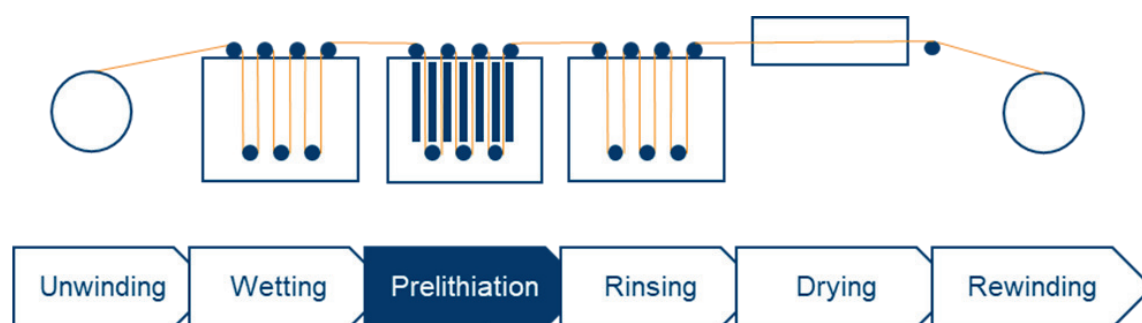
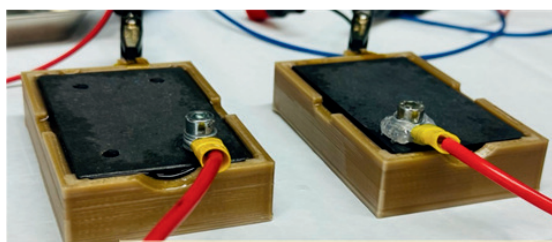


ELECTROCHEMICAL PRE-LITHIATION



Machine prelithiation

- Single sheet
- Roll-to-Roll process



Bath prelithiation (Lab scale)

Lead:



Partners:



Overall Goal

Prelithiation: Introducing active Li reservoir before cell assembly

- Improve coulombic efficiency and lifetime compared to non-pre-lithiated cells.
- Compensate active lithium loss during initial cycle so that lead to higher energy-density.

Contact for Further Information

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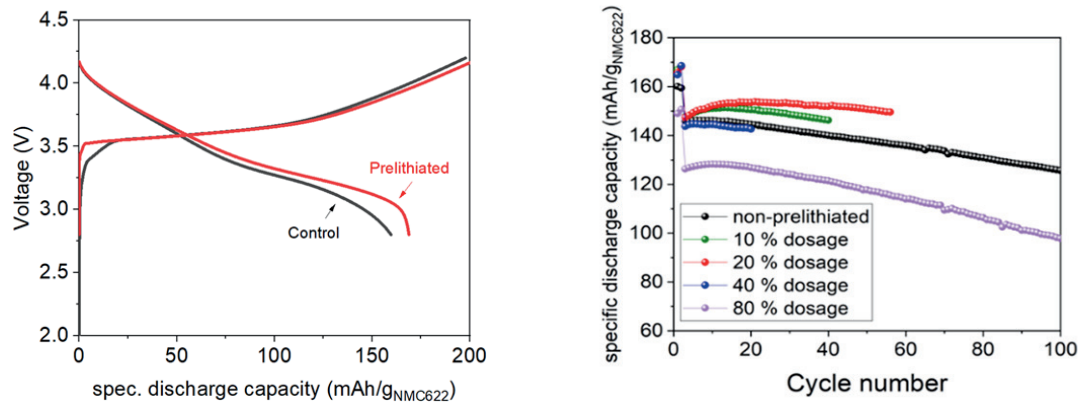
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ELECTROCHEMICAL PRE-LITHIATION



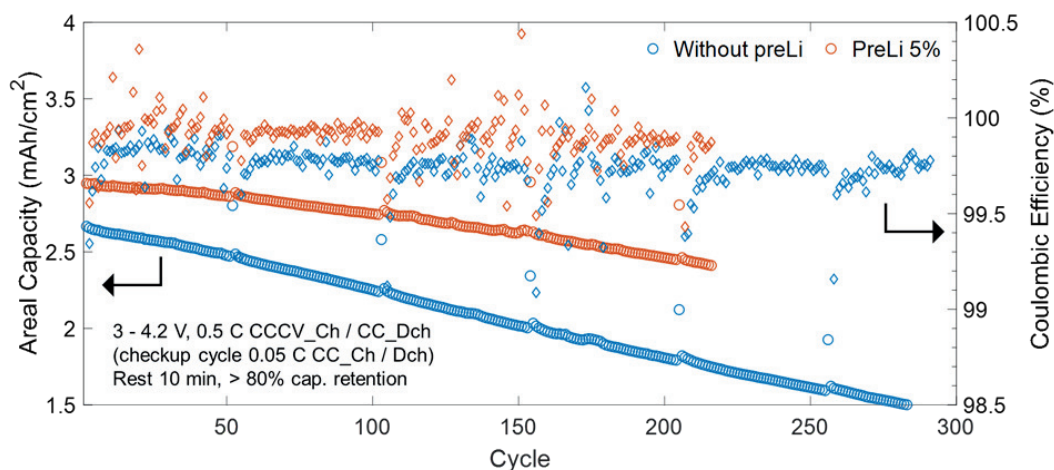
Si/C Composite Anode

- Optimised wet-coating anode with high Si content
- **Results and Summary:** Capacity and lifetime improvement with optimised prelithiation dosage
- **Future Outlook:** Scale up from coin-cell to pouch-cell after pre-lithiation



Pure Si Anode

- Dry-coated pure Si anode by plasma-enhanced chemical vapor deposition (PECVD)
- Single-side: coin cell; double-side: pouch cell
- **Results and Summary:**
 - Scaling up from coin- to pouch-cell was successful
 - Improved 100 cycles of lifetime (>80%)
- **Future Outlook:**
 - Optimise the parameters on machine and scale up to roll-to-roll process



Cell type	Initial voltage (V)	Initial areal cap. (mAh/cm ²)	2 nd areal cap. (mAh/cm ²)	Initial CE (%)	> 80% cap. retention (cycle)
Without preLi	0.50	3.58	2.90	81.2	120
preLi 5%	2.77	3.71	3.14	81.8	220