

One of the most persistent threats to stored water is evaporation, a natural process accelerated by direct sunlight, ambient heat, and wind.

Through the utilization of photothermal materials, solar water evaporation harnesses solar radiation to generate heat, which in turn accelerates the evaporation of water, producing clean ...

Solar-powered vapor evaporation (SVG), based on the liquid-gas phase conversion concept using solar energy, has been given close attention as a promising technology to address the ...

Evaporation systems with bionic structures such as roots, stems, leaves, and even animal tissues can not only promote water transport inside the absorbers but also accelerate the solar water ...

Solar-driven water evaporation represents an environmentally benign method of water purification/desalination. However, the efficiency is limited by increased salt concentration and...

Hydrogel-based solar-driven interfacial evaporators have recently emerged as high-efficiency and sustainable technology for desalination. By leveraging the unique three-dimensional ...

This paper discusses the development and testing of a bilayer-structured solar evaporator (SDWE) with a dynamic water-thermal controlling system that autonomously shifts between efficient thin water ...

In this review, we summarize some typical SDWE systems, which are categorized as condensation design, steam directional migration, and recovered latent heat. The advantages and ...

An overview of the evolution of solar evaporation technologies is provided followed by a comprehensive discussion of the multiscale physicochemical principle processes involving energy ...

Solar thermal distillation can be considered as a miniature version of the water cycle of earth, in which water evaporates from the ocean by solar irradiance and condenses to clean water ...

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