

Why is interfacial solar steam generation technology important for brine treatment?

Recently, interfacial solar steam generation technology has gained increasing attention for brine treatment due to its high energy-conversion efficiency and applicability to hypersaline brines. However, it is challenging to maintain high performance because of salt fouling problem.

Can solar evaporation ponds be used in brine mining?

Nature Water 3,135-137 (2025) Cite this article Solar evaporation ponds are widely used in brine mining but face environmental and societal challenges. Advancing interfacial solar evaporation technology from lab discovery to field demonstration shows promise in improving pond efficiency and sustainability.

Can interfacial solar evaporation lead to Brine mining?

Please read our Terms of Service before submitting an eLetter. No eLetters have been published for this article yet. Interfacial solar evaporation (ISE), primarily developed for desalination, offers a potential pathway for brine mining. This perspective review provides an initial assessment of how ISE might mitigate...

Can solar evaporation extract minerals from brine?

You have full access to this article via your institution. Brines are a major source of valuable minerals around the globe, and solar evaporation has been widely used in extracting minerals from brine.

Furthermore, the chapter focuses on the integration of RES systems in brine treatment, emphasizing the use of RES such as solar, wind, and hydroelectric power. The coupling of RES with ...

Scientists from Qatar's Hamad Bin Khalifa University have designed a novel solar-driven system for brine management and hydrogen production. Using the engineering equation solver ...

Recently, interfacial solar steam generation technology has gained increasing attention for brine treatment due to its high energy-conversion efficiency and applicability to hypersaline ...

The combination of solar-driven seawater evaporation and electricity generation has received increasing attention, and the traditional routes are based...

This multifaceted composition positions brine as a versatile feedstock with substantial potential for a broad range of high-value applications, spanning energy storage, agriculture, and ...

Solar evaporation ponds are widely used in brine mining but face environmental and societal challenges. Advancing interfacial solar evaporation technology from lab discovery to field ...

It shows a high open voltage of 52 mV and the highest output power density of 116.52 mW m⁻². Therefore, the present integration of the hanging-model evaporator and ...

Solar-driven interfacial evaporation has shown great potential for achieving desalination with high energy conversion efficiency. However, maintaining a high evaporation rate is challenging ...

Water and energy are intimately intertwined, and it is high time to put forth integrated approaches to address the challenges and opportunities of the water-energy nexus. Herein, a novel fluidic ...

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