Deliverable D5.1
Report on the safe handling & testing protocol

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Public Summary

This document corresponds to deliverable 5.1: Safe Handling & Testing Protocol Report, which includes safe handling protocols at the material and cell levels and describes cell testing protocols under normal and abusive conditions. These protocols must allow cells to be tested under normal and abusive conditions in complete safety, thanks to the information associated with the hazardousness of certain components. Test protocols will be established to test components and assembled cells (WP3 and WP4) for their electrochemical, ecological, and safety performance and to verify that the requirements defined in WP2 are met. This WP5 focuses on test definitions to investigate the main parameters of component solid electrolyte characteristics such as ionic conductivity, voltage stability window, exposure to bare or coated lithium metal during stripping and plating, and chemical and thermal behavior. Post-mortem, physicochemical, and electrochemical methods are also used to study the interface between the cathode materials and the solid electrolyte. Electrical testing of PULSELiON cells focuses on comprehensive characterization using OCV-SoC curves, capacity and performance tests, and aging tests. Safety tests include overcharge, short circuit, low ambient pressure, extreme temperature, acceleration rate calorimetry and thermal stability tests to evaluate the PULSELiON cell's response to various abusive conditions. Cell testing protocols for the PULSELiON cells in normal and abuse conditions have been proposed.

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