

Are inverse vulcanization products evolving?

The trend of the  $G' - t$  curve clearly revealed that the physical properties of the inverse vulcanization products were evolving during the reaction, which was also observed in recent literature 30.

Does inverse vulcanization enter an over-cure stage?

Subsequently, the inverse vulcanization entered an over-cure stage (blue zone in Fig. 2a) where the moduli of the sample significantly declined by orders of magnitude due to the proposed deterioration of samples at high temperatures. It is noted that  $G''$  is always smaller than  $G'$  throughout the curve (Fig. 2a).

Does inverse vulcanization exploit S<sub>8</sub> to synthesize polysulfides?

Nature Communications 15, Article number: 5507 (2024) Cite this article Inverse vulcanization exploits S<sub>8</sub> to synthesize polysulfides. However, evolution of products and its mechanism during inverse vulcanization remains elusive.

How vulcanization temperature affect accretion of bimetallic sulfides?

3. Vulcanization temperature: Generally, the higher vulcanization temperature, the shorter crystallization time and the more favorable nucleation of bimetallic sulfides. However, overhigh temperature can bring about the accretion of bimetallic sulfides, while overlow temperature might result in uneven particle size distribution.

Does inverse vulcanization reduce the production of H<sub>2</sub>S?

The sulfur proportion determined by element analysis (Supplementary Fig. 12) experiences a slight drop (38.0% to 36.9%) during inverse vulcanization similar to DIB, suggesting the limited generation of H<sub>2</sub>S.

Does a post-thermal treatment improve thermomechanical properties of inverse vulcanization products?

In contrast, D. Kim and his coworkers 30 discovered that the post-thermal treatment at 110 °C and 140 °C will improve the thermomechanical properties of inverse vulcanization products based on divinylbenzene in terms of glass transition temperature (T<sub>g</sub>) and storage modulus. C.

What is energy storage charging pile management system? Based on the Internet of Things technology, the energy storage charging pile management system is designed as a three-layer ...

Abstract Lithium-sulfur (Li-S) batteries have great prospects as next-generation energy storage devices because of their high energy density, inexpensive raw materials, and low pollution. However, the development of ...

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Inverse vulcanized polymer materials have received considerable attention as a way to use sulfur, an industrial byproduct, as a starting material for synthesis. The resulting ...

Lithium-Sulfur (Li-S) batteries are promising energy storage devices due to their high theoretical energy density. However, challenges such as the shuttling effect and volume expansion have significantly hindered their ...

Research on energy storage charging piles based on improved ... Aiming at the charging demand of electric vehicles, an improved genetic algorithm is proposed to optimize the energy storage ...

Abstract Lithium-sulfur (Li-S) batteries are present as a promising energy storage system. Inhibiting the polysulfide shuttle effect is one of the most important research goals for the practical application of Li-S batteries.

In this study, we introduce an innovative topological vulcanization strategy aimed at developing elastomeric electrolytes that concurrently exhibit enhanced mechanical strength ...

Inverse vulcanization method to obtain sulfur-based polymers as alternative to sulfur resemble the redox activity of sulfur. Therefore, inversely vulcanized polymers are ...

The preparation of SnS/C composite can be completed via template method and in-situ vulcanization synthesis route. First, the SiO<sub>2</sub> template was prepared by the Steber ...

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Sodium-ion capacitors (SICs) are a novel hybrid energy storage device that synergistically combines the high-energy attributes of batteries with the high-power ...

Vulcanization of energy storage charging pile connector. Our products revolutionize energy storage solutions for base stations, ensuring unparalleled reliability and efficiency in network ...

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