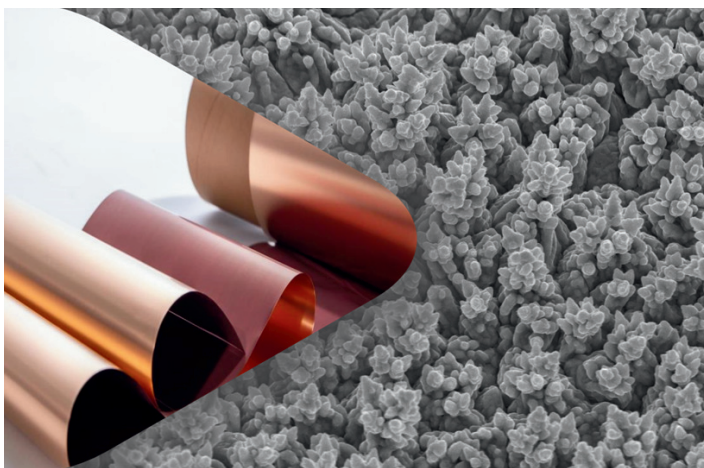


ANODE SUBSTRATE



Lead:

CIRCUIT FOIL

Partners:

JÜLICH Forschungszentrum
Cell Testing

virtual vehicle
Simulation for Upscaling

LeydenJar
Si Anode Production

VARTA
Cell Specifications

Overall Goal

- Develop a copper current collector with advanced physical properties to withstand stress from silicon expansion while decreasing foil thickness to increase battery energy density.
- Create a new nodular treatment on both sides of the foil, for enhanced adhesion with the anode material, and improvement of cycling performance.

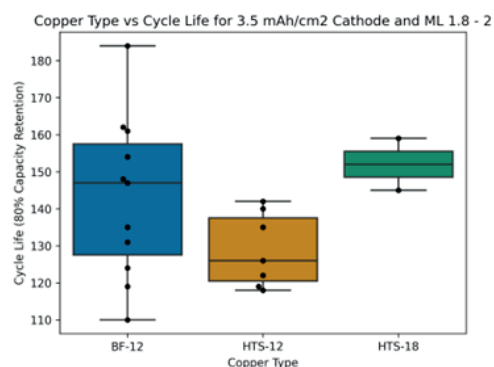
Mechanical Stress on the Current Collector

- **Goal:** Development of base foil with optimal physical parameters to improve the cycling performance of the battery.
- **Methodology:**
 - Produce 3 different base foil with different mechanical characteristics
 - Measurement of the physical parameters (elongation and tensile strength) of the foil and roughness parameters.
- **Example:** Cyclability test (LJT) with 3 different copper foil types

CFL Base Foil for LiB



Cyclability Tests (Lead: LJT)

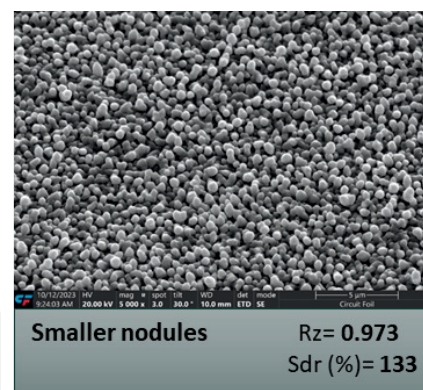
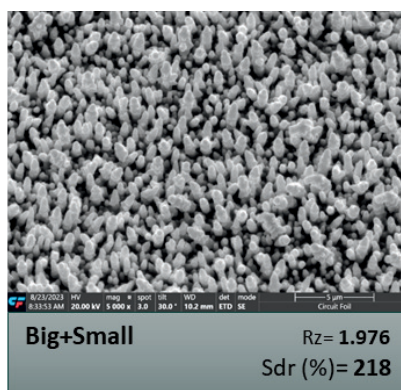
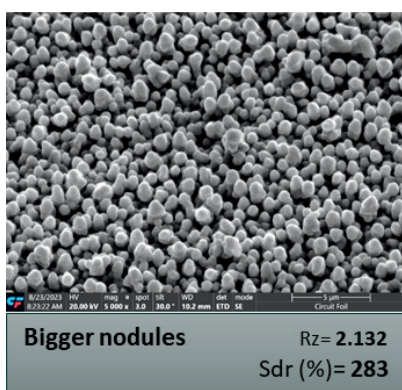


ANODE SUBSTRATE



Adhesion Optimisation to Si Material

- **Goals:**
 - Develop a fine-tuned nodular treatment for Pure Silicon anodes
 - Treatment of the copper foil on both sides
- **Methodology:**
 - Development of a nodular treatment that ensures a high adhesion with the Si material
 - Improvement of the nodular treatment to adapt to the volume expansion of Silicon (adsorption of the expanded volume in the nodular interspaces)
 - Rectification of the production process to obtain identical treatment on both sides of the foil (Electrolyte side and Drum side)
- **Example:** Different treatments, with different nodules' shapes, sizes, density.



Double-treated copper foil



Contact for Further Information

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