Olefin carbon solar container materials

Does solar energy help olefin synthesis?
Therefore,in the photothermal process for olefin synthesis,light-induced heat assists in CO dissociation,thereby facilitating the subsequent C-C coupling process. Utilizing thermal energy generated from solar energy rather than fossil fuels has the potential to be more environmentally friendly and cost-effective.

What are the research directions for solar olefin synthesis?
In general, the development of new theoretical or computational methods to decipher the processes of solar olefin synthesis, the discovery of novel materials with unique active sites, and the construction of hybrid systems for enhanced light utilization and light-heat coupling efficiency stand as pivotal research directions.

How are light olefins made?
Summary and Outlook Historically,light olefins have been predominantly produced from hydrocarbons through steam cracking and fluid catalytic cracking. The production technologies for light olefins have become highly advanced,and the integration of solar energy has brought about numerous benefits.

Can olefins be made from CO2?
CO can be sourced from coal combustion reactions or CO 2 hydrogenation via the RWGS reaction. The synthesis of olefins from CO 2or CO 2 -derived CO has the potential to mitigate the greenhouse effect. Furthermore,with the advancement of green hydrogen technology,the synthesis of olefins from CO or CO 2 offers promising economic benefits.

Is a solar thermal catalytic system for polyolefins upcycling sustainable?
The accumulation of plastic waste has become a global issue. Socially and industrially viable, sustainable technical solutions are therefore required. Here we report a solar thermal catalytic system for polyolefins upcycling using copper nanoparticles encapsulated by stacked two-dimensional silicon.

Can a carbon-negative olefins and green hydrogen cogeneration system be used for biomass?
A novel carbon-negative olefins and green hydrogen (H2) cogeneration system utilizing biomass and solar energy has been proposed, providing a new solution for the high value-added conversion of biomass and solar energy. The entire system mainly includes two parts: biomass-to-olefins (BTO) and photovoltaic-based H2 production (PVHP).

PDF | Cyclic olefin polymers (COPs) are increasingly popular as substrate material for microfluidics. This is due to their promising properties, ...

It needs new technologies with low economic and environmental impact for responsible polyolefin waste recycling and new polyolefin materials or processes with significantly greater ...

The greenhouse gas carbon dioxide (CO 2) affects the environment drastically. Nowadays, the reduction of the CO 2 level from the environment is a challenging ...

Abstract The development of semiconducting materials for photoredox catalysis holds great promise for sustainable utilization of solar ...

Olefin industry as a vital part in economic development is facing a problem of high CO 2 emission. In this work, for the global and China"s olefin industry under different development scenario, ...

This study focuses on the fabrication and evaluation of paraffin (PA)/olefin block copolymer (OBC)/carbon fiber (CF) composite phase change materials (CPCMs) prepared using the melt ...

Phase change materials (PCMs) have aroused significant interest as promising materials for solar thermal energy conversion and storage. However, the long-standing shortcomings ...

Despite many benefits associated with neat polyolefins, polyolefin composites/nanocomposites emerged to meet the increased applications not ...

Abstract Cyclic olefin copolymer (COC) has recently emerged as an attractive material in biomedical fields for its high purity, excellent stability and chemical resistance, particularly in ...

By and large, a circular economy for this class of materials can only be achieved by synthesizing recyclable polyolefin-like materials containing heteroatom-based linkages 2.

Overall, the study provides novel approaches for the production of low-carbon olefins, and is of significant importance for reducing carbon footprint and achieving carbon neutrality.

First the materials and manufacturing process adopted by previous works for CF composites using PE and PP resins are discussed, followed by the result and discussion section, ...

In fact, the chemical term olefin is not even used much anymore, having been superseded by the word alkene, the name for the repeating units of ...

Polyolefin is defined as a polymer produced from an olefin or alkene monomer, characterized by the presence of at least one carbon to carbon double bond, which enhances its reactivity and utility in ...

Low-carbon olefins, as important platform molecules, are generally produced by limited fossil energy, resulting in massive carbon emissions and intensive energy consumption inevitably. ...

1. Material Composition The primary difference between COP and COC vials lies in their material

composition: COP (Cyclo-Olefin Polymer): COP is a pure polymer made entirely from cyclo ...

Research of the thermal storage properties of thermally conductive carbon fiber-reinforced paraffin/olefin block copolymer composite phase change materials with thermotropic flexibility

language:en Short-container-title:Solar Energy Materials and Solar Cells Author: Landa - Pliquet Margot, Béjat Timea ORCID, Serasset Marion, Descormes Axel, Mofakhami Eeva, Voroshazi Eszter ORCID ...

Nonbiodegradable plastics with inert and saturated C-C backbones comprise the majority of global annual plastics produced, including ...

Innovation: Researchers at UCLA have developed an emissions-free olefin synthesis process that utilizes concentrated solar radiation for cleaner plastic production. Using concentrated solar power ...

Capture and utilization of solar energy using phase change materials (PCMs) can effectively answer the challenge of solar intermittency. However, the ...

The invention discloses a cyclic olefin composition, which includes a cyclic olefin copolymer with added graphene material or a cyclic olefin polymer with added graphene material, wherein the weight ...

Integrating solar energy into the olefin synthesis process presents a promising avenue for enhancing sustainability and efficiency. Recent research reveals the potential of utilizing solar ...

A novel carbon-negative olefins and green hydrogen (H2) cogeneration system utilizing biomass and solar energy has been proposed, providing a new solution for the high value-added ...

This review overviews recent advancements and evaluates the prospects of solar energy utilization in olefin synthesis, emphasizing innovative ...

Here we report a solar thermal catalytic system for polyolefins upcycling using copper nanoparticles encapsulated by stacked two-dimensional ...

Electrocatalytic and Solar-Driven Reduction of Aqueous CO2 with Molecular Cobalt Phthalocyanine-Metal Oxide Hybrid Materials Electrolytic and solar-driven reduction of CO2 to CO ...

Olefin is a compound that can be used as a material in the petrochemical industry because it participates in some processes, such as polymerization and ...

Herein, novel composite phase change materials (CPCMs) with anisotropic heat conduction are manufactured by mixing continuous carbon fibers (CFs) and palmitic acid (PA)/olefin ...

Photothermal conversion materials are the cornerstone of SDIEs, with carbon-based materials, plasmonic nanoparticles, semiconductors, and organic polymers being widely explored 25, ...

Zhong et al report sodium-promoted metallic Ru nanoparticles for the direct production of olefins from syngas with ultrahigh carbon efficiency where the total selectivity of ...

The rapid development of the coal-to-olefins industry in China provides a way to synthesize ethylene and propylene besides conventional ...

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