

Solid Electrolyte Market size is projected to reach \$56.6 million by 2030, at a CAGR of 12.1% from 2021-2030

WILMINGTON, DE, UNITED STATES, May 27, 2024 /EINPresswire.com/ -- The solid electrolyte market size was valued at \$17.8 million in 2020, and is projected to reach \$56.6 million by 2030, at a CAGR of 12.1% from 2021 to 2030.

Increase in application of solid state batteries in the healthcare, wearable, and drone sectors is one of the major factors responsible for the growth of the global solid state batteries market. In addition, surge in need for solid



Traction Battery Market

state batteries in electric vehicles plays an important role in escalating the market growth.

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Solid electrolytes are safer, more stable, and have higher energy densities as compared to conventional Li-ion batteries with liquid electrolytes. They are used in a wide range of applications, including consumer electronics, electric vehicle, energy harvesting, medical devices, smart cards, and wireless communication. The global market has been analyzed based on revenue generated from the sales of commercialized solid state batteries.

The solid electrolyte market analysis has been done on the basis of application, type, and region. By type, the solid electrolyte market is divided into ceramic and solid polymer. Solid polymer electrolyte (SPE) has tremendous advantage over other technologies since polymeric backbone of SPE offers mechanical flexibility needed for such batteries. This drives the growth during the solid electrolyte market forecast period.

Based on application, the solid electrolyte market is divided into thin-film battery and electric vehicle battery. Multiple factors, such as government regulations in various regions of the world and technology developments in batteries, are expected to boost the EV market. This acts as the

major driving factor for the global solid electrolyte market during the forecast period.

By region, North America is expected to dominate the market, with most of the solid electrolyte demand coming from the U.S. and Canada.

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Ceramic Solid Polymer

Thin-Film Battery

Electric Vehicle Battery

There are a number of benefits that solid-state batteries with solid electrolytes have over conventional lithium-ion batteries, making them a potentially useful technology for electric vehicles. For example, solid-state batteries have a better energy density than other battery types, enabling smaller battery packs and a longer driving range. These may also be charged more quickly, cutting down on the amount of time needed for charging.

Solid electrolytes are solid ionic conductors which are used in electrochemical cells as an electrolyte. A conductor with a high ionic transference number can serve as an electrolyte. It majorly depends on the temperature and the partial pressure of the gas involved in the chemical reaction with the mobile ion.

- 1. High Prices of Solid-state batteries: Complicated production process and the high cost of solid-state batteries are holding back the growth of the market. Prices of lithium-ion batteries have fallen as compared to the past 10 years. Tesla also announced their plans to reduce the prices of lithium-ion EV batteries significantly during the next 2-3 years. As currently the solid-state batteries are not manufactured on the mass scale, they are costlier compared to the conventional EV batteries.
- 2. Technological barriers in the development of solid-state batteries: Challenges include interface issues between the electrolyte and the electrodes, poor solid contact, and lithium dendrites during charging and discharging. Various OEMs and battery manufacturers have addressed these technical challenges and working to develop solid-state batteries.

By region, the North America solid electrolyte market is projected to grow at the highest CAGR of nearly 12.7%, in terms of revenue, during forecast period.

By type, the solid polymer segment accounted for the largest solid electrolyte market share in 2020.

By application, the electric vehicle battery segment garnered the largest market share in 2020.

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