Semi-solid lithium battery technology breakthrough

Did 24m make a breakthrough in lithium-ion batteries?
Early pilot production line at 24M. Image: 24M. 24M,a startup battery company founded as a spin-off from MIT,claims it has made a breakthroughin creating semi-solid lithium-ion battery cells with an energy density exceeding 350Wh per kg.

What are lithium-ion semi-solid flow batteries (Li-ssfbs)?
As a new type of high energy density flow battery system,lithium-ion semi-solid flow batteries (Li-SSFBs) combine the features of both flow batteries and lithium-ion batteries and show the advantages of decoupling power and capacity. Moreover,Li-SSFBs typically can achieve much higher energy density while maintaining a lower cost.

What are semi-solid lithium redox flow batteries (sslrfbs)?
Semi-solid lithium redox flow batteries (SSLRFBs) have gained significant attention in recent years as a promising large-scale energy storage solutiondue to their scalability,and independent control of power and energy. SSLRFBs combine the advantages of flow batteries and lithium-ion batteries which own high energy density and safety.

Are semi-solid-state batteries a good choice?
Though semi-solid-state batteries won't reach the energy densities and life-spans that are expected from those with solid electrolytes,they're at an advantage in the short termbecause they can be made on conventional lithium-ion battery production lines.

What is a 'semisolid' battery?
The company says the design,which it calls "SemiSolid" for its use of gooey electrodes,reduces production costs by up to 40 percent. The approach also improves the batteries' energy density,safety,and recyclability. Judging by industry interest,24M is onto something.

How does MIT's 'semisolid' battery design reduce production costs?
Now the MIT spinout 24M Technologies has simplified lithium-ion battery production with a new design that requires fewer materials and fewer steps to manufacture each cell. The company says the design,which it calls "SemiSolid" for its use of gooey electrodes,reduces production costs by up to 40 percent.

Several Chinese auto and battery majors, including Changan and CATL, are making semi-solid-state batteries, a more gradual alternative that uses a small amount of fluid or gel electrolyte in addition to a solid-state electrolyte. SAIC said last month that its upcoming EV under the Intelligence in Motion (IM) lineup will feature a semi-solid-state battery pack, with ...

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While admitting that commercialisation remains an estimated two to three years away, 24M, spun out of an MIT laboratory by founder Yet Ming Chiang to investigate solid state and now semi-solid lithium battery materials, claims its latest "breakthrough", Dual Electrolyte Technology, heralds a new era to come for advanced lithium batteries ...

"A fully solid-state battery is an ideal of where we want to go," says Glen Merfeld, chief technology officer at Albemarle, the world"s largest lithium producer. "Today"s lithium-ion ...

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This year started with two big announcements from technology firms QuantumScape, which is developing proprietary lithium metal solid state battery technology, and 24M, which holds the patent for the battery materials it brands "SemiSolid" and a production process for manufacturing SemiSolid batteries using it (licensees include gigafactory firm Freyr).

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In its announcement of the new technology, Monash University noted that lithium sulfur batteries were first

invented about 20 years before then first lithium-ion batteries, which first came on the ...

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Here Come Semi-Solid-State Batteries. Meanwhile, as the world waits for solid electrolytes to shove liquids aside, Chinese EV manufacturer Nio and battery maker WeLion New Energy Technology Co ...

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