

Are solar cooling technologies a viable alternative to conventional cooling?

Solar cooling technologies appear to represent an encouraging alternative for conventional cooling devices, especially in developing countries and rural areas where electricity is not typically available, and in industrial countries wherever peak cooling loads coincide with available solar power.

How much cooling capacity does a solar-powered adsorption air conditioning system have?

The average cooling capacity of the solar-powered adsorption air conditioning system was 15.3 kW for 8 h.

Can a closed chamber radiation cooling module be integrated with solar cells?

The current study by Zhu et al. [32] showcases the integration strategy of radiative cooling and solar cells. However, the closed chamber design of the radiation cooling module hinders the direct transfer of generated cold capacity to air conditioning systems or indoor environments.

Can artificial neural network predict solar absorption chiller performance?

Aisyah et al. developed the artificial neural network (ANN) based on experimental data to predict the performance of the solar absorption chiller system at Indonesian Universities. A Principle Component Analysis (PCA) was used in this study to reduce the number of input variables for performance prediction.

Should solar cooling technology be implemented in industrial sector?

There are no incentives for executing solar cooling technology in the industrial sector compared to solar photovoltaic (PV). Therefore, rewards for constructing or decreasing energy during times of peak load should be applied. A cooling process is needed for a long time in a day and night.

Does silica gel-water three-bed adsorption chiller have a high COP?

Rahman et al. optimized the cycle time and performance for two types of a silica gel-water three-bed adsorption chiller with mass and heat recovery. The results showed that the proposed adsorption chiller had relatively higher COP at a low heat source temperature of 50 °C than the conventional single-stage adsorption cooling cycle.

The water consumed during the operation and manufacturing of the solar PV system, the water used for cooling and cleaning PV modules during the operation is ...

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As shown in Fig. 3, liquid cooling technologies include direct and indirect liquid cooling, with immersion cooling and spray cooling being the two most promising technologies ...

At present, Spain and the United States are the only two countries with significant installed CSP capacity with respectively about 57.9% and 40.1% of the total 1220 MW installed ...

Agricultural irrigation and electrical power generation are the two primary processes requiring freshwater, accounting for 70% and 15% of global freshwater withdrawals 6,7, respectively.

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French PV system installer Sunbooster has developed a cooling technology for solar panels based on water. It claims its solution can ramp up the power generation of a PV ...

The proposed integrated system is composed of six subsystems: power generation using an airborne wind turbine, hydrogen and oxygen generation using a proton ...

power generation is possible compared to the only-dry cooling option. The parallel configuration was the best in terms of power generation with an increase of 3.2% when compared with the ...

Considering that radiative cooling requires efficient sunlight reflection, the integration of radiative cooling with solar cells poses a considerable challenge. To tackle this ...

A solar-operated energy system that simultaneously produces three forms of useful energy including combined cooling, heating, and power generation (CCHP) is known as ...

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