

This PDF is generated from: <https://h2arq.es/Sat-18-May-2019-29787.html>

Title: Large-capacity sodium-sulfur energy storage single battery

Generated on: 2026-03-23 03:39:15

Copyright (C) 2026 . All rights reserved.

For the latest updates and more information, visit our website: <https://h2arq.es>

-----

Are rechargeable room-temperature sodium-sulfur (Na-S) batteries suitable for large-scale energy storage?

Rechargeable room-temperature sodium-sulfur (Na-S) and sodium-selenium (Na-Se) batteries are gaining extensive attention for potential large-scale energy storage applications owing to their low cost and high theoretical energy density.

What are sodium-sulfur batteries?

Sodium-sulfur (Na-S) batteries that utilize earth-abundant materials of Na and S have been one of the hottest topics in battery research. The low cost and high energy density make them promising candidates for next-generation storage technologies as required in the grid and renewable energy.

Are sodium & sulfur batteries good for grid-scale energy storage?

Sodium||sulfur batteries hold great promise for grid-scale energy storage, yet their performance is hindered by the shuttling and sluggish redox of sulfur species. Herein, we report a strategic design of sulfur hosts modified with coordinatively unsaturated iron single-atom (Fe-N<sub>x</sub>) for sodium||sulfur batteries.

What is a room-temperature sodium||sulfur (Na||S) battery?

The high specific capacity (1675 mAh g<sup>-1</sup>) brought by the two-electron transfer of sulfur makes room-temperature sodium||sulfur (Na||S) batteries composed of low-cost and environmentally friendly sodium metal and elemental sulfur exhibit tremendous potential in the field of large-scale energy storage 4, 5, 6.

Jan 30, 2023&nbsp;&#0183;&nbsp;&nbsp;Sodium-sulfur (Na-S) batteries that utilize earth-abundant materials of Na and S have been one of the hottest topics in battery research. The low cost and high energy density ...

Sep 2, 2025&nbsp;&#0183;&nbsp;&nbsp;Its contribution to energy storage devices like lithium-sulfur (Li-S) and sodium-sulfur (Na-S) helps to overcome the drawbacks of these battery systems. This Viewpoint explores ...

May 27, 2025&ensp;&#0183;&ensp;Close-up of the Toho Gas NAS battery project in Mie prefecture, Japan. Image: Toho Gas. Japanese manufacturer NGK Insulators" proprietary battery tech features in a large ...

Mar 21, 2025&ensp;&#0183;&ensp;Sodium | |sulfur batteries hold great promise for grid-scale energy storage, yet their performance is hindered by the shuttling and sluggish redox of sulfur species.

Aug 12, 2025&ensp;&#0183;&ensp;High-energy, long-duration sodium-sulfur battery Global demand for power generated from renewable sources, such as wind or solar, is growing. Stationary energy ...

May 27, 2025&ensp;&#0183;&ensp;Close-up of the Toho Gas NAS battery project in Mie prefecture, Japan. Image: Toho Gas. Japanese manufacturer NGK ...

Nov 24, 2025&ensp;&#0183;&ensp;Researchers have unveiled a sodium-sulfur battery prototype that targets high energy density without using rare metals. The design leverages abundant elements to cut ...

Jun 5, 2024&ensp;&#0183;&ensp;Sodium-sulfur (Na-S) batteries are promising for next-generation energy storage. Novel host materials with spatial and chemical dual-confinement functions for anchoring S are ...

Sep 24, 2018&ensp;&#0183;&ensp;High-temperature sodium-sulfur batteries operating at 300-350 &#176;C have been commercially applied for large-scale energy storage and conversion. However, the safety ...

Sep 1, 2025&ensp;&#0183;&ensp;This special issue is dedicated to highlighting cutting-edge research and comprehensive reviews that explore the potential of sulfur-based batteries to redefine the ...

Jun 9, 2023&ensp;&#0183;&ensp;Abstract Rechargeable room-temperature sodium-sulfur (Na-S) and sodium-selenium (Na-Se) batteries are gaining extensive attention for potential large-scale ...

Jan 30, 2023&ensp;&#0183;&ensp;Sodium-sulfur (Na-S) batteries that utilize earth-abundant materials of Na and S have been one of the hottest topics in battery ...

Jun 5, 2024&ensp;&#0183;&ensp;Sodium-sulfur (Na-S) batteries are promising for next-generation energy storage. Novel host materials with spatial and chemical ...

Web: <https://h2arq.es>

