

# Sodium-sulfur battery energy storage is prohibited

Are sodium-sulfur batteries suitable for energy storage?

This paper presents a review of the state of technology of sodium-sulfur batteries suitable for application in energy storage requirements such as load leveling; emergency power supplies and uninterruptible power supply. The review focuses on the progress, prospects and challenges of sodium-sulfur batteries operating at high temperature ( $\sim 300\text{ }^{\circ}\text{C}$ ).

Are high-temperature sodium-sulfur batteries safe?

Nature Communications 9, Article number: 3870 (2018) Cite this article High-temperature sodium-sulfur batteries operating at  $300\text{--}350\text{ }^{\circ}\text{C}$  have been commercially applied for large-scale energy storage and conversion. However, the safety concerns greatly inhibit their widespread adoption.

Are room-temperature sodium-sulfur batteries a promising next-generation energy storage system?

Room-temperature sodium-sulfur batteries are emerging as a promising next-generation energy storage system. The efficient suppression of the shuttle effect is crucial to improve the battery cycling stability. A comprehensive review targets the underlying mechanisms of shuttling behavior.

What temperature should sodium sulfur batteries be kept at?

However, sodium-sulfur batteries have to be kept at high temperatures above  $300\text{ }^{\circ}\text{C}$  to keep the reactants liquid, which entails additional effort for heating and thermal insulation, while relatively low round-trip efficiency and further safety concerns over its explosiveness have constrained its wide-scale implementation.

Are sodium-sulfur batteries harmful to health?

The substances used in the structure of this battery are harmful to health. Sodium-sulfur batteries provide high energy density of  $110\text{ Wh/kg}$  and power density of  $150\text{ W/kg}$ . Parts and general appearance of a typical sodium-sulfur battery are given in Fig. 5.12.

What is a sodium sulfur battery?

The as-developed sodium-sulfur batteries deliver high capacity and long cycling stability. To date, batteries based on alkali metal-ion intercalating cathode and anode materials, such as lithium-ion batteries, have been widely used in modern society from portable electronics to electric vehicles 1.



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