

A combination of a Solar Thermal Collector (STC) and TCES system will allow a variety of different heating applications, such as domestic space and hot water heating as well as low ...

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Abstract Thermo-chemical thermal storage offers high energy density and appropriate temperature levels for solar heat applications. The water-zeolite working pair is promising for both ...

The prospects of solar heating in China are promising, but solar energy's intermittency and variability challenge its alignment with winter heating demands. Seasonal thermochemical energy ...

The present report deals with low-temperature thermochemical storage for space heating, which is based on the principles of vapour adsorption onto solid adsorbents. With the aim of ...

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Therefore, this study adds fundamental knowledge on the impact of (i) zeolite shaping, (ii) deposition of a low amount of salt, and (iii) the choice of the hygroscopic salt, on the storage capacities of zeolite ...

Thermal energy storage is a key technology for heat management and efficient use of renewable energy production. High-power and high-density heat storage in buildings can be achieved ...

Integrated system can achieve a 43.54% of solar energy converted into chemical energy. To better utilize solar energy and reduce  $\text{CO}_2$  emissions, this study proposes a novel idea of ...

The utilization of the water-zeolite pair as an adsorbate-adsorbent system has garnered significant attention in the realm of thermochemical energy storage, offering great potential ...

Among the tested samples, the zeolite-13X exhibited higher heat storage density during the desorption and adsorption processes. Poor heat and mass transfer rates, high investment cost, complexity in ...

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In this paper, the storing solar energy principle of zeolites is discussed, the contrast study of natural zeolites to the 13X synthetic zeolite was made, and the conclusion showed that natural zeolites can ...

This study analyzes the technical performance, costs and life-cycle greenhouse gas (GHG) emissions of the production of various fuels using air-captured water and CO<sub>2</sub>, and ...

Abstract Solar-driven CO<sub>2</sub>/H<sub>2</sub>O splitting via a two-step solar thermochemical cycle is a promising approach for fuel production and carbon neutrality to address the intermittent instability and ...

Kr#246;nauer et al. constructed and tested a storage container that housed 14 tons of zeolite for mobile heat storage. The zeolite was charged using hot air at a temperature of 130#176;C from ...



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