TROY TECHNICAL

ALL-SOLID-STATE BATTERIES

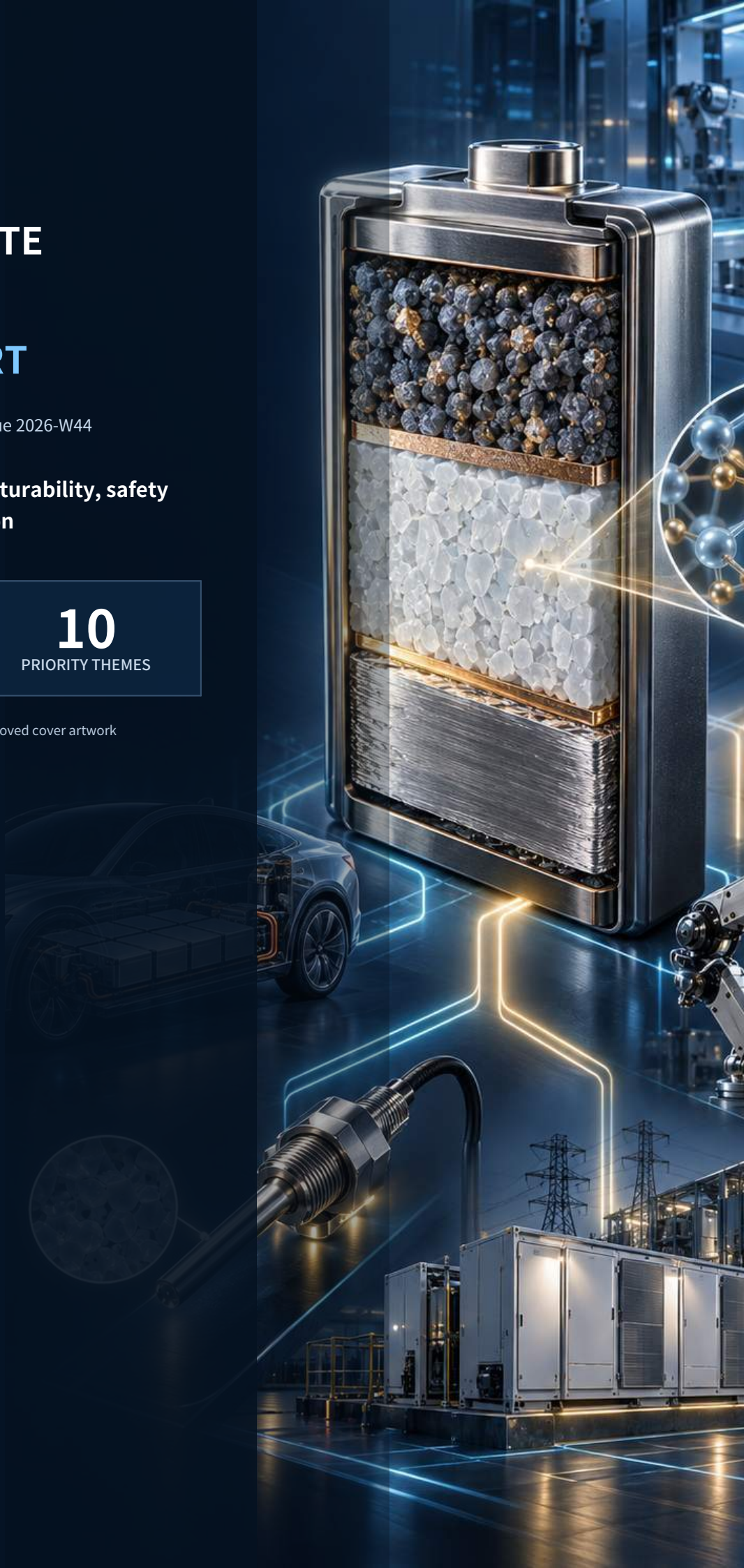
WEEKLY REPORT

October 31 - November 6, 2026 | Issue 2026-W44

Interface stability, manufacturability, safety and automotive qualification

11	10
ANALYZED ARTICLES	PRIORITY THEMES

Issued 2026-11-06 | English edition | fixed approved cover artwork



All-Solid-State Batteries: the boundary moved from isolated claims to qualification evidence

11 English articles were reviewed independently from the Japanese edition. Ten themes are retained for management decisions.

SIGNAL 01 | ELECTROLYTE

Zhongke Yuanben: Sulfide All-Solid-State Battery Specs and 2027 Roadmap

Zhongke Yuanben has developed a large-scale sulfide all-solid-state battery achieving a 12-minute fast charge and energy density exceeding 300 Wh/kg.

SIGNAL 02 | ELECTRODE INTERFACE

Anode-less ASSB: Dongguk University prototype and 235.13 Wh/L specs

Researchers at Dongguk University have developed an anode-free all-solid-state battery (ASSB) prototype achieving a volumetric energy density of 235.13 Wh/L.

SIGNAL 03 | CELL PROCESS

LEAD Intelligent: Warm Isostatic Pressing Specs for All-Solid-State Batteries

LEAD Intelligent has developed a horizontal warm isostatic pressing (WIP) system designed to solve densification challenges in all-solid-state battery mass production.

SIGNAL 04 | VALIDATION

LATP Solid Electrolytes: 10x Ion Conductivity via Sm2O3 Addition

Researchers from KEK and Kyoto University have increased the ion conductivity of LATP solid electrolytes by approximately 10 times through the addition of samarium oxide (Sm2O3).

DECISION

Focus this week's management attention on interface stability, manufacturability, safety and automotive qualification. Move only when the linked evidence can be reproduced under your own operating conditions.

THREE MANAGEMENT MOVES

1. Buyers: compare cell evidence under practical loading, pressure, temperature and cycle conditions.
2. Suppliers: show powder, interface and process consistency together with scale and cost.
3. Executives: track loading, pressure, interface resistance, yield, safety, capacity and timing.

EVIDENCE DISCIPLINE

FACT states what the collected English source reports. BUSINESS READ and ACTION are editorial interpretations. UNKNOWN lists information that the source file does not establish. A linked article is not treated as independent confirmation of every claim.

Five numbers or evidence anchors that require conditions

300 W
A09

SOURCE-BOUND CONDITION
Zhongke Yuanben has developed a large-scale sulfide all-solid-state battery achieving a 12-minute fast charge and energy density exceeding 300 Wh/kg.

235.13 W
A06

SOURCE-BOUND CONDITION
Researchers at Dongguk University have developed an anode-free all-solid-state battery (ASSB) prototype achieving a volumetric energy density of 235.13 Wh/L.

95%
A08

SOURCE-BOUND CONDITION
The equipment achieves cell densities exceeding 95% using pressures up to 600MPa and temperatures up to 150°C, enabling GWh-level production capacity.

10 times
A02

SOURCE-BOUND CONDITION
Researchers from KEK and Kyoto University have increased the ion conductivity of LATP solid electrolytes by approximately 10 times through the addition of samarium oxide (Sm2O3).

400 W
A07

SOURCE-BOUND CONDITION
The "Xin Bixiao" cell achieves an energy density of 400 Wh/kg and utilizes a silicon anode with a polymer-composite membrane.

HOW TO USE THESE NUMBERS
Each value is shown with the condition stated in the collected English article. Do not compare values across different test methods, device sizes, operating temperatures or commercial stages without normalizing those conditions.

Where the value chain moved

Each stage combines one leading theme and one supporting theme. The report treats handoffs as evidence transfers, not decorative arrows.

1

Electrolyte

P01/P06

Zhongke Yuanben has developed a large-scal e sulfide all-solid-state battery achieving a 12-minute fast charge and energy.

2

Electrode interface

P02/P07

Researchers at Dongguk University have developed an anode-free all-solid-sta te battery (ASSB) prototype achieving a.

3

Cell process

P03/P08

LEAD Intelligent has developed a horizontal warm isostatic pressing (WIP) system designed to solve densification challenges.

4

Validation

P04/P09

Researchers from KEK and Kyoto University have increased the ion conductivity of LATP solid electrolytes by approximately 10.

5

Vehicle deplo yment

P05/P10

Sunwoda is currently providing polymer-bas ed solid-state battery cells to automakers for evaluation after completing design.

EVIDENCE REQUIRED AT EACH HANDOFF

Electrolyte to Electrode interface	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck loading, pressure, interface resistance, yield, safety, capacity and timing.
Electrode interface to Cell process	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck loading, pressure, interface resistance, yield, safety, capacity and timing.
Cell process to Validation	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck loading, pressure, interface resistance, yield, safety, capacity and timing.
Validation to Vehicle deployment	Transfer test conditions, acceptance criteria, failure data, owner and decision date. Recheck loading, pressure, interface resistance, yield, safety, capacity and timing.

