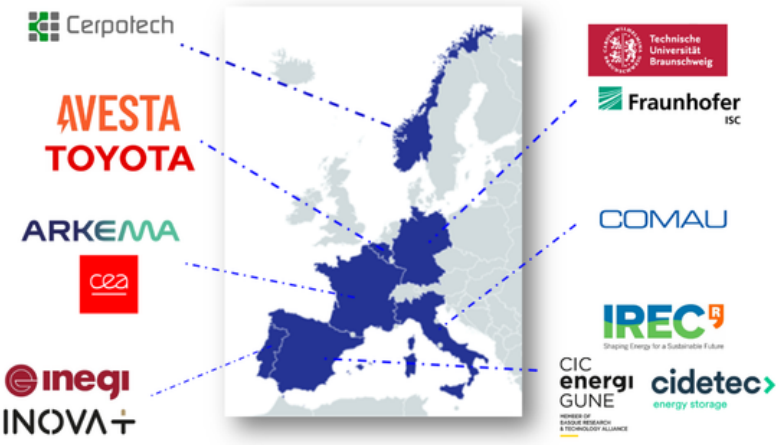
SPINMATE

Scalable and sustainable Pilot line based on INnovative MAnufacturing TEchnologies towards the industrialisation of solid-state batteries for the automotive sector

SPINMATE 7TH NEWSLETTER

July 2026



This newsletter will keep you informed about the project progress, research findings, and upcoming events. We will also share online initiatives to continuously promote the partners contributions, as well presenting the impact of our work on the broader scientific community.

SPINMATE CONSORTIUM

SPINMATE is a Horizon Europe project with 13 partners distributed among 7 countries, together with a mission to demonstrate a scalable, sustainable, safe, and cost-effective digital-driven proof-of-concept pilot line, at a Technology Readiness Level 6, as a first step towards the large-scale manufacturing of generation 4b (Gen 4b) SSB cells and module, to support the electrification of the automotive sector.

🚀 Missed some SPINMATE events? Watch the full recordings now!

🔹 **SPINMATE Hybrid Event**

This hybrid event, hosted by Technische Universität Braunschweig, was centred on the theme "**Shaping the Solid-State Era**: **Intelligent Manufacturing**, **Dry Electrode Breakthroughs**, **Safety-Driven Cell Qualification**, **and Sustainability**".

🔗 Don't miss out! Watch the full recording here

LATEST UPDATES

REACHING A COMMUNICATION MILESTONE:

1000 FOLLOWERS ON LINKEDIN!

The Solid4B Cluster LinkedIn account has reached 1,000 followers, marking an important milestone in the cluster's ongoing efforts to build a shared communication space for European battery innovation.

This achievement reflects the value of a consistent and curated communication strategy and highlights the importance of collaboration between projects working under shared themes. By bringing together projects with complementary expertise, the Solid4B Cluster supports greater coordination and helps maximise the visibility and impact of project results.

Thanks to this collaboration, the SPINMATE page has achieved over 650 followers on its own account, which we trust to continue to grow with the development of the project.

TWO MORE PARTNERS ADDED TO THE SOLID4B CLUSTER

The Solid4B Cluster is pleased to welcome HyLiST and FUNCY-SSB to its growing network of European projects working to advance the battery ecosystem. Their participation further strengthens the cluster's role as a space for collaboration, knowledge exchange and alignment between initiatives addressing key challenges across the battery value chain.

HyLiST
Hybrid Lithium Metal-based Scalable Solid-State Battery Manufacturing

FUNCY SSB

Through this collaborative approach, the Solid4B Cluster aims to amplify results beyond individual project activities and contribute to a more connected, resilient and innovation-driven European battery value chain.

