

Sodium Ion Battery

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About Sodium Ion Battery:

- These types of batteries **generate electricity through a chemical reaction**.
- These are made up of an anode, cathode, separator and an electrolyte.
- In a sodium-ion battery, **lithium ions** are **replaced with sodium ions** in the battery's cathode, and lithium salts swapped for sodium salts in the electrolyte.
- **Operating principle:**
 - When the battery is being charged, **Na atoms in the cathode release electrons to the external circuit** and become ions which migrate through the electrolyte toward the anode, where they combine with electrons from the external circuit while reacting with the layered anode material.
 - This process is reversed during discharge.
- **Benefits of sodium batteries**
 - **Readily available:** One of the most interesting aspects of this technology is the wide availability in nature of its constituent raw materials.
 - **Safety:** Sodium batteries also ensure high standards of safety because cells based on this **chemical element are neither flammable nor susceptible** to explosions or short circuits

- **Low-cost:** The raw materials are readily available in nature and can be extracted at low costs and with low energy use, making sodium a material with a low impact on the environment.
 - Low-temperature resistance
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Q1) What are the properties of sodium?

Sodium is a soft, silvery-white metal at room temperature. It's relatively lightweight and has a low density. It's highly reactive and tends to rapidly oxidize in the presence of air and moisture.

Source: [Start-up AR4 Tech, Sodion tie up to make sodium-ion battery packs](#)

Source: <https://vajiramandravi.com/current-affairs/sodium-ion-battery/>

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