COMMON CONTROL POINT

No theme moves to a commercial commitment until a named owner has reproduced the relevant evidence and documented loading, pressure, interface resistance, yield, safety, capacity and timing.

Priority map: maturity and next decision locus



P01	Zhongke Yuanben: Sulfide All-Solid-State Battery Specs and 2027 Roadmap Business / rules | cue: fid
P02	Anode-less ASSB: Dongguk University prototype and 235.13 Wh/L specs Tech / process | cue: no system/business cue
P03	LEAD Intelligent: Warm Isostatic Pressing Specs for All-Solid-State Batteries Business / rules | cue: capacity
P04	LATP Solid Electrolytes: 10x Ion Conductivity via Sm2O3 Addition Tech / process | cue: no system/business cue
P05	Sunwoda Polymer Solid-State Cells: 400 Wh/kg Specs and Roadmap Tech / process | cue: no system/business cue
P06	Lithium Metal Anodes: Screen-Printed Arrays for High Energy Density Tech / process | cue: no system/business cue
P07	KRICT Transfer Printing: Oxide Hybrid Solid Electrolyte Specs Business / rules | cue: capacity
P08	Factorial Energy: Solid-State Battery Roadmap and OEM Partners System / adoption | cue: Partners
P09	FDK SoLiCell: Oxide-based All-Solid-State Battery 150°C Specs Business / rules | cue: capacity
P10	Anode-Free Sodium Batteries: 1,400-Cycle Stability via DOX Business / rules | cue: capacity

REPRODUCIBLE POSITIONING RULE

Horizontal position uses five discrete stages: Research, Prototype, Joint evaluation, Product adoption and Scale. The vertical bands classify the next decision locus: Tech / process, System / adoption, or Business / rules (including supply systems). Article-title cues take precedence; the overview is used only when the title is silent. These are categories, not impact ranks. Bubble diameter reflects the editorial score.

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P01 Zhongke Yuanben: Sulfide All-Solid-State Battery Specs and 2027 Roadmap

A09 | Electrolyte | Pilot

2026-11-06

FACT

Zhongke Yuanben has developed a large-scale sulfide all-solid-state battery achieving a 12-minute fast charge and energy density exceeding 300 Wh/kg. The technology has completed real-vehicle power tests in a small electric vehicle, shifting the industry focus from laboratory parameters to automotive-grade performance.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P01.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 20/25 | MATURITY 2/5 | DECISION LOCUS: BUSINESS / RULES

P02 Anode-less ASSB: Dongguk University prototype and 235.13 Wh/L specs

A06 | Electrode interface | Joint evaluation

2026-11-05

FACT

Researchers at Dongguk University have developed an anode-free all-solid-state battery (ASSB) prototype achieving a volumetric energy density of 235.13 Wh/L. By utilizing an ultrathin tin/carbon (Sn/C) interlayer and prelithiation, the team reduced lithium loss and improved interfacial stability. This architecture targets applications ranging from wearable electronics and IoT sensors to industrial-scale power.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P02.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 20/25 | MATURITY 3/5 | DECISION LOCUS: TECH / PROCESS

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P03 LEAD Intelligent: Warm Isostatic Pressing Specs for All-Solid-State Batteries

A08 | Cell process | Scale-up

2026-11-06

FACT

LEAD Intelligent has developed a horizontal warm isostatic pressing (WIP) system designed to solve densification challenges in all-solid-state battery mass production. The equipment achieves cell densities exceeding 95% using pressures up to 600MPa and temperatures up to 150°C, enabling GWh-level production capacity.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P03.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 20/25 | MATURITY 5/5 | DECISION LOCUS: BUSINESS / RULES

P04 LATP Solid Electrolytes: 10x Ion Conductivity via Sm2O3 Addition

A02 | Validation | Pilot

2026-11-04

FACT

Researchers from KEK and Kyoto University have increased the ion conductivity of LATP solid electrolytes by approximately 10 times through the addition of samarium oxide (Sm2O3). This breakthrough, achieved by improving grain boundary conduction at the atomic level, supports the development of low-cost all-solid-state batteries.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P04.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 20/25 | MATURITY 2/5 | DECISION LOCUS: TECH / PROCESS

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P05 Sunwoda Polymer Solid-State Cells: 400 Wh/kg Specs and Roadmap

A07 | Vehicle deployment | Pilot

2026-11-03

FACT

Sunwoda is currently providing polymer-based solid-state battery cells to automakers for evaluation after completing design and process verification. The "Xin Bixiao" cell achieves an energy density of 400 Wh/kg and utilizes a silicon anode with a polymer-composite membrane.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P05.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 20/25 | MATURITY 2/5 | DECISION LOCUS: TECH / PROCESS

P06 Lithium Metal Anodes: Screen-Printed Arrays for High Energy Density

A01 | Electrolyte | Pilot

2026-11-05

FACT

Researchers have developed a mask-assisted screen-printing method to create ultrathin lithium microdisc arrays that overcome fabrication and stability issues. These anodes achieved a gravimetric energy density of 504 Wh kg-1 and a volumetric energy density of 1071 Wh L-1 when paired with high-loading nickel-rich cathodes.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P06.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 19/25 | MATURITY 2/5 | DECISION LOCUS: TECH / PROCESS

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P07 KRICT Transfer Printing: Oxide Hybrid Solid Electrolyte Specs

A11 | Electrode interface | Product adoption

2026-11-04

FACT

Researchers at KRICT have developed a "sticker-like" transfer printing process to fabricate thin, uniform oxide hybrid solid electrolyte layers for solid-state batteries. The method achieves a 15 µm thickness over a 120 cm2 area, significantly improving capacity retention and thermal stability compared to direct coating.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P07.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 19/25 | MATURITY 4/5 | DECISION LOCUS: BUSINESS / RULES

P08 Factorial Energy: Solid-State Battery Roadmap and OEM Partners

A10 | Cell process | Product adoption

2026-11-02

FACT

Factorial Energy is advancing from semi-solid-state to fully solid-state batteries, with a recent Mercedes-Benz EQS test achieving a 748-mile trip on a single charge. The company targets production-ready 100 percent solid-state cells by the end of the decade to reduce battery weight by 50 percent.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P08.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 19/25 | MATURITY 4/5 | DECISION LOCUS: SYSTEM / ADOPTION

FACT is source-bound. BUSINESS READ, ACTION and UNKNOWN are explicit editorial layers.

P09 FDK SoLiCell: Oxide-based All-Solid-State Battery 150°C Specs

A03 | Validation | Product adoption

2026-11-05

FACT

FDK has verified that its SMD-type oxide-based all-solid-state battery, SoLiCell, maintains stable discharge performance at 150°C. The battery retains over 60% of its nominal capacity under these conditions, enabling power for sensing and communication devices in extreme heat environments.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P09.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 19/25 | MATURITY 4/5 | DECISION LOCUS: BUSINESS / RULES

P10 Anode-Free Sodium Batteries: 1,400-Cycle Stability via DOX

A05 | Vehicle deployment | Product adoption

2026-11-02

FACT

A molecular electrolyte design using 1,3-dioxane (DOX) enables anode-free sodium batteries (AFSBs) to retain ~80% capacity after 1,400 cycles at 1 C. This strategy mitigates irreversible sodium loss by promoting reversible deposition and forming a robust solid-electrolyte interphase. The result is a high-energy-density storage solution capable of operating at -40 °C with 88% capacity.

WHY IT MATTERS

The decision relevance is interface stability, manufacturability, safety and automotive qualification. The signal should be tested at the application and operating-system level, not accepted from a headline alone.

BUSINESS READ

For operating companies, compare the reported change with current qualification, sourcing and product-roadmap assumptions. For suppliers, show powder, interface and process consistency together with scale and cost.

ACTION

Within 30 days, compare cell evidence under practical loading, pressure, temperature and cycle conditions; record the evidence and owner against P10.

UNKNOWN

Still unproven or incompletely stated: loading, pressure, interface resistance, yield, safety, capacity and timing.

EDITORIAL SCORE 19/25 | MATURITY 4/5 | DECISION LOCUS: BUSINESS / RULES

Playbook and 0-5 year roadmap

STAKEHOLDER	NOW | 0-30 DAYS	NEXT | 1-12 MONTHS	LATER | 1-5 YEARS
Operating companies	compare cell evidence under practical loading, pressure, temperature and cycle conditions	Run production-like qualification with explicit acceptance and stop criteria.	Build a portfolio and architecture that can absorb technology and supplier changes.
Materials, equipment and technology suppliers	show powder, interface and process consistency together with scale and cost	Create shared reliability, process-window and failure-analysis data with customers.	Standardize interfaces, traceability, lifecycle support and recovery services.
Trading, investment and legal teams	Map loading, pressure, interface resistance, yield, safety, capacity and timing.	Contract for capacity, quality, change notice, liability, alternatives and exit.	Diversify regional, technical and customer concentration risk.

