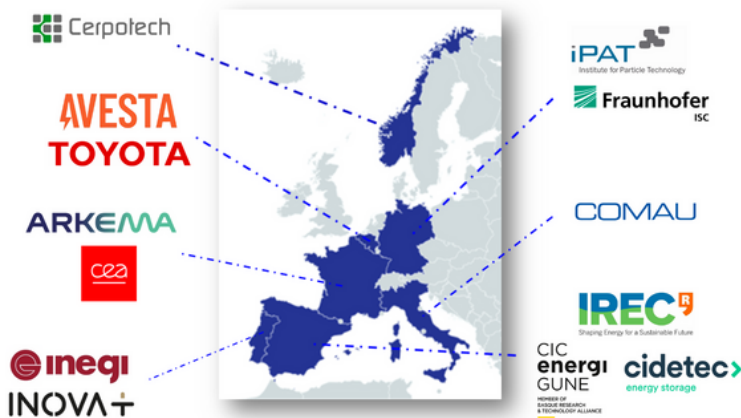


SPINMATE

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

SPINMATE 4TH NEWSLETTER

MARCH 2025



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.

Missed the First SOLID4B Cluster Webinar? The Recording is Now Available!

If you missed the highly anticipated session titled "Lithium Metal Anode Production Methods: State of the Art, Challenges, and Future Perspectives" you can now revisit it on SPINMATE's YouTube Channel.

The webinar explored advanced vapor-based techniques, electrodeposition, and industrial-scale production, with insights from companies like ADVAGEN, HIDDEN, SPINMATE, and more, followed by a roundtable on the pros and cons of different production methods.

 Don't miss out! [Watch the Full Webinar](#)

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.

LATEST UPDATES

SPINMATE partners have been actively engaging with the battery innovation community, presenting groundbreaking advancements in solid-state battery technology at major industry events. From high-level conferences to collaborative networking sessions, our team has shared key research insights, strengthened partnerships, and contributed to discussions on the future of energy storage and sustainable mobility. Here's a look at some of the key events where SPINMATE made an impact:

BATTERY INNOVATION DAYS & BEPA TECHNOLOGY BROKERAGE EVENT 2024

26-27 NOVEMBER & 28TH NOVEMBER 2024

SPINMATE was represented by Marie Rose Youbi Kemmogne (AVESTA) who presented SPINMATE's work on computational modelling for electrode manufacturing, developed with the Solid4B Cluster. The research showcased how coarse-grained molecular dynamics (CGMD) can optimize battery production, cut costs, and accelerate progress, advancing more efficient and sustainable manufacturing.



RTR CONFERENCE 2025

11-13 FEBRUARY 2025

SPINMATE got highlighted to the center stage at the RTR Conference 2025, a key event gathered most of the EU-funded road transport projects. With over 400 participants, it showcased the real-world impact of Horizon 2020 and Horizon Europe initiatives. Rahmandhika Firdauzha Hary Hernandha (AVESTA), SPINMATE's coordinator, highlighted the project's role in advancing safer, more efficient, and sustainable battery technologies. As the project initiator of the Solid4B Cluster, SPINMATE contributed to discussions on intelligent transport and clean mobility, reinforcing the importance of collaborative innovation for a greener future.

Solid4B cluster works to enhance research synergies among the European-level projects working on solid state batteries, translating research data into valuable knowledge for diverse stakeholders. This cluster was built to synchronize and conjointly promote the R&D topics in the electric vehicle field.

