

# SODIUM ION BATTERIES FORECAST



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Examine supply and demand of sodium ion battery cell, cathode and anode markets out to 2040

## KEY COVERAGE IN BENCHMARK'S SODIUM ION BATTERIES FORECAST INCLUDES:

- ◆ Supply and demand analysis of sodium ion battery cell, cathode and anode markets out to 2040
- ◆ A technology handbook providing contextual information as a tool to demystify the sodium ion battery industry
- ◆ Detailed expansion plans of sodium ion battery cell, cathode and anode manufacturing on a facility-by-facility basis, broken down by region and cathode and anode classification
- ◆ Insights into the technology, commercialisation, manufacturing, finance and governance of key companies in the sodium ion battery industry

Q2 2024 Sodium Ion Batteries Technology Handbook

### The Different Classes of SiB Cathode Active Materials

SiBs rely on bespoke cathode active materials (CAMs) that can reversibly intercalate and deintercalate sodium ions at a high electrochemical potential (voltage) compared to the anode. The CAMs used in SiBs can be classified by their different chemistries, with three main structures dominating. Each cathode chemistry offers unique combinations of cost, energy density, power density and cycle life performance benefits. The "best choice" of CAM for SiBs is still under debate as with LIBs, meaning that commercialisation of multiple types of CAM is likely.

CAM	Layered Transition Metal Oxides	Polyanionic Compounds	Prussian Blue Analogues (PBA)
Structure ● = Na <sup>+</sup>			
General Formula M <sub>x</sub> M <sub>1-x</sub> (Transition Metal) X = S, P, Si, Al, Mo, W	Na <sub>2</sub> MO <sub>2</sub>	Na <sub>2</sub> (M <sub>2</sub> (XO <sub>4</sub> ) <sub>2</sub> ) <sub>2</sub>	Na <sub>2</sub> (M)(CN) <sub>6</sub>
Cell and Cathode Producers (list is not exhaustive)	CATL, 宁德时代, 比亚迪, 蜂巢能源, 卫蓝新能源	LIFU7, 力神, 宁德时代, 卫蓝新能源	Altris, 宁德时代, CATL, 卫蓝新能源, 蜂巢能源, 宁德时代

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2019 2020 2021 2022 2023 2024 Year

ITS SIBS TO RUN FOR 10,000 CYCLES.

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Forecast models of sodium ion battery cell, cathode and anode supply and demand out to 2040, all in Excel format

Company profiles assessing the commercial progress of emerging sodium ion technologies

Analyst insight detailing the market drivers and barriers to commercialisation for the sodium ion battery sector


Access to Benchmark's analysts for further discussion

**Benchmark's Sodium ion Batteries Forecast helps companies across the supply chain to identify commercial bottlenecks, demystify claims from reality and identify opportunities:**

- ◆ Producers – Monitor market fundamentals, understand material requirements, update internal models and identify market opportunities
- ◆ Sodium ion battery market participants – Manage risk by monitoring the competitive landscape, with independent commentary on the commercial progress of competitors and critical evaluation of supply and demand
- ◆ OEMs – Demystify the sodium ion battery industry, understand critical barriers to commercialisation, assess claimed performance data, and understand the bottlenecks that could inhibit mass market penetration

**Benchmark's Sodium ion Batteries Forecast** supports market participants across the supply chain with their strategic planning and the assessment of market opportunities.

If you and your colleagues would like to speak to our team for more information, please email [contact@benchmarkminerals.com](mailto:contact@benchmarkminerals.com)



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