ROADMAP

NOW | 0-30 DAYS
Evidence ledger
Owner: Strategy + quality
Deliverable: claim, source, condition, owner

NOW | 0-30 DAYS
Risk screen
Owner: Procurement + legal
Deliverable: unknowns, alternatives, stop

NEXT | 1-12 MONTHS
Joint qualification
Owner: R&D + supplier
Deliverable: process window and failure data

NEXT | 1-12 MONTHS
Commercial gate
Owner: Business + finance
Deliverable: unit economics and capacity

LATER | 1-5 YEARS
Platform strategy
Owner: Executive team
Deliverable: portfolio and interface roadmap

LATER | 1-5 YEARS
Service layer
Owner: Operations + channel
Deliverable: monitoring, maintenance and recovery

GO / NO-GO GATES

GATE	OWNER	REQUIRED EVIDENCE	NO-GO CONDITION
G1 Evidence	**Quality**	Source, test conditions and reproducibility	No traceable evidence
G2 Integration	**R&D**	Interface, process window and failure analysis	Cannot meet system conditions
G3 Commercial	**Business**	Capacity, total cost, contract and alternatives	Economics or supply cannot be supported
G4 Lifecycle	**Operations**	Monitoring, maintenance, change notice and exit	No accountable operating plan

ANALYZED ARTICLES | ITEMS 01-11

Every title and URL is displayed in full. URLs wrap without shortening and remain clickable. A verified-reference label means the translated HTML did not retain its original source URL.

ID	FULL ARTICLE TITLE	FULL SOURCE / VERIFIED REFERENCE URL - CLICKABLE
A01	Lithium Metal Anodes: Screen-Printed Arrays for High Energy Density	https://www.miragenews.com/screen-printed-arrays-tackle-lithium-metal-1772337/
A02	LATP Solid Electrolytes: 10x Ion Conductivity via Sm2O3 Addition	https://eetimes.itmedia.co.jp/ee/articles/2611/04/news028.html
A03	FDK SoLiCell: Oxide-based All-Solid-State Battery 150°C Specs	https://monoist.itmedia.co.jp/mn/articles/2611/05/news042.html
A04	ProLogium and Rimac: Solid-State Battery Specs and 2028 Roadmap	https://www.electronicdesign.com/markets/automotive/article/55417119/electronic-design-new-battery-pack-concept-features-superfluidized-solid-electrol
A05	Anode-Free Sodium Batteries: 1,400-Cycle Stability via DOX	https://doi.org/10.1038/s41560-026-02154-y
A06	Anode-less ASSB: Dongguk University prototype and 235.13 Wh/L specs	https://www.ess-news.com/2026/11/05/korean-researchers-build-all-solid-battery-prototype-with-235-13-wh-l-energy-density/
A07	Sunwoda Polymer Solid-State Cells: 400 Wh/kg Specs and Roadmap	https://battery-news.de/en/2026/11/03/sunwodas-400-wh-kg-polymer-solid-state-cell-under-automaker-evaluation/
A08	LEAD Intelligent: Warm Isostatic Pressing Specs for All-Solid-State Batteries	https://cnews.chinadaily.com.cn/a/202611/06/WS6aed84ebe4b0e14252fc99c1.html
A09	Zhongke Yuanben: Sulfide All-Solid-State Battery Specs and 2027 Roadmap	https://www.sohu.com/a/1098140900_104421
A10	Factorial Energy: Solid-State Battery Roadmap and OEM Partners	https://www.aol.com/articles/factorial-thinks-finally-solid-state-195852000.html
A11	KRICT Transfer Printing: Oxide Hybrid Solid Electrolyte Specs	https://www.newswise.com/articles/krict-develops-oxide-hybrid-solid-electrolytes-using-sticker-like-transfer-printing

SolidStateBattery — Selected Articles

Date: 2026-11-08

Articles: 11

Table of Contents

#01 Lithium Metal Anodes: Screen-Printed Arrays for High Energy Density

#02 LATP Solid Electrolytes: 10x Ion Conductivity via Sm2O3 Addition

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#04 ProLogium and Rimac: Solid-State Battery Specs and 2028 Roadmap

#05 Anode-Free Sodium Batteries: 1,400-Cycle Stability via DOX

#06 Anode-less ASSB: Dongguk University prototype and 235.13 Wh/L specs

#07 Sunwoda Polymer Solid-State Cells: 400 Wh/kg Specs and Roadmap

#08 LEAD Intelligent: Warm Isostatic Pressing Specs for All-Solid-State Batteries

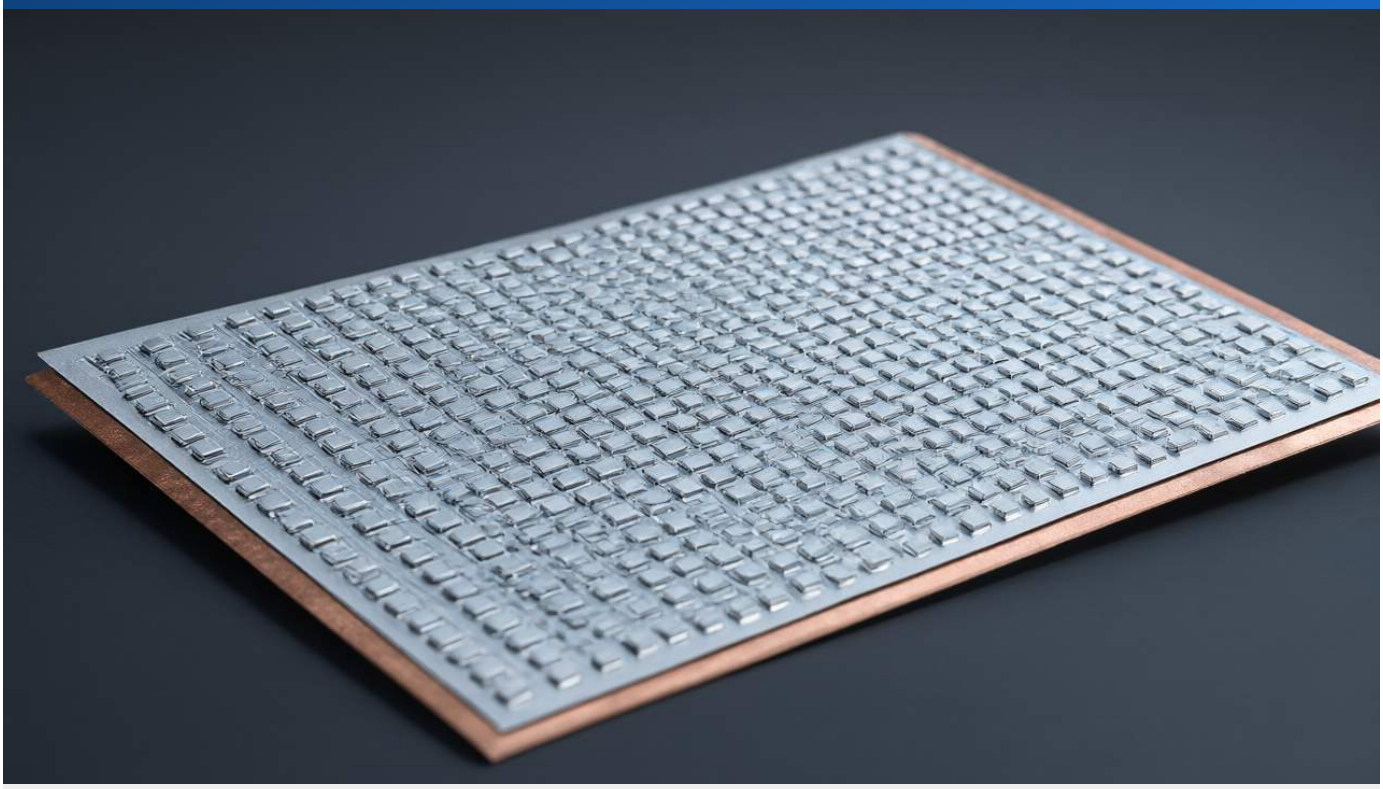
#09 Zhongke Yuanben: Sulfide All-Solid-State Battery Specs and 2027 Roadmap

#10 Factorial Energy: Solid-State Battery Roadmap and OEM Partners

#11 KRICT Transfer Printing: Oxide Hybrid Solid Electrolyte Specs

#01 Lithium Metal Anodes: Screen-Printed Arrays for High Energy Density

Published November 05, 2026 Mirage News



OVERVIEW

Researchers have developed a mask-assisted screen-printing method to create ultrathin lithium microdisc arrays that overcome fabrication and stability issues. These anodes achieved a gravimetric energy density of 504 Wh kg^{-1} and a volumetric energy density of 1071 Wh L^{-1} when paired with high-loading nickel-rich cathodes.

