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Liquid Cooling Energy Storage Dehumidification

Overview

Does internal cooled liquid desiccant dehumidification save energy?

Regarding the aforementioned research gaps, this study aims to establish an internally cooled liquid desiccant dehumidification system that ensures efficient and energy-saving operation in high temperature and humidity areas through the useful exergy analysis of the system energy consumption.

What is sustainable dehumidification?

Sustainable dehumidification using liquid desiccants or vapor-selective membranes coupled with sensible cooling can significantly reduce the energy demand in buildings and the associated carbon emissions compared to conventional vapor compression systems. These systems also eliminate synthetic refrigerants with high global warming potential.

Does the LD dehumidification system integrate with an evaporative cooling technology?

The focus of this research is to address recent studies on the LD dehumidification system integrated with an evaporative cooling technology, which is outlined below. The DEC is used with the dehumidifier for improving the performance of the dehumidification system.

How much energy does a dehumidification system use?

However, they consume 37 % of the overall energy usage in buildings throughout the world. It is therefore imperative to seek alternative, more energy-efficient technologies, one of them being the Liquid Desiccant Dehumidification System, which can operate the latent heat load.

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Highlights Liquid desiccant dehumidifiers integrated with evaporative coolers are discussed. LD dehumidifier integrated with ...

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Liquid Desiccant Dehumidification and Cooling System: A Review Abstract-- Liquid dehumidification was shown to be an efficient way of extracting air moisture with comparatively ...

The proposed heat pump-driven liquid desiccant dehumidification system operates in two primary modes: energy storage and energy release. Each mode is seasonally adaptive, with specific ...

Explore how AI density, power limitations, and sustainability pressures are accelerating the shift from air cooling to liquid cooling in modern data centers, and what this ...

Through a literature review, the feasibility of the desiccant cooling is proven by its comparison with conventional vapor compression system in terms of energy and cost savings ...

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Highlights Liquid desiccant dehumidifiers integrated with evaporative coolers are discussed. LD dehumidifier integrated with evaporative cooler is an energy-efficient alternative ...

ABSTRACT Sustainable dehumidification using liquid desiccants or vapor-selective membranes coupled with sensible cooling can significantly reduce the energy demand in ...

In order to reduce the energy consumption of air conditioning systems, this paper proposes an indirect evaporative cooling (IEC)-liquid dehumidification heat exchanger that ...

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