

EUROPEAN COMMISSION

HORIZON 2020 PROGRAMME - TOPIC H2020-LC-BAT-2019
Strongly improved, highly performant and safe all solid-state batteries for
electric vehicles.

GRANT AGREEMENT No. 875189



SAFELiMOVE – Deliverable Report

D3.1 – Electrochemical performance in standard Li-ion
battery and powder properties of developed cathode
materials

Publishable summary

This report aims to provide information for tasks related to Work Package 3 (WP3) of the SAFELIMOVE project. Main objectives of WP3 are the development and optimization of materials for high performing and safe all solid-state batteries for EV applications. WP3 is further sub tasked to: (i) WP3.1 – where the main focus is the definition, optimization and characterization of nickel-rich layered oxide cathode materials (the main focus of this report); (ii) WP3.2 – development of Li metal anode materials; (iii) WP3.3 development of oxidic electrolyte; (iv) WP3.4 development of polymer electrolyte; and (v) WP3.5 development of hybrid electrolyte material.

This report addresses:

- Definition of level 1 active materials (focus on the core chemistry, particle size, morphology)
- Definition of level 2 active materials (focus on surface engineering of active materials to enhance compatibility with SAFELiMOVE electrolyte)
- Definition of level 3 active materials (will focus on high Ni content cathode materials)

The main benefactors of the WP3 activities are WP4 (Materials processing and small cell design) and WP5 (Interface analysis).

Appendix B- Acknowledgement

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

Project partners:

| # | Partner | Partner Full Name |
|----|-------------------|--|
| 1 | CICe | CENTRO DE INVESTIGACION COOPERATIVA DE ENERGIAS ALTERNATIVAS FUNDACION, CIC ENERGIGUNE FUNDAZIOA |
| 2 | SCHOTT | SCHOTT AG |
| 3 | UMICORE | UMICORE |
| 4 | HYDRO-QUEBEC | HYDRO-QUEBEC |
| 5 | SAFT | SAFT |
| 6 | RENAULT SAS | RENAULT SAS |
| 7 | TME | TOYOTA MOTOR EUROPE NV |
| 8 | IKERLAN | IKERLAN S. COOP |
| 9 | CEA | COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES |
| 10 | CIDETEC | FUNDACION CIDETEC |
| 11 | TUB | TECHNISCHE UNIVERSITAT BERLIN |
| 12 | RWTH AACHEN | RHEINISCH-WESTFAELISCHE TECHNISCHE HOCHSCHULE AACHEN |
| 13 | ABEE | AVESTA BATTERY & ENERGY ENGINEERING |
| 14 | LCE Srl | LIFE CYCLE ENGINEERING SRL |
| 15 | UNIRESEARCH BV | UNIRESEARCH BV |