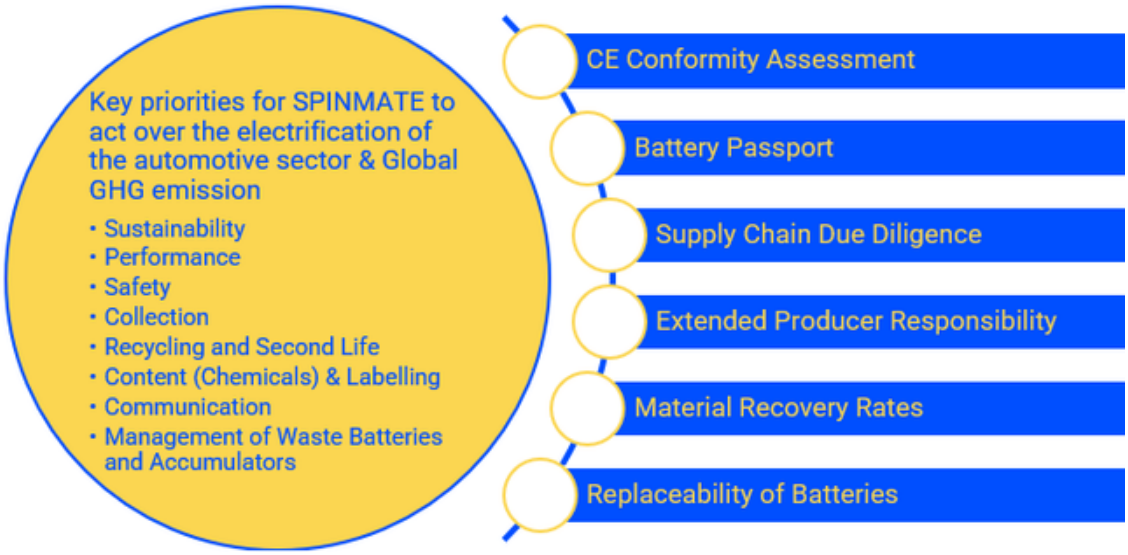
SOLID4B
Going solid for safer batteries

SPINMATE
ADVAGEN
HIDDEN
SOLiD
AM4BAT
PULSELION
SEAT BELT
PSIONIC
SOLVE
SPRINT
STELLAR PROJECT
ANGeLiC
SOLIDBAT
TALISSMAN

LATEST UPDATES

ADVANCES IN STANDARISATION

Standardisation is essential to developing the electric vehicle market, especially in battery design, production, performance assessment and end-of-life management. By aligning with European and international regulations, SPINMATE supports a more sustainable battery lifecycle, from eco-design and manufacturing to disassembly, recycling and second-life use.



Standards Applicability & EU Battery Regulation (Regulation 2023/1542)

This is particularly relevant for Solid-State Batteries, where new materials and production methods require consistent testing and evaluation. SPINMATE is developing self-defined standards for areas such as adhesive strength, mechanical performance and environmental impact, helping to support future standardisation and technology comparison.

The project also promotes more sustainable and digitalised production by improving mechanical joints and data connection interfaces. This enables battery packs to be more easily disassembled, repaired, reused or recycled, strengthening circularity and supporting wider industry adoption.

These advancements were presented at the **Battery2030+ Annual Conference** by **INOVA+**, showcasing SPINMATE'S its contribution to standardisation, sustainability and innovation in the development of next-generation Solid-State Batteries for the European electric vehicle sector.

The poster content is available on SPINMATE's Zenodo.

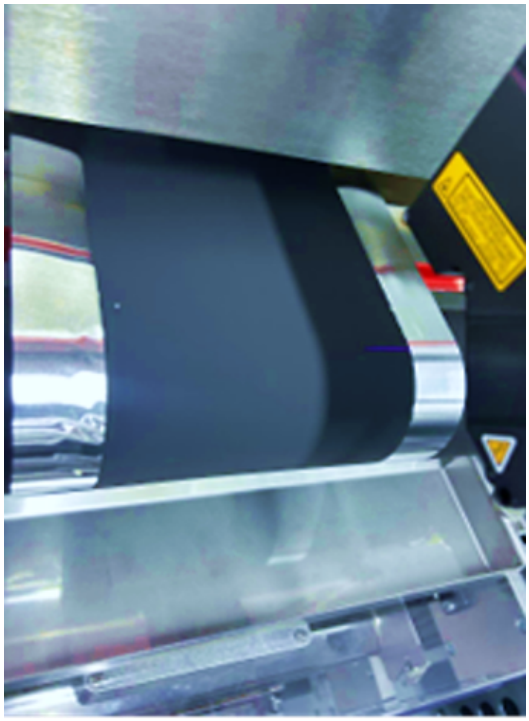
SEMESTRAL HIGHLIGHTS

MATERIAL PROCESSING ADVANCES TOWARD INDUTRIAL SCALE-UP

Trials on the first generation of lithium metal equipment integrated into the project have substantially deepened our understanding of process capabilities and current limitations. This work has been instrumental in identifying key improvement areas, directly informing the design and development of a next-generation system with enhanced safety, improved processability, and increased throughput.