IN DEPTH

Key Findings

The study demonstrates a practical strategy for producing ultrathin lithium metal anodes that maintain high energy-storage performance while reducing unnecessary mass. Using a 20 μm-equivalent lithium anode with high-loading nickel-rich cathodes, the team achieved a gravimetric energy density of 504 Wh kg^{-1} and a volumetric energy density of 1071 Wh L^{-1}. Additionally, cells utilizing a 10 μm-equivalent anode paired with a lithium iron phosphate (LFP) cathode maintained stable performance for over 260 cycles with a Coulombic efficiency exceeding 99.8%.

Technical Details

To solve the poor wettability of molten lithium on copper current collectors, researchers employed a mask-assisted screen-printing method. This process creates regularly arranged, isolated lithium microdiscs rather than a continuous film, allowing for precise control over lithium deposition. The team fabricated arrays with equivalent thicknesses of 10, 20, and 28 μm, demonstrating large-area production of approximately 30 × 10 cm^2.

To enhance interface stability, magnesium bis(trifluoromethanesulfonyl)imide, $Mg(TFSI)_2$, was introduced into the molten lithium. This additive reacts to form lithium–magnesium alloys and inorganic compounds, including LiF, Li_3N, and Li_2S. These components create an inorganic-rich solid electrolyte interphase (SEI) that suppresses irregular lithium growth and reduces active lithium loss during cycling.

Background & Context

Lithium metal is a promising anode material due to its low electrochemical potential and high theoretical capacity. However, conventional batteries rely on thick lithium foils that increase weight and limit energy density. While thinner anodes are preferable, they are difficult to produce reliably and are more sensitive to lithium loss during repeated charging and discharging.

Significance & Outlook

The patterned array structure provides mechanical advantages by accommodating volume changes during battery operation, which reduces mechanical stress and improves structural stability. These benefits extend to solid-state battery systems; when used with an in situ polymerized gel electrolyte, the reinforced interface and microdisc spacing promote more stable contact and uniform lithium deposition. This approach provides a scalable path toward lightweight, high-performance anodes for both liquid- and solid-state batteries.

Source: https://www.miragenews.com/screen-printed-arrays-tackle-lithium-metal-1772337/

Collected: November 07, 2026 | Automated Research System (AI)

#02 LATP Solid Electrolytes: 10x Ion Conductivity via Sm2O3 Addition

Published November 04, 2026 EE Times Japan Japan



OVERVIEW

Researchers from KEK and Kyoto University have increased the ion conductivity of LATP solid electrolytes by approximately 10 times through the addition of samarium oxide (Sm2O3). This breakthrough, achieved by improving grain boundary conduction at the atomic level, supports the development of low-cost all-solid-state batteries.

IN DEPTH

Key Findings

A research group comprising the High Energy Accelerator Research Organization (KEK) and Kyoto University has developed a method to increase the ion conductivity of the lithium-ion conductive solid electrolyte Li 1.3 Al 0.3 Ti 1.7 (PO 4) 3, commonly known as LATP, by nearly 10 times. The team successfully clarified the mechanism of ion conduction at the atomic level, providing a pathway toward more efficient all-solid-state battery materials.

Technical Details

The researchers utilized samarium oxide (Sm 2 O 3) as a sintering additive and applied a heat treatment at 1000°C. This process adjusted the atomic arrangement (crystal structure) and microstructure of the LATP. Specifically, LATP with 9wt% Sm 2 O 3 addition exhibited an ion conductivity at 20°C approximately 10 times higher than LATP without the additive.

To verify these results, the team employed the following analytical methods:

- **Electrochemical Impedance Spectroscopy:** Confirmed a significant improvement in ion conductivity at the inter-particle interfaces.
- **Neutron and X-ray Diffraction:** Precisely determined the atomic arrangement, revealing that PO 4 3- ions in LATP recombined with the Sm 2 O 3 additive to form SmPO 4 and LiTiOPO 4 phases.

These reactions promoted the refinement of the LATP microstructure and altered the lithium content within the LATP crystal structure.

Background and Significance

LATP is considered a strong candidate for reducing the cost of all-solid-state lithium-ion batteries due to its inexpensive raw materials and low manufacturing costs. However, improving ion conductivity has been a critical requirement for its practical application.

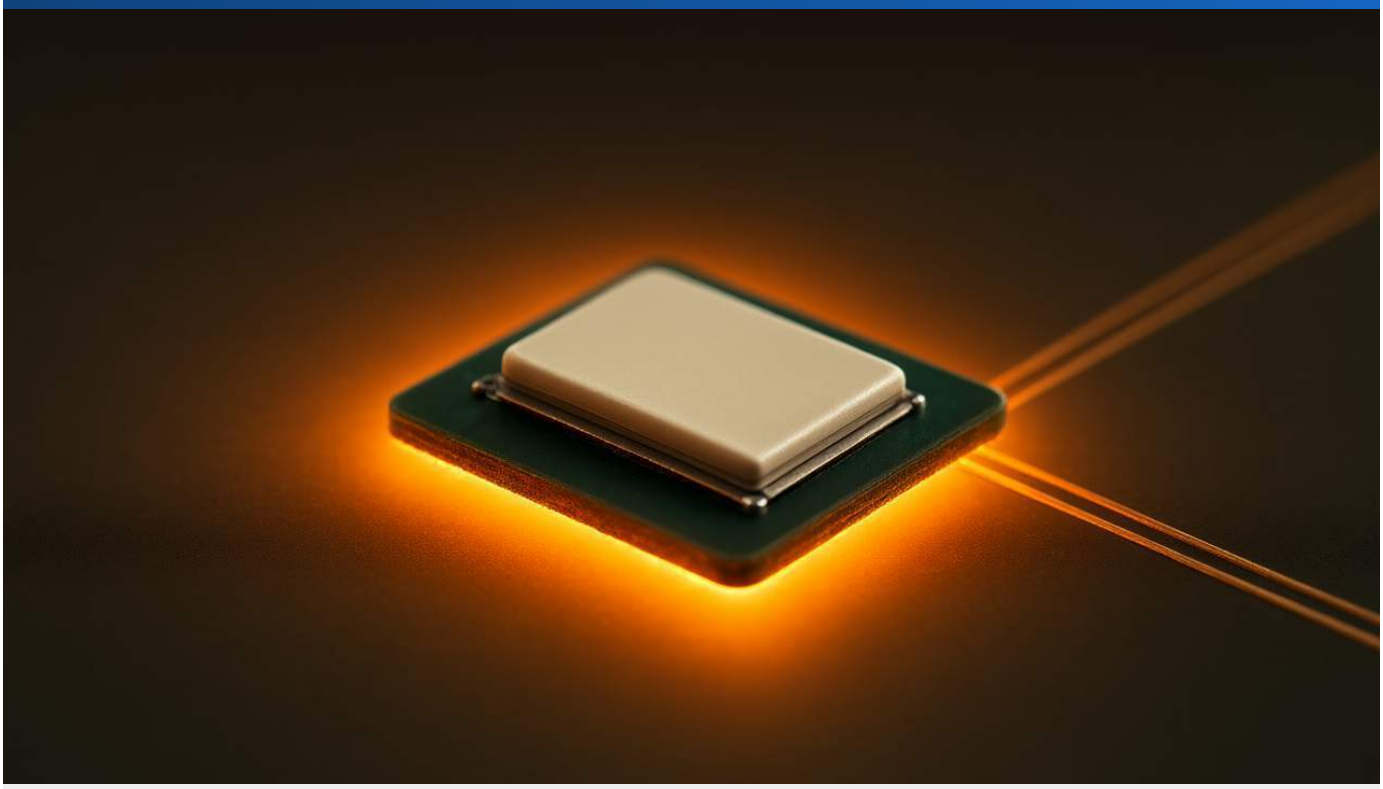
By resolving the atomic-level behavior of ion conduction and demonstrating a tenfold increase in performance, this research contributes significantly to the material development of affordable, high-performance all-solid-state batteries.

Source: https://eetimes.itmedia.co.jp/ee/articles/2611/04/news028.html

Collected: November 07, 2026 | Automated Research System (AI)

#03 FDK SoLiCell: Oxide-based All-Solid-State Battery 150°C Specs

Published November 05, 2026 MONOist Japan



OVERVIEW

FDK has verified that its SMD-type oxide-based all-solid-state battery, SoLiCell, maintains stable discharge performance at 150°C. The battery retains over 60% of its nominal capacity under these conditions, enabling power for sensing and communication devices in extreme heat environments.

IN DEPTH

Key Findings

FDK has confirmed the stable discharge operation of its "SoLiCell" SMD-type small oxide-based all-solid-state battery at temperatures reaching 150°C. In discharge tests where the battery was charged at 23°C and subsequently discharged at 150°C, the device maintained more than 60% of its nominal discharge capacity.

