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Calculation formula for photothermal energy storage conversion efficiency

We propose a photothermal and electrothermal equivalence (PEE) method that simulates the laser heating process with electric heating process. In electrothermal measurement, the heat dissipation coefficient of the sample can be derived under a known electric power by performing a linear fitting at thermal equilibrium.

The photothermal conversion efficiency of TiN@h-BN composite nanofluids after irradiation for 2500 s was shown in Fig. 10. The photothermal conversion efficiency of nanofluids first increased and then decreased with the concentration, reaching a maximum value of 77.9% at 80 ppm. This was because with the further increase in the concentration ...

According to the comprehensive analysis of FTIR and XPS, the photothermal conversion and energy storage microcapsules with PPPD as Pickering stabilizer, T35 as core material and MF as shell material were successfully prepared with a ...

In this review, we comprehensively summarized the state-of-the-art photothermal applications for solar energy conversion, including photothermal water evaporation and desalination, photothermal catalysis for H 2 generation ...

This review provides a comprehensive analysis of the rapidly evolving field of solar-driven carbon dioxide (CO2) conversion, focusing on recent developments and future prospects. While significant progress has been made in understanding the fundamental mechanisms of photocatalytic (PC), photoelectrocatalytic, photobiocatalytic, and photothermal ...

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Here, we characterize the energy storage and phase change performance of phase change microcapsules by their encapsulation efficiency E en, energy storage efficiency E es, and energy storage capacity C es. The calculation formula is detailed in the Supporting Information eqs. (1)-(3). The data obtained from calculating the data in

Importantly, the photothermal conversion and storage efficiency of ODA@MOF/PPy-6% is up to 88.3%. Additionally, our developed MOF-based photothermal composite PCMs also exhibit long-standing antileakage stability, ...

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