
Traditional solar vaporization system involves volumetric heating with large thermal mass and significant heat loss. The advances in nanostructured photo-thermal materials and interfacial ...

Solar-driven interfacial evaporation technologies use solar energy to heat materials that drive water evaporation. These technologies are versatile and do not require electricity, ...

Plasmon-enhanced solar vapor generation (SVG) has been extensively studied in the last decade as a technology for efficient water purification.1 SVG is a natural photothermal ...

A unique direct thermal oil vaporization solar power system employing cascade organic-steam Rankine cycle is proposed. The oil is a mixture of biphenyl and diphenyl oxide, ...

In this paper, an LNG vaporization system using a solar-assisted heat pump (DX-SAHPNV) was proposed for AAV defrosting and LNG auxiliary heating, and a low-temperature ...

The solar collection sub-system is used either to collect heat using solar thermal collectors and supply it via a heat exchanger to a thermal desalination process or convert solar ...

The current work proposes a new strategy to improve solar evaporation efficiency and explore the real applications of volumetric solar evaporation device in desalination and ...

1.1. Interfacial solar steam generation (ISSG) Generally, in a solar-driven evaporation system, solar energy is received and absorbed by a solar absorber (photothermal ...

It offers an overview of the research progress of hydrogel solar evaporators based on the working principles of the Solar-driven Interfacial Evaporation (SDIE) system, including ...

The parallel development of thermal management strategies through both material and system designs has further improved the overall efficiency of solar vaporization. Collectively, this ...

In this paper, a novel LPG vaporization system utilizing direct-expansion solar assisted heat pump (DX-SAHPV) is presented to reduce the conventional energy consumption of LPG ...

To obtain a high efficiency in solar steam generation (SSG), three factors must be considered, namely solar light absorption, photothermal conversion efficiency, and vaporization efficiency ...

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