Technical Details

The SoLiCell is designed as a surface-mount device (SMD) compatible with reflow soldering. Its construction utilizes non-flammable materials and oxide-based ceramic sintered bodies. The battery provides a high output voltage of 3V and is characterized by high safety and environmental compatibility.

FDK continues to provide samples of two specific models:

- SCC4532K: Nominal capacity of 0.15mAh
- SCD4532K: Nominal capacity of 0.10mAh

Background and Context

There is a growing demand for small power sources capable of operating in high-temperature environments where conventional batteries fail, particularly for IoT devices used to monitor manufacturing equipment and other high-heat machinery. To address this, FDK has been expanding sample deployments of SoLiCell for various applications, including:

- Real-time clock (RTC) backup power
- IoT devices
- Energy harvesting equipment

Significance and Outlook

The verification of stable discharge at 150°C demonstrates that SoLiCell can serve as a viable power source for sensing and communication equipment operating in extreme thermal conditions. By combining a compact SMD form factor with high-temperature stability and a 3V output, the technology targets industrial niches where traditional battery chemistry is inapplicable.

Source: https://monoist.itmedia.co.jp/mn/articles/2611/05/news042.html

Collected: November 07, 2026 | Automated Research System (AI)

#04 ProLogium and Rimac: Solid-State Battery Specs and 2028 Roadmap

Published November 05, 2026 Electronic Design USA



OVERVIEW

ProLogium and Rimac Technology have presented a battery pack concept featuring a "superfluidized" inorganic solid electrolyte and an all-silicon anode. The system achieves a high activation utilization of 1,800 to 2,300 mAh/g and room-temperature ionic conductivity of 57 mS/cm. This collaboration targets the battery electric vehicle (BEV) market with public-road testing planned for the second half of 2028.

IN DEPTH

Key Findings

ProLogium and Rimac Technology showcased a battery pack concept mockup at the 2026 Paris Motor Show. The system integrates a "SF-Ceramion Superfluidized Inorganic Solid-State Electrolyte," a 100% ceramic separator, and an all-silicon anode. The composite silicon anode delivers an activation utilization of 1,800 to 2,300 mAh/g, which is nearly six times that of conventional graphite anodes.

Technical Details

The SF-Ceramion electrolyte combines the high ion concentration of solids with the interfacial contact properties of liquids. It achieves a room-temperature (25°C) ionic conductivity of 57 mS/cm—approximately 5X to 6X higher than liquid and sulfide-based solid electrolytes. At −20°C, it maintains 12.82 mS/cm with 90% to 95% discharge efficiency.

- **Safety:** The electrolyte is intrinsically non-flammable. An Active Safety Mechanism (ASM) stabilizes the cathode and transitions the anode to a ground state under extreme heat or high voltage to stop thermal runaway.
- **Separator:** The all-ceramic separator, made from inorganic oxides, remains electrically insulating at 300°C and maintains structural integrity at decomposition temperatures above 1,000°C.
- **Structural Architecture:** ProLogium uses "Logithium," a silicone-based frame adhesive, for mechanical strength and moisture resistance. The "Bi-cell" double-side thick-film technology reduces electrode stacking layers to improve gravimetric and volumetric energy density.

Background and Context

The partnership began with a Memorandum of Understanding (MOU) signed in September 2025 to develop a next-generation battery platform. The collaboration merges ProLogium’s cell technology with Rimac’s expertise in battery system development, specifically focusing on a pouch cell-to-pack architecture. Rimac is currently evaluating scalable integration solutions for thermal management, swelling management, and system-level design.

Significance and Outlook

The project is moving from a concept mockup to functional battery segments, which are scheduled for display at CES 2027 in Las Vegas. These segments will serve as the basis for testing thermal management and cell integration. Following these phases, the companies plan to conduct initial vehicle and public-road testing in the second half of 2028.

Source: https://www.electronicdesign.com/markets/automotive/article/55417119/electronic-design-new-battery-pack-concept-features-superfluidized-solid-electrol

Collected: November 07, 2026 | Automated Research System (AI)

#05 Anode-Free Sodium Batteries: 1,400-Cycle Stability via DOX

Published November 02, 2026 Nature Energy



OVERVIEW

A molecular electrolyte design using 1,3-dioxane (DOX) enables anode-free sodium batteries (AFSBs) to retain ~80% capacity after 1,400 cycles at 1 C. This strategy mitigates irreversible sodium loss by promoting reversible deposition and forming a robust solid-electrolyte interphase. The result is a high-energy-density storage solution capable of operating at -40 °C with 88% capacity.

IN DEPTH

Key Findings

Researchers have developed a molecular-level electrolyte design that significantly extends the lifetime of anode-free sodium batteries (AFSBs). Using 300-mAh-level AFSB pouch cells with a cathode loading of ~20 mg cm^{-2}, the system retains ~80% capacity after 1,400 cycles at 1 C. Additionally, the cells achieve a round-trip energy efficiency of up to ~98%, operate at rates up to 3 C, and maintain 88% capacity at -40 °C.

Technical Details

The performance gains are driven by the integration of the cyclic ether 1,3-dioxane (DOX) into the electrolyte. The mechanism operates on two levels:

- **Sodium Deposition:** The weak coordination of DOX with Na+ facilitates Na+ desolvation, which promotes highly reversible sodium deposition.
- **Interphase Formation:** Controlled DOX oligomerization creates a thin and robust solid–electrolyte interphase (SEI). This layer suppresses continuous electrolyte decomposition and stabilizes the plating and stripping of sodium.

Background & Context

Anode-free sodium batteries are viewed as a promising route toward low-cost, high-energy-density energy storage. However, their practical application has been historically limited by irreversible sodium loss during cycling. This study addresses these limitations by simultaneously promoting reversible deposition and suppressing the decomposition of the electrolyte through molecular design.

Significance & Outlook

By mitigating sodium loss and stabilizing the interface, this molecular electrolyte strategy provides a pathway to more durable AFSBs. The ability to maintain high capacity at extreme low temperatures (-40 °C) and achieve high round-trip energy efficiency suggests increased viability for diverse environmental conditions and high-energy-density applications.

Source: https://doi.org/10.1038/s41560-026-02154-y

Collected: November 07, 2026 | Automated Research System (AI)

#06 Anode-less ASSB: Dongguk University prototype and 235.13 Wh/L specs

Published November 05, 2026 ESS News South Korea



OVERVIEW

Researchers at Dongguk University have developed an anode-free all-solid-state battery (ASSB) prototype achieving a volumetric energy density of 235.13 Wh/L. By utilizing an ultrathin tin/carbon (Sn/C) interlayer and prelithiation, the team reduced lithium loss and improved interfacial stability. This architecture targets applications ranging from wearable electronics and IoT sensors to industrial-scale power.

IN DEPTH

Key Findings

Researchers at South Korea’s Dongguk University have produced an anode-free all-solid-state battery (ASSB) prototype that delivered a volumetric energy density of 235.13 Wh/L at the 100th cycle. The cell, which measures 2.77 micrometers in thickness, was tested at a cycling rate of 0.01 C. The prototype utilizes a lithium vanadium oxide (LVO) cathode and a lithium phosphorus oxynitride (LiPON) solid electrolyte.

Technical Details

The core innovation is an anode-less thin-film platform that replaces the conventional lithium-metal anode with an ultrathin tin/carbon (Sn/C) interlayer coated on a modified copper current collector. This interlayer functions as a seed for lithium nucleation, promoting uniform plating and reducing the formation of "dead" lithium and voids. Specifically, tin lowers the energy required to initiate deposition, while carbon ensures the lithium is distributed evenly.

To mitigate irreversible losses common in anode-free designs, the team implemented a "prelithiation" step, adding a small amount of metallic Li to the coated current collector before cycling. Microscopic analysis revealed that a three-dimensional structure of tin and lithium–tin alloy forms within the interlayer during the first deposition, which helps accommodate physical changes during subsequent cycles and maintains interface stability.

Background & Context

Solid-state batteries (SSBs) offer potential improvements in safety and energy density over traditional systems. However, they face significant hurdles, including high costs and manufacturing challenges. In stationary energy storage (BESS), SSBs struggle to displace lithium iron phosphate (LFP) batteries due to priorities regarding affordability and bankability. Technically, SSBs are often plagued by uneven lithium plating and stripping, which can lead to internal short circuits and accelerated degradation.

