# Molecular solar thermal energy storage

Such a reversible photochemical process has been considered for developing molecular solar thermal (MOST) systems. In this review, we introduce the concept, criteria, and state-of-the-art of MOST systems, with an emphasis ...

Neopentane, a branched alkane with the molecular formula C5H12, has recently emerged as a promising candidate for high-heat absorption applications. This compound, also known as 2,2-dimethylpropane, has garnered significant ...

Thermal performance of modified melamine foam/graphene/paraffin wax composite phase change materials for solar-thermal energy conversion and storage. Journal of Cleaner Production 2022; 367, 133031.

The market for Isopentane utilization in Closed-Loop Organic Rankine Cycles (ORC) has been experiencing significant growth in recent years, driven by the increasing demand for efficient ...

The challenge with Renewable Energy sources arises due to their varying nature with time, climate, season or geographic location. Energy Storage Systems (ESS) can be used for storing available energy from Renewable ...

Azobenzene photoactive molecules are capable of undergoing reversible E-to-Z isomerization upon excitation with light of specific wavelengths, allowing for stable storage and controllable ...

Molecular solar thermal (MOST) energy storage 1,2 is an emerging strategy for capturing and storing solar photon energy in photoresponsive molecules. These molecules absorb sunlight ...

The bigger picture Molecular solar thermal (MOST) energy storage leverages photoswitchable molecules to capture and store solar energy in strained chemical structures. However, many ...

Since these molecules are of interest as candidates for molecular solar-thermal (MOST) energy storage, we decided to estimate their storage energies, calculated as the difference in ...

Traditional molecular solar thermal (MOST) energy systems primarily capture ultraviolet (UV) light, failing to harness a significant portion of visible light. By contrast, the newly designed ...

The Fraunhofer Institute for Solar Energy Systems ISE in Freiburg, Germany is the largest solar research institute in Europe. With a staff of about 1 400, we are committed to promoting a sustainable, economic, secure and ...

By understanding the molecular interactions and energy transfer mechanisms involved, we aim to develop innovative solutions for energy capture, storage, and controlled release. One of the key areas of focus is the exploration of ...

In the face of the pressing climate change crisis, Molecular Solar Thermal Energy Storage (MOST) Systems offer a promising avenue for efficient energy storage. This study focuses on ...

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