

## A-Core Container

# Chemical energy storage sodium ion battery



## Overview

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A Sodium-ion battery (NIB, SIB, or Na-ion battery) is a that uses (Na<sup>+</sup>) as carriers. In some cases, its and are similar to those of (LIB) types, simply replacing with as the . Sodium belongs to the same in the as lithium and thus has similar . H.

A sodium-ion battery is a rechargeable energy storage system. It produces electrical energy by converting chemical energy. This conversion involves redox reactions at the anode (negative electrode) and cathode (positive electrode).

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While sodium-ion batteries have lower energy density than lithium-ion batteries, they provide a sustainable and cost-effective energy storage solution for specific applications such as grid storage and renewable energy systems.

While efforts are still needed to enhance the energy and power density as well as the cycle life of Na-ion batteries to replace Li-ion batteries, these energy storage devices present significant advantages in terms of sustainability, theoretical capacity, and intrinsic safety features.

In some cases, its working principle and cell construction are similar to those of lithium-ion battery (LIB) types, simply replacing lithium with sodium as the intercalating ion. Sodium belongs to the same group in the periodic table as lithium and thus has similar chemical properties.

Much of the attraction to sodium (Na) batteries as candidates for large-scale energy storage stems from the fact that as the sixth most abundant element in the Earth's crust and the fourth most abundant element in the ocean, it is an inexpensive and globally accessible commodity.

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