At the same time, **AVESTA** has achieved stable and reproducible cathode production through pilot line activities, despite material-related challenges.

Collaboration with **COMAU** ensures these processes remain compatible with the project's semi-automated assembly solutions, supporting the move toward industrially relevant solid-state battery manufacturing.



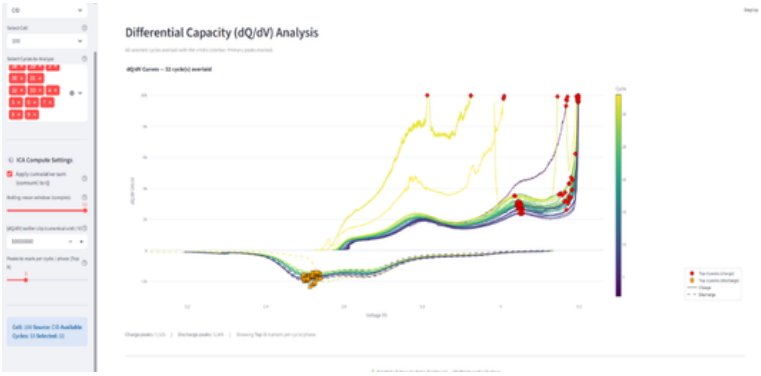
BRIDGING LABORATORY-SCALE R&D AND PROTOTYPE PRODUCTION

A semi-automatic assembly station was designed for high-precision manipulation of delicate components such as ultra-thin electrodes, lithium, and solid membranes. Vacuum-based handling, a dedicated stacking stage, and a high-speed vision system enable real-time defect analysis and precise electrode alignment during stacking.

SEMESTRAL HIGHLIGHTS

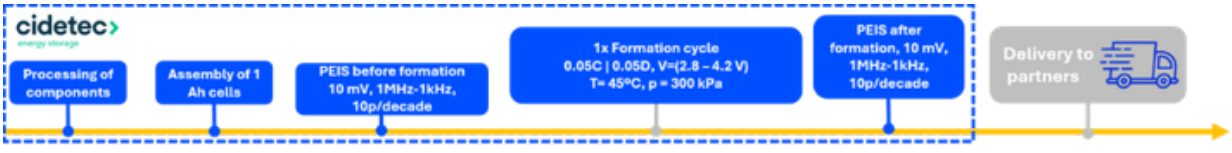
DEVELOPMENT OF A DATA ANALYSIS TOOL

An analytical tool was designed to harmonise heterogeneous data from diverse cell testing hardware via a highly flexible, configurable ingestion engine. The software automatically populates a structured feature store with high-fidelity, cycle-by-cycle indicators, unlocking critical actionable insights for battery experts. Beyond generating static lifetime health summaries for individual cells, the tool features two interactive comparative dashboards for multi-cell comparative analysis. Crucially, a built-in feature extraction block compiles these cycle-level trends into machine-learning-ready datasets. This creates a fully interpretable ML pipeline tailored for Early Quality Classification and Battery Cycle Life Prediction, giving production teams a powerful lever to boost throughput, guarantee cell quality, and optimise manufacturing processes.



PROGRESS IN THE ASSEMBLY AND FORMATION OF 1 AH POUCH CELLS

Following the processing of the cell components, 1 Ah quasi-solid-state pouch cells have been assembled and are currently undergoing the first stages of electrochemical validation. After post-formation impedance measurements, the cells are shipped to the project partners for the next stages of testing and validation. This milestone marks an important step towards the collaborative evaluation of SPINMATE's quasi-solid-state battery technology.



