Solid state sUlfide Based LI-MEtal batteries for EV applications

D5.3 Results of the process upscaling benchmarking for cathode and solid electrolyte layer

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Publishable summary

The deliverable 5.3, "Results of the process upscaling benchmarking for cathode and solid electrolyte lay-er", initially consisted of the result from upscaling the cathode and separator components for the manufacturing of sulfide-based all-solid-state large prototype cells with a target capacity of 10 Ah. Starting from the formulations developed in WP4, and its tasks related to the investigation of processing routes for the positive electrode and solid electrolyte, the production of a total electrode length of 50 m was set as a goal, as well as a total of 100 m of solid electrolyte layer. This included the adjustment of the underlying formulation as well as the physicochemical and electrochemical characterization of components. However, due to material performance and production-related infeasibilities, the project consortium, after consolidation with the EU Commission, agreed to reduce the target capacity to a maximum of 1 Ah. In more detail, a two-phase plan approach was generated including the preparation and testing of 10 mAh monolayer and 1 Ah multilayer pouch cells with Lithium/Indium anodes in phase 1, and of 40 mAh monolayer and 1 Ah multi-layer pouch cells with protected Lithium anodes in phase 2. As this decreases the amount of materials needed for prototype cell preparation, the material supply from the WP4 labscale tasks is sufficient to cover the materials and components for both phases. Therefore, the initially planned scale-up activity in WP5 is on-hold, and the task related to the electrode and solid electrolyte layer strip manufacturing for 10 Ah proto-types will not be performed as planned in the proposal. Information on material preparation and characterization resulting from WP4 labscale development have been already described in Deliverable D4.4, "Report on layer processing towards upscaling".