Significance & Outlook

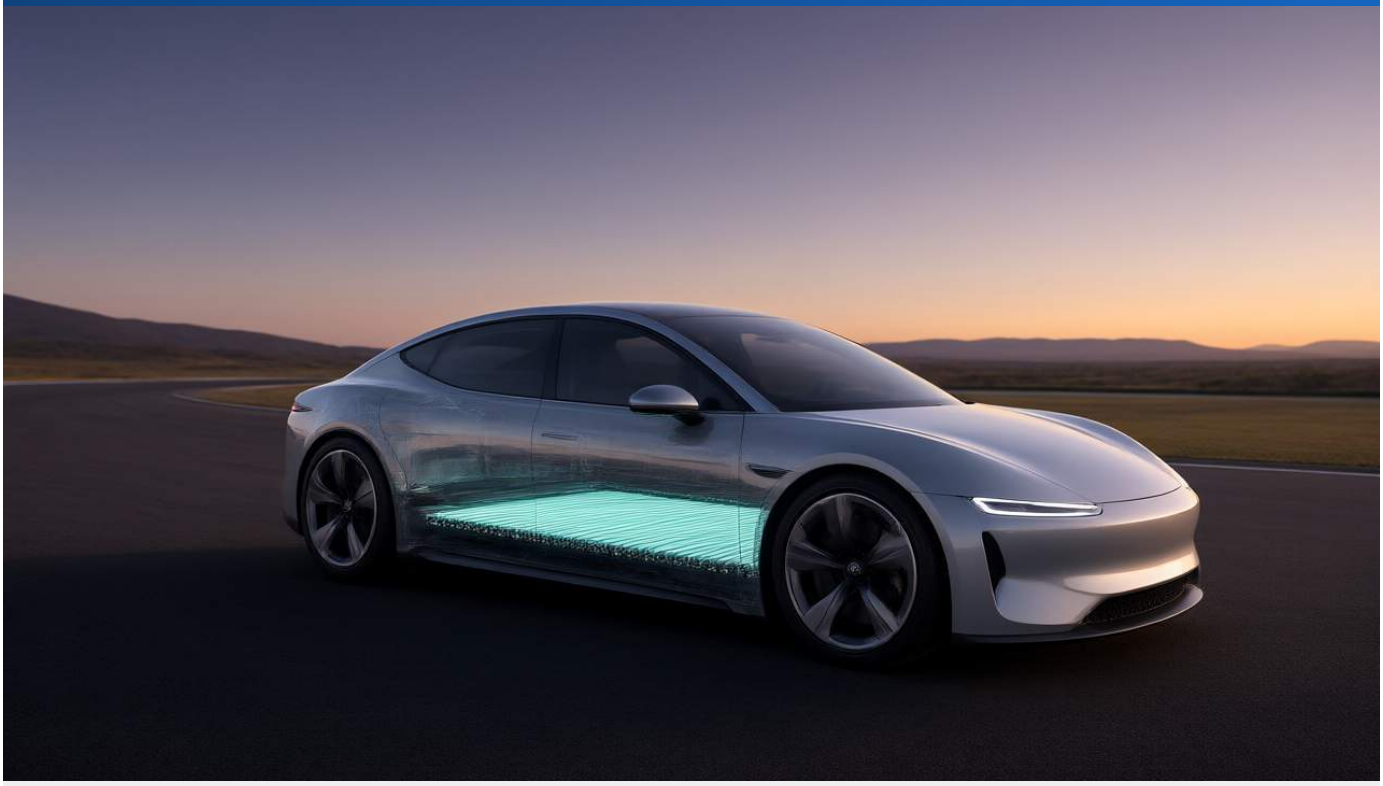
The research, published in *Advanced Energy Materials*, demonstrates that interface engineering and lithium-inventory management can overcome the stability issues of anode-less thin-film batteries. The authors suggest this approach is applicable to the development of ultrathin batteries for medical devices, IoT sensors, and wearable electronics, as well as scalable ASSBs for industrial power applications.

Source: https://www.ess-news.com/2026/11/05/korean-researchers-build-all-solid-battery-prototype-with-235-13-wh-l-energy-density/

Collected: November 07, 2026 | Automated Research System (AI)

#07 Sunwoda Polymer Solid-State Cells: 400 Wh/kg Specs and Roadmap

Published November 03, 2026 Battery-News Germany



OVERVIEW

Sunwoda is currently providing polymer-based solid-state battery cells to automakers for evaluation after completing design and process verification. The "Xin Bixiao" cell achieves an energy density of 400 Wh/kg and utilizes a silicon anode with a polymer-composite membrane.

IN DEPTH

Key Findings

Sunwoda Electric Vehicle Battery (SEVB), a subsidiary of Sunwoda Electronic, has confirmed that automakers are evaluating its polymer-based solid-state battery cells. According to a disclosure made on October 30 via the Shenzhen Stock Exchange's investor platform, the cells have already passed design and process verification. While the company has not named the specific automakers or the volume of samples provided, the cells are now in the evaluation phase.

Technical Details

The cell, designated as "Xin Bixiao," features a capacity of 20 Ah and an energy density of 400 Wh/kg. The technical architecture consists of a silicon anode paired with a 12-micrometer polymer-composite membrane. Performance data provided by Sunwoda includes:

- Cycle life: More than 1,200 cycles at an external pressure below 1 megapascal.
- Thermal stability: Successful completion of a 200°C (392°F) hot-box test.

Sunwoda has not disclosed the specific charging rates or temperatures used during the cycle tests, nor has it provided data on how these cell-level results translate to full vehicle battery performance.

Background and Context

Sunwoda's approach utilizes a polymer electrolyte, contrasting with sulfide-based designs—such as those pursued by CATL—which often require sustained external pressure to maintain component contact. CATL has recently reaffirmed a target for small-batch production of sulfide-based batteries in 2027.

Significance and Outlook

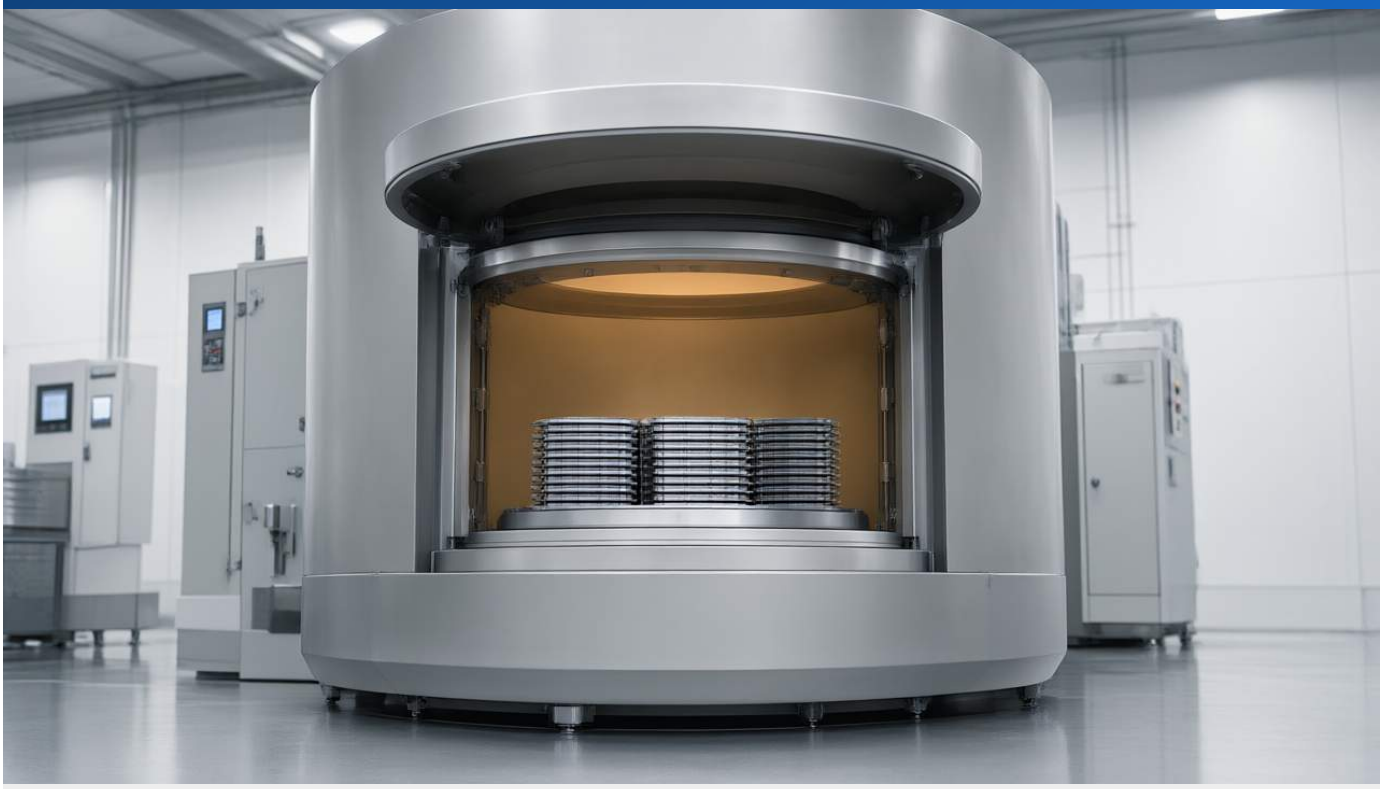
Sunwoda has established a solid-state pilot line with an annual design capacity of 0.2 GWh. Although the company previously planned mass production of 1 GWh for 2026 when the Xin Bixiao cell was first presented in October 2025, the latest update does not confirm this production start. The company's current roadmap indicates a shift toward a sulfide-based battery for 2027 and a target for cells exceeding 500 Wh/kg by 2030.