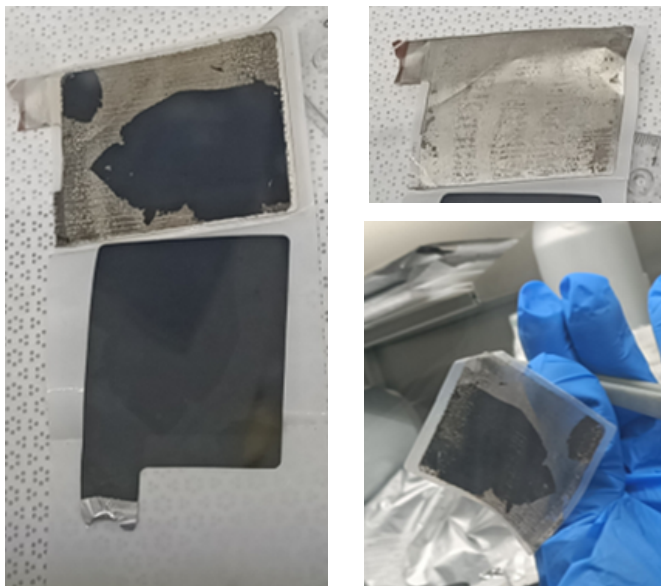
SOLID4B

Going solid for safer batteries



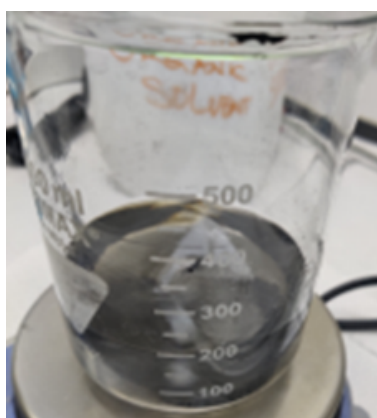
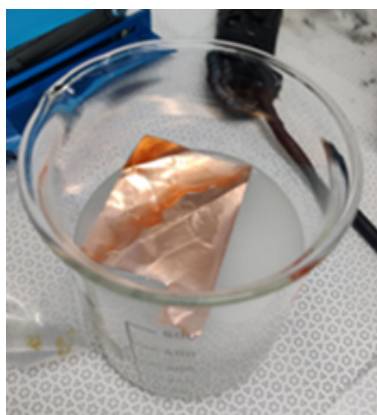
SEMESTRAL HIGHLIGHTS

Preliminary Disassembly of the SPINMATE Cell



The recycling team from **AVESTA** (former ABEE) has successfully conducted the preliminary disassembly activity for the SPINMATE cell. From the above images, it shows the disassembly process is pretty easy. It is thanks to the maturity of battery components manufacturing and the well-prepared assembly towards the sustainable disassembly process. The NMC811 cathode on Al foil and Li-metal anode on Cu foil looks clean and neat. However, there is some attached NMC811 on the SPE surface.

Moreover, the process that continued to the separation (or dissolution) of Li-metal anode from Cu foil and the separation of NMC 811 from the SPE in the controlled inert atmosphere successfully presented the progress in the SPINMATE project towards sustainable recycling activity. Of note, the appearance of the SPE changed from transparent gel-like to white plastic sheet-like, so it will be easy to notice and proceed to further recycling treatment.



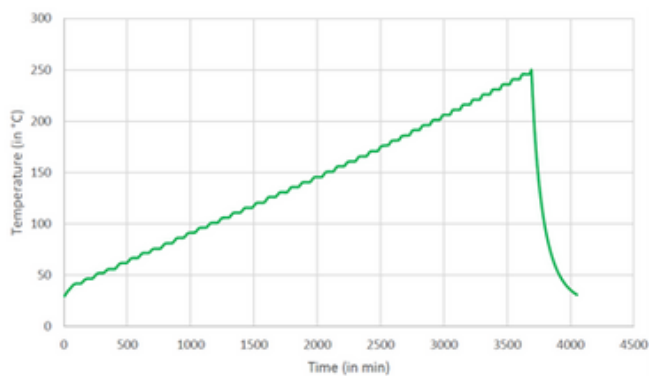
SEMESTRAL HIGHLIGHTS

Safety abusive tests on monolayer cells

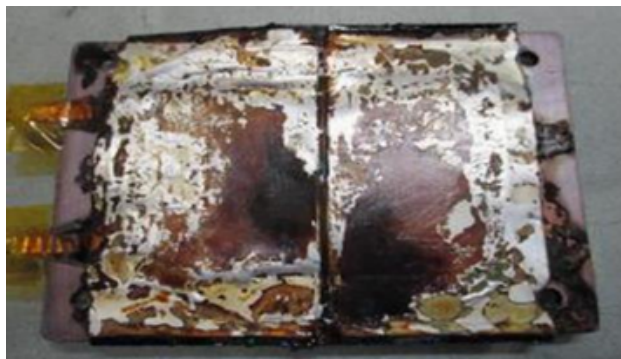
The abusive tests consist of heating the cells up to a high temperature (max 250°C) to analyse their behaviour under extreme thermal conditions.

- One cell was tested in an open-air reinforced box with several cameras, and the same test was replicated with an aged cell.
- Another new cell was tested in a closed Accelerating Rate Calorimeter (ARC), which controls the temperature increase step by step and detects even small temperature rises, indicating if the cell enters a self-heating state that could lead to thermal runaway.

For all these tests, the cells were charged, compressed with plates, and equipped with sensors to monitor temperature, voltage, and current. The results showed that the cells swelled due to increased internal gas pressure. A few small holes appeared around the edges of the envelope sealing, with occasional limited fume generation. The varnish on the cell's pouch melted due to heat exposure, but no flames were observed.



