

EU launches a research project on solid-state battery manufacturing

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HyLiST is funded under the Horizon Europe program and aims to develop an innovative Generation-4b solid-state battery

The EU has launched a research project called HyLiST, which stands for Hybrid Lithium Metal-based Scalable Solid State Battery Manufacturing. The solid-state battery research project was recently launched in order to make a decisive contribution to sustainable battery production in Europe, a press note published by AIT Austrian Institute of Technology GmbH said March 13.



Source: Getty Images/vefimov

The EU-funded research project will be headed by the AIT Austrian Institute of Technology, which will oversee an international consortium working on the development of a new generation of solid-state batteries — more durable, more powerful and more environmentally friendly.

Notably, HyLiST is funded under the Horizon Europe program and aims to develop an innovative Generation-4b solid-state battery. The battery is intended to be produced resource-efficiently and particularly applied in the aerospace and automotive industries.

The research project aims to develop a hybrid solid-state electrolyte, which in combination with a high-capacity, cobalt-free cathode (lithium nickel manganese oxide [LNMO]) and a lithium metal anode (LiM), is expected to significantly increase the performance and safety of solid-state batteries within the next 36 months.

In addition, the project aims to focus on scalability and industrialization of electric vehicle batteries to strengthen Europe's sovereignty in the area of battery technologies and supply chain, including reducing the region's dependence on critical raw materials.

The HyLiST project brings together an interdisciplinary consortium of 13 partners from nine countries, including leading research institutes, universities, small and medium-sized enterprises and industrial companies.

“The AIT Austrian Institute of Technology is coordinating the HyLiST project and contributing its extensive expertise in the fields of materials science and cell technology. In addition to project management, AIT is responsible for a central work package that focuses on scaling up the developed components into high-energy pouch cells,” the note said.

According to the note, the HyLiST project aims to achieve significant progress in battery research and development through a three-stage approach:

- a) Material development and scaling: Development of a high-voltage LNMO cathode, an ultrathin lithium-metal anode using PLD technology and polymer-based single-ion conductors. A life-cycle analysis of the materials is also being carried out.
- b) Cell integration and validation: Optimization of electrode-electrolyte interfaces, production of monolayer and multilayer pouch cells as well as comprehensive performance and safety tests.
- c) Digitalization, recycling and sustainability: Development of a digital twin and a battery passport, evaluation of the recyclability of components and life-cycle analyses.

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