Source: https://battery-news.de/en/2026/11/03/sunwodas-400-wh-kg-polymer-solid-state-cell-under-automaker-evaluation/

Collected: November 07, 2026 | Automated Research System (AI)

#08 LEAD Intelligent: Warm Isostatic Pressing Specs for All-Solid-State Batteries

Published November 06, 2026 中国日报网 China



OVERVIEW

LEAD Intelligent has developed a horizontal warm isostatic pressing (WIP) system designed to solve densification challenges in all-solid-state battery mass production. The equipment achieves cell densities exceeding 95% using pressures up to 600MPa and temperatures up to 150°C, enabling GWh-level production capacity.

IN DEPTH

Key Findings

LEAD Intelligent is introducing its self-developed warm isostatic pressing (WIP) equipment at the 11th International Summit on Power Battery Application (CBIS2026) in Shanghai from November 19 to 21, 2026. The system is designed to address the "densification" bottleneck in all-solid-state battery production, specifically targeting the high contact resistance and material densification difficulties inherent in solid-solid interfaces.

Technical Specifications

The horizontal WIP equipment provides three-dimensional uniform pressure based on Pascal's principle. Key technical indicators include:

- **Pressure and Temperature:** Maximum pressure of 600MPa within a temperature range of RT to 150°C.
- **Precision:** Temperature control accuracy of ±2°C and pressure control accuracy of ±2%.
- **Performance:** Capable of increasing cell density to over 95%.
- **Capacity:** Working cylinder dimensions of 400mm (inner diameter) by 4000mm (effective length), with a chamber volume of approximately 500L.
- **Efficiency:** Initial heating to 150°C takes 3 hours.

The system integrates a triple deformation real-time monitoring system, automatic pressure compensation, and emergency pressure relief. To support GWh-level production, the equipment features a horizontal cylinder with automated loading/unloading, hot air preheating, cold air cooling, and automated fixture circulation to minimize manual intervention.

Background and Context

Industry analysts suggest that 2026 to 2027 will be a critical window for the implementation of all-solid-state battery demonstration lines and mass production process verification. Unlike liquid lithium batteries, all-solid-state batteries face engineering hurdles such as uneven interface contact and electrode displacement during scaling. WIP is identified as a cost-effective path to balance densification effects, production efficiency, and manufacturing costs.

Significance and Outlook

LEAD Intelligent has established a full-process equipment layout covering electrode preparation, electrolyte membrane preparation, cell fabrication, stacking, isostatic densification, and high-voltage formation. By integrating "temperature-pressure precision coupling," the company aims to eliminate cell voids and compress solid-solid interfaces while preventing material fracture and electrode displacement.

Source: https://cnews.chinadaily.com.cn/a/202611/06/WS6aed84ebe4b0e14252fc99c1.html

Collected: November 07, 2026 | Automated Research System (AI)

#09 Zhongke Yuanben: Sulfide All-Solid-State Battery Specs and 2027 Roadmap

Published November 06, 2026　砍柴网（搜狐揭載）　China



OVERVIEW

Zhongke Yuanben has developed a large-scale sulfide all-solid-state battery achieving a 12-minute fast charge and energy density exceeding 300 Wh/kg. The technology has completed real-vehicle power tests in a small electric vehicle, shifting the industry focus from laboratory parameters to automotive-grade performance.

IN DEPTH

Key Findings

Zhongke Yuanben has successfully addressed the dual bottleneck of high energy density and high-rate charging for large-scale all-solid-state batteries. The company's sulfide-based battery samples have passed third-party testing with an energy density greater than 300 Wh/kg and capacities ranging from 20 Ah to 60 Ah. Most notably, the company achieved a 12-minute fast charge for large pouch cells, with a charge specific capacity of 90 mAh/g.

Technical Details

To overcome rate performance limitations typically caused by anode materials, the technical team implemented an "Electronic-Ion Collaborative Conductive Network" (EICN) design. This approach led to the development of a proprietary multi-element lithium alloy anode. Technical benchmarks include:

- **Ultra-fast charge:** A complete charge-discharge cycle at a 50C rate in 72 seconds at 55 degrees Celsius.
- **Cell Form Factor:** The 12-minute fast charge was demonstrated on automotive-grade large pouch cells measuring 25 cm × 14 cm, produced on a real production line rather than in a laboratory mold.
- **Manufacturing:** The multi-element lithium alloy anode is produced using a wet-process mass-production method, utilizing existing equipment systems.

Background and Context

The development marks a transition from "laboratory data" to "automotive-grade comprehensive performance." The battery has been integrated into a small electric vehicle for the first time in China to complete real-vehicle power tests, meeting the requirements of actual driving conditions. This closes the loop from material innovation and process mass production to full-vehicle verification.

Significance and Outlook

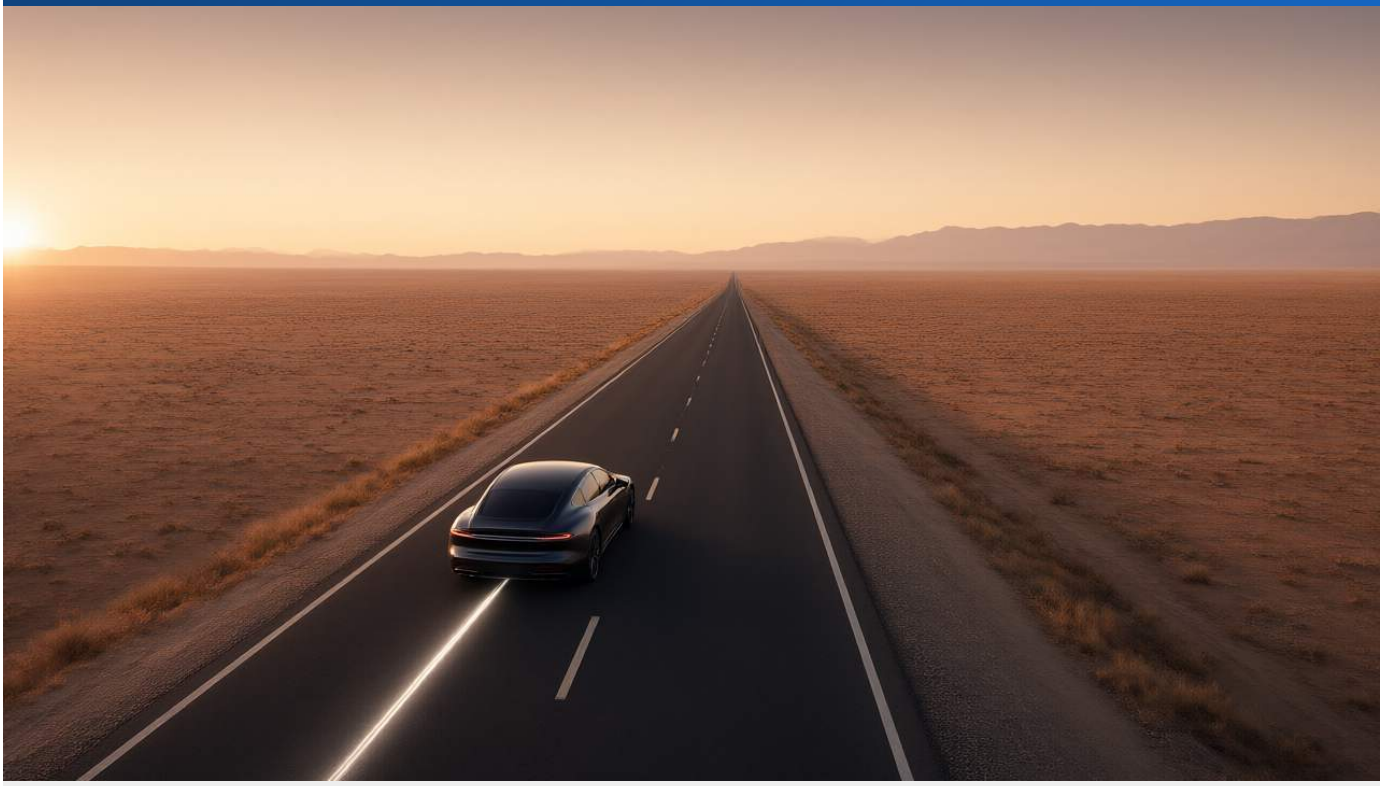
Zhongke Yuanben intends to build a 100 MWh pilot production line by 2027. The company plans to further validate automotive-grade requirements regarding higher capacity, higher rates, and longer cycle life. This milestone establishes a replicable industrial coordinate for the commercialization of sulfide all-solid-state batteries and "minute-level" charging in the electric vehicle sector.

