

Global All-Solid-State Battery Market 2019 Size, Trends, Industry Analysis, Leading Players & Future Forecast by 2025

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PUNE, MAHARASHTRA, INDIA, February 19, 2019 /EINPresswire.com/ -- [All-Solid-State Battery Market](#):

Executive Summary

A solid state battery is composed mainly of cathode, anode, and solid electrolyte, as developed during the latter half of the 20th century. All-Solid-State Battery have a simpler structure than the traditional LiBs, and the simplified structure with a solid electrolyte enables higher energy density. Solid electrolytes not only conduct Li⁺ ions but also serve as the separator, as shown in Figure below. In All-Solid-State Battery, no organic liquid electrolyte, electrolyte salt, separator, or binder is required, which dramatically simplifies the assembly process. The operational principle of All-Solid-State Battery is no different from the traditional LiBs. In the charge process, lithium ions deintercalate from the cathode material and transport to the anode through the electrolyte, while electrons drift to the anode by the external circuit. Lithium ions combine with electrons to form more complete lithium atoms. The discharge process is just the reverse.

Although All-Solid-State Battery based on inorganic solid electrolytes have clearly demonstrated their great possibilities for electric vehicles and large-scale energy storage systems, further development is still required to improve their energy density, rate capability, and cycling stability, while ensuring excellent safety. Actually, they are still far from being commercialized for industrial applications, which require systematical studies and will be a complicated process.

Making All-Solid-State Battery usable outside the laboratory involves multiple factors such as solid electrolytes, electrodes, interface properties, and construction design. The high cost and very small production scale of solid state electrolytes with high ionic conductivity hinder the application of All-Solid-State Battery. Meanwhile, All-Solid-State Battery still suffer from inferior power density and poor cycle life, due to the high transfer resistance of lithium ions between the electrodes and solid electrolytes. Thus, at this stage, the direction for research exploring All-Solid-State Battery for commercial applications is to develop new cathodes based on the conversion reaction mechanism with low or even zero strain and energy levels well matched with

the electrolytes. All of these together are expected to yield new material systems with high capacity. In addition, the use of lithium metal in anodes will be another thrust of All-Solid-State Battery development. Another is the design of novel SEs with high lithium-ion conductivity at room temperature and wide electrochemical window. Meanwhile, future SEs should show excellent chemical stability in the presence of metallic lithium. Also, new methods should be proposed to reduce the interfacial resistance between the electrode and electrolyte. Finally, the optimal combination of different fabrication processes and equipment automation as well as device design are necessary for the realization of All-Solid-State Battery with high capacity, low cost, and high yield.

Currently, many countries of the world lay down R&D targets of high energy density lithium batteries. Japanese government proposed that, power battery core energy density will reach 250Wh/kg in 2020, 500Wh/kg in 2030; United States Advanced Battery Consortium proposed that it increased core energy density in 2020 from 220Wh/kg to 350Wh/kg; China State Council 'Made in China 2025' proposed that, to 2020, China power battery monomer specific energy should reach 300Wh/kg, and should reach 400Wh/kg in 2025 and 500Wh/kg in 2030.

In 2018, the global All-Solid-State Battery market size was xx million US\$ and it is expected to reach xx million US\$ by the end of 2025, with a CAGR of xx% during 2019-2025.

This report focuses on the global All-Solid-State Battery status, future forecast, growth opportunity, key market and key players. The study objectives are to present the All-Solid-State Battery development in United States, Europe and China.

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The key players covered in this study

BMW
Hyundai
Dyson
Apple
CATL
Bolloré
Toyota
Panasonic
Jiawei
Bosch
Quantum Scape
Ilika
Excellatron Solid State
Cymbet

Solid Power

Mitsui Kinzoku

Samsung

ProLogium

Market analysis by product type

Polymer-Based All-Solid-State Battery

All-Solid-State Battery with Inorganic Solid Electrolytes

Market analysis by market

Consumer Electronics

Electric Vehicle

Aerospace

Others

Market analysis by Region

United States

Europe

China

Japan

Southeast Asia

India

Central & South America

The study objectives of this report are:

To analyze global All-Solid-State Battery status, future forecast, growth opportunity, key market and key players.

To present the All-Solid-State Battery development in United States, Europe and China.

To strategically profile the key players and comprehensively analyze their development plan and strategies.

To define, describe and forecast the market by product type, market and key regions.

In this study, the years considered to estimate the market size of All-Solid-State Battery are as follows:

History Year: 2018-2019

Base Year: 2018

Estimated Year: 2019

Forecast Year 2019 to 2025

For the data information by region, company, type and application, 2018 is considered as the base year. Whenever data information was unavailable for the base year, the prior year has been considered.

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