

Companies commercializing lithium ion solid state electrolytes

Are solid-state lithium-ion batteries competitive?

The competitive and technological landscape of solid-state batteries has shifted in recent years. Numerous new companies have been entering the landscape, attracted by the huge hype surrounding solid-state lithium-ion (Li-ion) batteries and their market potential.

Who makes solid-state batteries based on sulfide/Polymer Solid electrolyte?

BI lab, a material manufacturer founded in 2018 and specialized in next generation energy materials, has two patent families on solid-state batteries related to sulfide/polymer solid electrolyte. BioGeneSys, established in 2020, is specialized in hybrid graphene materials and its use in battery and sensors.

Why are new companies entering the lithium-ion market?

Numerous new companies have been entering the landscape, attracted by the huge hype surrounding solid-state lithium-ion (Li-ion) batteries and their market potential. In such a thriving competitive landscape, it is important to stay up to date on competitors' strategic choices, newcomers and technological trends.

Which non-Chinese start-ups entered the solid-state Li-ion batteries patent landscape in 2022?

Several non-Chinese start-ups incorporated after 2016 entered the solid-state Li-ion batteries patent landscape in 2022, mainly originating from South Korea and the US. Figure 3: Main non-Chinese start-ups entering the solid-state Li-ion batteries patent landscape in 2022 (i.e., first patent published in 2022).

Who makes lithium batteries?

EnergyX, founded in 2018, specializes in Lithium mining. Its patent on solid-state batteries is co-filed with the University of Texas and is related to lithiated metal organic frameworks with a bound solvent for secondary battery applications. Ionobell is an American material and battery manufacturer founded in 2017.

Does KnowMade patent solid-state Li-ion batteries?

That is why KnowMade is monitoring patenting activity on solid-state Li-ion batteries to complete its two recent reports on solid electrolytes for Li-ion batteries and solid-state Li-ion batteries with inorganic solid electrolytes.

Garnet solid electrolyte is one of the most widely studied inorganic solid electrolytes. Garnet-type solid electrolyte $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ (LLZO) and its derivatives show high lithium-ion conductivity (10^{-3} - 10^{-4} S/cm) at room temperature, wide electrochemical stability window, and good stability with lithium metal, which is considered as the most promising oxide solid ...

Hercules Electric Vehicles and Prieto Battery, Inc. announced in 2020 that they had signed a Letter of Intent to form a strategic partnership to develop and commercialize Prieto's 3D Lithium-ion solid-state batteries for use



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in Hercules electric pickups, SUVs, and other upcoming vehicles commencing in 2025. 4. BrightVolt. BrightVolt, based in the United States, ...

Johnson Energy Storage is rapidly advancing towards commercializing this cutting-edge solid-state battery technology. With its glass-based electrolyte and cost-effective production methods, the company is ...

Solid-state batteries represent a pioneering shift from traditional lithium-ion counterparts, boasting a solid electrolyte instead of the conventional liquid or gel electrolyte. This structural difference eradicates safety concerns related to leakage or overheating, promising enhanced stability and safety, crucial in various applications ...

The development of new energy storage systems with high energy density is urgently needed due to the increasing demand for electric vehicles. Solid-state magnesium batteries are considered to be an economically viable alternative to advanced lithium-ion batteries due to the advantages of abundant distribution of magnesium resources and high volumetric ...

Typically, a room temperature ionic conductivity of at least 10^{-4} S/cm is required for a practical solid electrolyte (Zhang et al., 2018). The advent of "microbatteries" may utilize electrolytes with reduced thicknesses, such that a conductivity of 10^{-6} S/cm is sufficient (Notten et al., 2007). Furthermore, one must consider the operating frequencies of the potential battery ...

Solid-state polymer lithium-ion batteries with better safety and higher energy density are one of the most promising batteries, which are expected to power future electric vehicles and smart grids.

Solid-state cells differ from conventional lithium-ion batteries in their use of a glass or ceramic electrolyte, instead of a liquid composed of lithium salts. Automakers are keen on solid-state ...

One of these innovations is the solid-state batteries (SSB), which, by using solid electrolytes, do not have the flammable risk, bringing safety to users while reaching similar energy and power densities. This work presents a review about SSB, based on qualitative and exploratory research, using the Web of Science (WoS) platform.

Factorial Energy has invested heavily in solid-state battery and chemistry research over the past 6 years to create its proprietary Factorial Electrolyte System Technology, which it ...

Data demonstrates high energy density solid-state lithium-metal battery technology that improves life, charging time, and safety QuantumScape Corporation (NYSE: QS, or "QuantumScape"), a leader in the development of next generation solid-state lithium-metal batteries for use in electric vehicles (EVs), has released performance data demonstrating that ...

Factorial Energy, a solid-state battery developer, has achieved a significant milestone by delivering A-Samples

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of its 100+ Ah Factorial Electrolyte System Technology (FEST) solid-state battery cells to automotive partners worldwide. These cells have passed UN 38.3 safety tests, making them the first-ever global shipment of 100+ Ah lithium ...