Source: https://www.sohu.com/a/1098140900_104421

Collected: November 07, 2026 | Automated Research System (AI)

#10 Factorial Energy: Solid-State Battery Roadmap and OEM Partners

Published November 02, 2026　Autoweek（AOL掲載）　USA



OVERVIEW

Factorial Energy is advancing from semi-solid-state to fully solid-state batteries, with a recent Mercedes-Benz EQS test achieving a 748-mile trip on a single charge. The company targets production-ready 100 percent solid-state cells by the end of the decade to reduce battery weight by 50 percent.

IN DEPTH

Key Findings

Factorial Energy has demonstrated the viability of its battery technology through a real-world test with Mercedes-Benz. An electric EQS sedan traveled 748 miles from Stuttgart to Malmö on one charge, leaving 85 miles of range remaining. According to Mercedes, the Factorial pack delivered a 25 percent increase in range compared to a li-ion pack of the same size and weight.

Technical Details

The company utilizes a two-stage technology path:

- **FEST Cells:** Semi-solid-state lithium-metal cells using a gel-like substance instead of standard liquid electrolytes, achieving up to 391 wh/kg. These are expected in Karma production cars late next year.
- **Solstice Cells:** Fully solid-state, zero-liquid cells utilizing a proprietary dry coating process to achieve 450 wh/kg. Production-ready versions are expected by the end of the decade.

Factorial notes that solid-state cells are 80 percent similar to liquid-electrolyte cells and can be produced on the same assembly lines. The Solstice cells specifically replace liquid with a ceramic electrolyte.

Background & Context

Founded by Dr. Siyu Huang and Dr. Alex Yu (both Cornell graduates), Factorial was spun out of Lionano in 2019. Now a public company listed on NASDAQ with an initial valuation of $1.3 billion, Factorial has partnered with Mercedes-Benz, Karma, Stellantis, Volkswagen (via PowerCo SE), and Hyundai. These partners represent 40 percent of the global auto industry outside of China. To scale manufacturing, Factorial has signed agreements with Korean firms including Mitsui Kinzoku, SK On, Philenergy, and Posco Future M.

Significance & Outlook

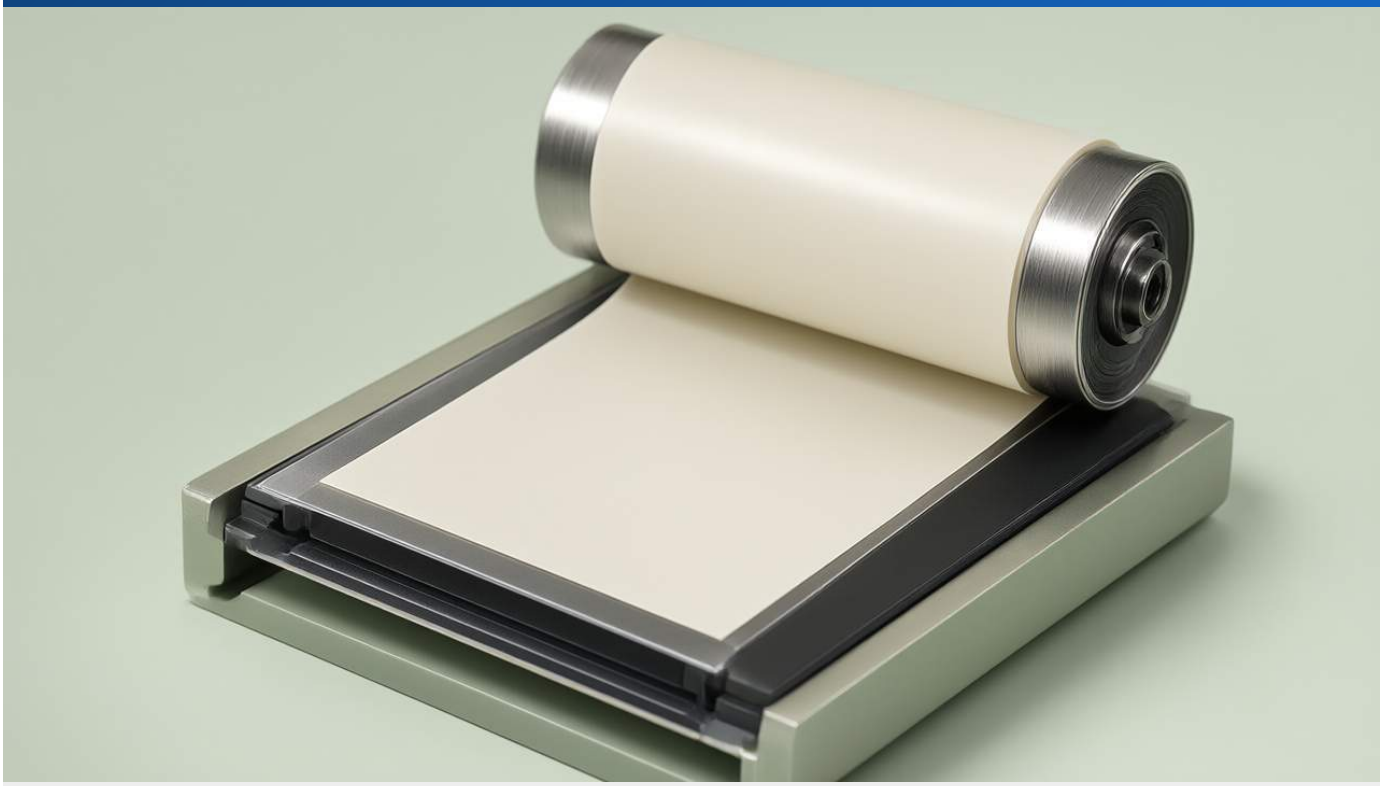
While Factorial aims for late-decade production, industry analysts suggest that high-volume solid-state adoption may not occur until 2030. The technology addresses critical safety issues, specifically thermal runaway associated with high energy density in traditional li-ion batteries. Beyond automotive applications, Factorial has secured drone orders through partnerships with KULR, Tulip Tech, and JRES, and identifies data centers as potential future clients.

Source: https://www.aol.com/articles/factorial-thinks-finally-solid-state-195852000.html

Collected: November 07, 2026 | Automated Research System (AI)

#11 KRICT Transfer Printing: Oxide Hybrid Solid Electrolyte Specs

Published November 04, 2026 Newswise（National Research Council of Science and Technology） South Korea



OVERVIEW

Researchers at KRICT have developed a "sticker-like" transfer printing process to fabricate thin, uniform oxide hybrid solid electrolyte layers for solid-state batteries. The method achieves a 15 μm thickness over a 120 cm² area, significantly improving capacity retention and thermal stability compared to direct coating.

IN DEPTH

Key Findings

The Korea Research Institute of Chemical Technology (KRICT) has successfully fabricated a uniform solid electrolyte layer with an average thickness of 15 μm and a deviation of approximately 1 μm over an area of 120 cm^2 (6 × 20 cm). In pouch-cell tests, the transfer-printed cell retained 83.6% of its capacity after 100 charge-discharge cycles, whereas cells produced via direct coating retained only 36.1%. Additionally, the transfer-printed cell maintained stable voltage at 150°C for 2 hours and 30 minutes, while conventional PE separator-based cells suffered internal short circuits after approximately 10 minutes.

Technical Details

The team utilized a garnet-type oxide solid electrolyte (LLZTO). Unlike direct coating, where slurry can infiltrate porous electrodes and cause deformation, the transfer printing method involves coating and drying the slurry on a PET-PDMS substrate. The resulting thin layer is then pressure-laminated onto the electrode using a roller. To optimize the process, researchers used Hansen solubility parameters (HSPs) to quantify material affinity:

- **Coating step:** High-affinity combinations were selected to ensure uniform spreading.
- **Transfer step:** Low-adhesion combinations were selected to ensure clean detachment from the substrate.

The resulting hybrid solid electrolyte achieved an ionic conductivity of 2.83×10^{-4} S/cm at 25°C and a Li^+ transference number of 0.69.

Background & Context

High energy density in solid-state batteries requires electrolyte layers thinner than 20 μm. However, freestanding films typically require 70–120 μm to prevent tearing, and direct coating often results in nonuniform thickness (ranging from 10 to 25 μm in the KRICT study over a 6 × 11 cm area).

Significance & Outlook

This quantitative design principle reduces reliance on trial-and-error experimentation. KRICT suggests that combining HSP data with actual coating and transfer results could enable future AI-based prescreening of candidate materials. The study was published in *Advanced Functional Materials* in September 2026.

Source: https://www.newswise.com/articles/krict-develops-oxide-hybrid-solid-electrolytes-using-sticker-like-transfer-printing

Collected: November 07, 2026 | Automated Research System (AI)