties are the key factors to ensure the technical feasibility of a solar thermal energy storage system. Firstly, a high thermal storage capacity (sensible heat, latent heat or chemical energy) is essential to reduce the system volume and increase the system efficiency.



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Containers for Thermal Energy Storage , SpringerLink

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