SOLID ELECTROLYTES FOR LI-ION SOLID-STATE BATTERIES

Solid electrolyte material is the key ingredient in solid-state batteries. This patent analysis will empower your understanding of the main R&D trends and competitors’ technological strategies found in the solid electrolyte materials jungle.

CAR AND BATTERY MANUFACTURERS ALSO HAVE A NOTABLE IP POSITION IN SOLID ELECTROLYTE MATERIALS

Everyone still recalls the drama surrounding the Samsung Galaxy Note 7 smartphone, which revealed a major drawback for today’s Li-ion batteries: the safety risk induced by the use of liquid-flammable electrolytes. One technical solution envisioned for improved safety is to replace the liquid electrolyte with a solid electrolyte. Solid-state batteries can be categorized in two categories: thin-film solid batteries and bulk solid batteries. The thin-film technology approach, proven for thin-film batteries, is not directly applicable for bulk solid-state batteries. Thus, new processes and materials must arise to ensure “bulk” solid batteries meet market requirements (performance, stability, cost). Three main development axes are envisioned for enhancing “bulk” solid-state battery performance: improve solid electrolyte performances and electrode/electrolyte interface, and develop materials/cell assembly manufacturing processes compatible with industrial production.

Many companies have recently announced the commercialisation and integration of batteries with solid electrolytes (solid-state batteries) by 2020 - 2025. However, many questions remain: which solid electrolyte exhibits the most promising performance? What are the most recent technology developments for solid electrolyte materials? Who has the best IP position in solid electrolyte materials? In this context, a patent analysis is a complementary approach to market research in order to fully comprehend the competitive landscape and technology roadmap; stay abreast of cutting-edge technology developments; anticipate future technological consolidation; and understand competitors’ strategies. This patent analysis also reveals the companies, technical solutions, and strategies not identified by a market analysis.

This report focuses on solid electrolyte materials. More than 5,800 patents grouped in 2,760 patent families are related to solid electrolytes for solid Li-ion batteries. In this report, we reveal the main IP trends, key patented technologies, recent development trends, key IP players and newcomers and their IP strategies/strengths by solid electrolyte material (polymer, polymer/inorganic, inorganic, argyrodite, Thio-LISICON, sulfide glass ceramic, oxide glass ceramic, perovskite, anti-perovskite, LISICON, garnet, NASICON, hydrides, etc.).
This report also includes an Excel database with the >5,800 patents and patent applications analyzed in this study. This useful patent database allows for multi-criteria searches and includes patent publication numbers, hyperlinks to the original documents, priority date, title, abstract, patent assignees, patent’s current legal status, and technological and application segments.
COMPANIES MENTIONED IN THIS REPORT (NON-EXHAUSTIVE)

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AUTHORS
Dr. Fleur Thissandier
Fleur works for Knowmade in the fields of Materials Chemistry and Energy Storage. She holds a PhD in Materials Chemistry and Electrochemistry from CEA/INAC, Grenoble, France, and a Chemistry Engineering degree from the Superior National School of Chemistry (ENSCM), Montpellier, France.
Contact: fleur.thissandier@knowmade.fr

Dr. Nicolas Baron
Nicolas is CEO and co-Founder of Knowmade. He manages the development and strategic orientations of the company and personally leads the Electronics & Telecom department. He holds a PhD in Physics from the University of Nice Sophia-Antipolis, and a master’s degree in Intellectual Property Strategies and Innovation from the European Institute for Enterprise and Intellectual Property (IEEPI Strasbourg), France.
Contact: nicolas.baron@knowmade.fr

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