



Sodium-Ion Battery

Why in News?

Recently, University of Houston (US) scientists developed an electrolyte that contributes significantly to making sodium ion batteries more commercially viable.

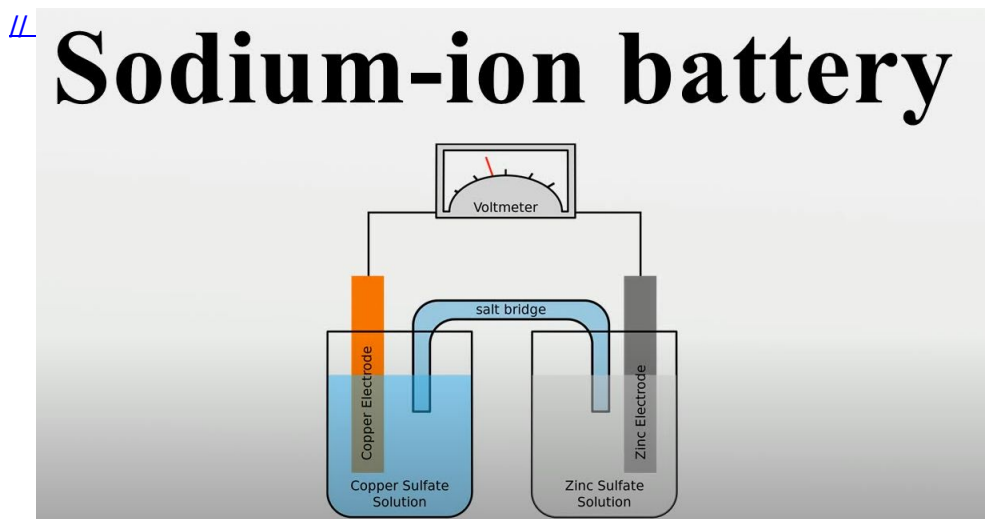
- Sodium-based battery technology might soon be a viable alternative to lithium-based ones.

What are the Key highlights of the Study?

- The study concluded that with the help of the novel electrolyte, ambient temperature solid-state sodium-sulfur battery technology can be **employed for grid-level energy storage systems**.
- The novel structural and compositional design methodologies establish a new paradigm for the creation of safe, low-cost, energy-dense, long-life solid-state sodium batteries.

What is Sodium Ion Battery?

- They are rechargeable batteries which require **sodium ion movement between electrodes** during the charging and discharging of the battery, **the cathode for these batteries is manufactured from sodium**.



What are the issues with Lithium-Ion?

- **Lithium-Ion** extraction led to environment harming mining practices.
- **It releases harmful chemicals** which further spell into the rivers and its ecosystem.
- **Non reusable** as its recycling process is very expensive.

What are the Benefits of Sodium-Ion?

- It's **cheaper to produce** than their lithium counterparts because of the **abundance of the raw materials** required to make them.
- They are energy dense, non-flammable, and operate well in colder temperatures.
- Further they can store more energy per unit weight, this could make them well-suited for larger applications such as electric vehicles.
- They are less likely to experience thermal runaway, a condition that can cause fires in lithium-ion batteries.

Source: DTE

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