

Solar container battery compartment dehumidification device





Overview

Are solar-driven dehumidification systems sustainable?

Solar-driven dehumidification systems, as a clean and sustainable technology, have attracted much attention. To expand its applications, it is necessary to improve its dehumidification efficiency and range. This study develops a solar-driven hybrid dehumidification system integrated with spectrum splitting technology.

How does a vacuum membrane dehumidification system work?

Subsequently, a new dehumidification configuration is proposed to efficiently leverage the converted energy, where vacuum membrane dehumidification systems (relying on electricity) and liquid desiccant dehumidification systems (relying on thermal energy) are combined in series to dehumidify the air.

Can a solar-driven hybrid dehumidification system be integrated with spectrum splitting technology?

Conclusions This study proposes a solar-driven hybrid dehumidification system integrated with spectrum splitting technology, aiming at clean and efficient dehumidification across a broad range of humidity levels. Spectrum splitting technology helps convert solar energy into electricity and thermal energy in a decoupled way.

Can a solar-driven dehumidification system improve exergy efficiency?

Compared to existing solar-driven or solar-assisted dehumidification systems, the proposed configuration can not only achieve a broad dehumidification range with ultra-dry air below 1 g/kg but also increase exergy efficiency by 100 % when producing air with a humidity ratio of 6 g/kg.



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