Cell temperature during the 'ARC' test

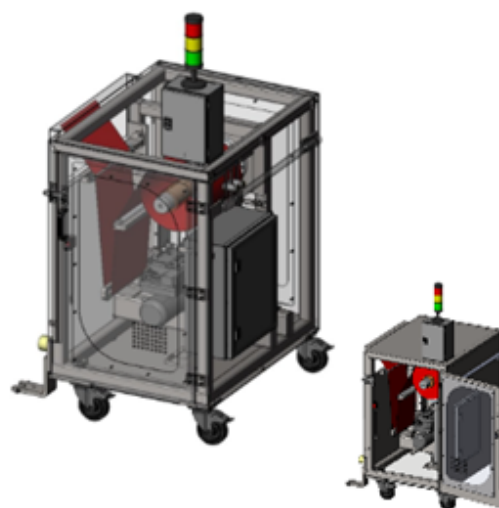


Cell at the end of the 'ARC' test

As a result, no thermal runaway was detected in any of the three tests, demonstrating that the monolayer cells behaved as expected, which is typical for small cells with limited capacity and a design that maximizes exchange surface. These findings will need to be confirmed at a larger scale later in the project with 1 Ah cells.

COMAU is currently developing and delivering tools (vacuum pad for metallic lithium and solid electrolyte handling as well as BOPP protective film unwinder) to upgrade existing equipment for the use in the manufacturing of the cell technology planned for SPINMATE.

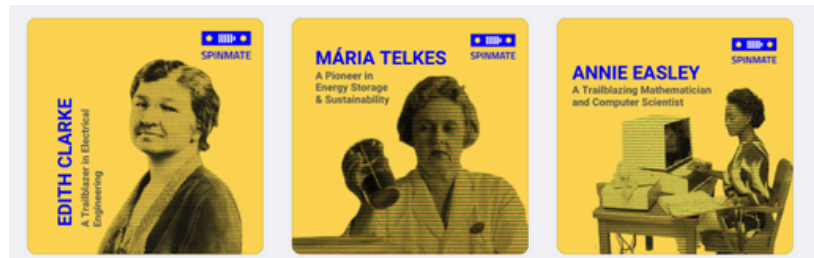
Meanwhile, COMAU is leading the creation of data-driven models, starting from the data collection process, gathering information about materials and cell production, laying the groundwork for the digitalization at process level with the ultimate goal of achieving full-line digitalization.



CELEBRATING WOMEN IN THE ELECTRIC VEHICLE INDUSTRY

Women have long played a pivotal role in transforming the EV landscape - from the early pioneers who made breakthroughs in lithium battery technology, to today's trailblazers working on solid-state batteries, EV infrastructure, and energy policy.

In celebration of International Women's Day on March 8th, SPINMATE proudly honoured the incredible women and visionaries who have shaped the EV industry. We spotlighted the historical contributions of women who revolutionized battery technology, sustainable mobility, and energy policy, revolutionising the EV world.

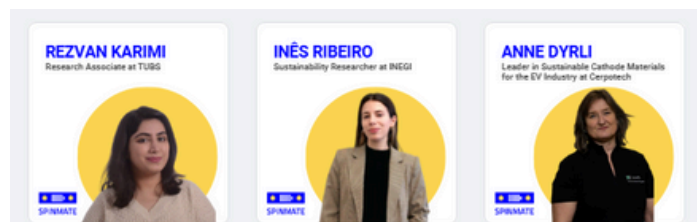
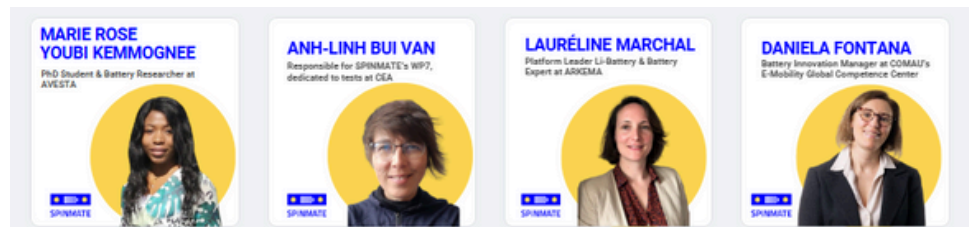


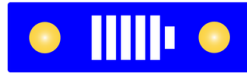
March Spotlight

INOVA+ is responsible for implementing the communication and dissemination activities in SPINMATE - conducted an initiative highlighting historical women and the women that have strongly contributed to the project



In parallel, the female team members of SPINMATE who have been instrumental in the success of our project will be in the spotlight. These women have made a significant impact on the development and progress of SPINMATE, driving innovation and pushing the boundaries of energy storage and battery technology. Their contributions have been invaluable, and we are proud to showcase their efforts with our community.





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SPINMATE

*One step
forward to a
greener and
safer driving*



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