The competitive and technological landscape of solid-state batteries has shifted in recent years. Numerous new companies have been entering the landscape, attracted by the huge hype surrounding solid-state ...

PUSPE-X also exhibited good ionic conductivity of 0.127 mS cm^{-1} and a high lithium-ion transfer number ($t_{\text{Li}^+} = 0.55$) at $60 \text{ }^\circ\text{C}$ [237]. Composite solid electrolytes, which combine PEs with inorganic solid electrolytes, are considered a promising choice for the future.

Solid-state batteries are poised to revolutionize the energy storage landscape, offering enhanced safety, energy density, and charging speeds compared to traditional lithium-ion batteries. With the potential to reduce EV battery costs by up to 30%, solid-state batteries are expected to make electric vehicles more competitive with internal combustion engine vehicles. Major automakers ...

Solid-state batteries using polymer-based solid-state electrolytes provide high-energy-density and enhanced safety. One of the key components in solid-state batteries is the electrolyte. ... His research interests focus on solid-state lithium-ion batteries. Yumei Wang is a research fellow at the National University of Singapore (Chongqing ...

Although the pursuit of the all-solid-state electrolyte technology is believed to be the ultimate solution for the battery safety, respective batteries are still bound by interfacial issues and massive production technologies. ... All-solid-state flexible planar lithium ion micro-capacitors. *Energy Environ Sci* 2018; 11: 2001-2009. ...

Ion Storage Systems -- through an earlier ARPA-E program -- focused on working toward these goals, and now, through SCALEUP, the company will accelerate domestic manufacturing of next generation solid-state, high-power-density lithium-metal batteries, based on ION's proprietary ceramic electrolyte manufacturing technology," said Dr ...

1 day ago; Discover the future of energy storage in our article on lithium-ion and solid-state batteries. Delve into the reasons behind the short lifespan of traditional batteries and explore how solid-state technology promises enhanced safety, efficiency, and longevity. Compare key components, advantages, and challenges faced by each battery type. Stay informed on the ...

SK On in Korea has co-developed a polymer electrolyte for solid state lithium metal batteries that can operate at room temperature. ... SIPE has increases the room temperature ionic conductivity by approximately ten times to $1.1 \times 10^{-4} \text{ S/cm}$ and the lithium-ion transference number from 0.2 to 0.92, nearly a fivefold increase. ... The Colorado ...

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Detailed info and reviews on 34 top Lithium Ion Battery companies and startups in United States in 2024. Get the latest updates on their products, jobs, funding, investors, founders and more. ... Commercializing scalable solid state electrolytes for EVs. ... Piersica is a company that develops next-generation solid-state Lithium-Ion (Li-ion ...

Safe energy storage technique is prerequisite for sustainable energy development in the future. Designing Solid-State Electrolytes exhibiting high ionic conductivity, good electrochemical performances, high mechanical/thermal stability, compatible electrolyte/electrode interface is the main concern for developing the next-generation rechargeable batteries.

In this article, we will be taking a look at the 21 next generation battery technology companies. To skip our detailed analysis of the next generation battery market, you can go directly to see the 5 Next Generation Battery Technology Companies. As the demand for reliable and sustainable energy sources continues to grow, there is [...]

Solidion is aimed at fully commercializing this technology in 2-3 years. ... including Silicon-rich all-solid-state lithium-ion cells (Gen 1), anodeless lithium metal cells (Gen 2), and ...

Solid-state batteries represent a pioneering shift from traditional lithium-ion counterparts, boasting a solid electrolyte instead of the conventional liquid or gel electrolyte. This structural difference eradicates safety concerns related to ...

In 1980, LiI was used as a solid electrolyte in commercializing cardiac pacemakers. ... Note that LIC-GC has already been commercialized by the OHARA company. Another Li superionic conductor (LISICON) ... Theoretical models for characterizing the ion transport mechanism in lithium-ion solid state electrolytes. 3.1.

Batteries are essential in modern society as they can power a wide range of devices, from small household appliances to large-scale energy storage systems. Safety concerns with traditional lithium-ion batteries prompted the emergence of new battery technologies, among them solid-state batteries (SSBs), offering enhanced safety, energy density, and lifespan. This ...

The following three-phase approach involves the development of sulfide solid electrolytes, large pilot facilities, and future full-scale mass production, which is a testament to both companies' commitment to realizing the potential of solid-state batteries. Phase 1: Development of sulfide solid electrolytes and preparation for a large pilot ...

Lithium-ion battery (LIB) technologies utilize liquid electrolytes, which can cause safety issues due to electrolyte leakage, uncontrolled side reactions between the liquid electrolyte and electrode, dendrite formation, and flammability of the liquid components with air. These problems can be minimized using solid-state electrolytes (SSEs) containing the functionality of ...



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