SEMESTRAL HIGHLIGHTS

RECYCLING EFFICIENCY OF RECOVERING NI FROM CAM

Recent experiments have demonstrated the feasibility of recovering a nickel-based complex through a precipitation-based process. These tests have achieved recovery efficiencies of around 80%, showing promising potential for improving resource efficiency and circularity in battery systems.
Ongoing work is focused on optimising the recovery processes and extending the approach to additional materials, contributing to the development of more sustainable recycling routes for solid-state batteries.

SOLID4B CLUSTER AT THE RTR CONFERENCE 2026

The SPINMATE project, through the Solid4B Cluster, was showcased as a booth exhibitor at the RTR Conference 2026, held from 10–12 February 2026, with representation from AVESTA and INOVA. The event brought together a diverse audience of industrial stakeholders and academic researchers, providing an excellent platform for networking, knowledge exchange, and dissemination of project results. SPINMATE also had the privilege of exhibiting alongside the BEPA booth, which further enhanced the project's visibility and facilitated valuable interactions with key players in the European battery ecosystem.

BATT4EU SUCCESS STORY

The project's dissemination activities continued with its participation in the 5th BATT4EU Success Story Webinar organised by BEPA on 21 April 2026. The SPINMATE presentation was delivered by the project coordinator, Rahmandhika Firdauzha Hary Hernandha.

The webinar highlighted the progress, achievements, and success approaches of three innovative projects: PULSELiON, SPINMATE, and SOLiD. Through this platform, the projects were able to share their technological developments, lessons learned, and contributions to strengthening Europe's battery value chain. The presentation attracted strong interest from both industry and academia, leading to numerous insightful questions and engaging discussions during the Q&A session.

Presentation available through the SPINMATE Zenodo repository. The full webinar recording can also be accessed via the BEPA YouTube channel.

INEGI AT THE TRA CONFERENCE

INEGI participated in the Transport Research Arena (TRA) conference with the poster “Integrating Life Cycle Assessment into the early stages of solid-state battery design: the impact of material sourcing” authored by Inês Ribeiro with contributions from the project team.

This work studies how material sourcing strategies influence the environmental performance of solid-state batteries, comparing the use of primary raw materials with recycled inputs.
In particular, the study explores scenarios aligned with the targets defined in the European Battery Regulation for recycled content (e.g. Li: 12%, Ni: 15%, Co: 26%, Mn: 15%), assessing how incorporating these levels of recycled materials can impact the overall sustainability performance of battery production.

PUBLICATION AND SPE XIX CONFERENCE

The full publication is available in Zenodo

CIC energiGUNE presented recent results from SPINMATE work at the ISPE XIX Conference, held in San Sebastián from 1 to 5 June 2026. The presentation was linked to a recent publication by CIC energiGUNE, Arkema and CIDETEC, which explores solvent-free processed solid polymer electrolytes based on PVdF-HFP and PEO blends. The study characterised the physicochemical properties of these solid polymer electrolytes and assessed their electrochemical performance. This work contributes to the further development of solvent-free processing routes for solid polymer electrolytes, supporting SPINMATE's broader efforts to advance safer, more sustainable and high-performance battery technologies.

SPINMATE & SOLID4B CLUSTER AT PSIONIC PROJECT FINAL EVENT

As a recent highlight, the Solid4B Cluster, represented by the SPINMATE project coordinator, was invited to participate in the PSIONIC Project Final Event held in Brussels, Belgium, on 23 June 2026. During the event, AVESTA presented the SPINMATE project's and the Solid4B Cluster's perspectives on the future of solid-state battery development in Europe, drawing on the experiences, achievements, and ambitions of the projects within the cluster. Furthermore, AVESTA took part in an engaging panel discussion alongside PSIONIC consortium partners, including Blue Solutions, the National Institute of Chemistry Slovenia, Politecnico di Torino, ACCUREC, and Specific Polymers. The talk show session, moderated by the Head of Advocacy of Energy Storage Europe, lasted more than 60 minutes and featured insightful exchanges on the challenges, opportunities, and future directions of solid-state battery technologies, further strengthening collaboration and knowledge sharing across the European battery research community.

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SPINMATE

One step forward to a greener and safer driving

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