Sustainable and Safe anode-free Na battery (SuSaNa)

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Next generation batteries seek to substitute widespread Lithium-ion batteries (LIBs) for more sustainable and safer options.

In this sense, SuSaNa project aims at developing an Anode-free Na battery which with the focus put in safety and sustainability.

The **safety** approach roots on finding substitutes for the flammable electrolytes used in widespread LIBs, which are behind all the safety hazards. Therefore, increasing the safety of batteries heavily relies on finding and developing new electrolytes, which need to be less flammable and more sustainable.

Sustainability comes from avoiding the use of critical raw-materials while keeping in mind the end-life. So, recyclability and sustainability aspects are being considered from the beginning, taking a green chemistry approach and towards final recycling practical aspects.

The SuSaNa consortium gathers top-level research groups (Uppsala University, FZ Jülich, DTU), and SMEs (Altris, Accurec, PhaseTree) led and coordinated by ICTP-CSIC. During the project, the partners have:

- Formulated novel electrolytes that hinder dendritic growth and are less flammable.
- Used materials and methods that comply with the Green Principles and eco-design approaches.
- Tested and characterize the materials developed individually and in combination by electrochemical and surface science techniques with support of modelling inputs.
- Take care of relevant recyclability aspects of the single materials, full cells and its end-life (including facilitating its disassembly).

The main results in these topics will be presented in the Conference.

In summary, SuSaNa is paving the way for obtaining a low cost, safe and sustainable Na-based battery in order to contribute to the deployment of technologies that will constitute the next generation batteries.

Aknowledgments: M-ERA.NET3 (GA: 958174); VINNOVA, Sweden (2022-01465); AEI, Spain (PCI2022-132931); BMBF VDI, Germany (13XP0507A&B); Innovationsfonden Danmark (1139-00008B and 1139-00012B).