

**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**  
D4.1 – Small prototype cells design and assembly  
definitions

<b>Deliverable No.</b>	SAFELiMOVE D4.1	
<b>Related WP</b>	WP4	
<b>Deliverable Title</b>	Small prototype cells design and assembly definitions	
<b>Deliverable Date</b>	2020/12/31	
<b>Deliverable Type</b>	REPORT	
<b>Dissemination level</b>	Confidential – member only (CO)	
<b>Written By</b>	Dumont Erwan (SAFT)	2020-12-17
<b>Checked by</b>	Fedeli Elisabetta (CID)	2020-12-15
<b>Reviewed by (if applicable)</b>	Guerfi Abdelbast (HQ)	2020-12-07
<b>Approved by</b>	Frederic Aguesse (CICe)	2020-12-18
<b>Status</b>	Final	2020-12-18

### *Disclaimer/ Acknowledgment*



Copyright ©, all rights reserved. This document or any part thereof may not be made public or disclosed, copied or otherwise reproduced or used in any form or by any means, without prior permission in writing from the SAFELiMOVE Consortium. Neither the SAFELiMOVE Consortium nor any of its members, their officers, employees or agents shall be liable or responsible, in negligence or otherwise, for any loss, damage or expense whatever sustained by any person as a result of the use, in any manner or form, of any knowledge, information or data contained in this document, or due to any inaccuracy, omission or error therein contained.

All Intellectual Property Rights, know-how and information provided by and/or arising from this document, such as designs, documentation, as well as preparatory material in that regard, is and shall remain the exclusive property of the SAFELiMOVE Consortium and any of its members or its licensors. Nothing contained in this document shall give, or shall be construed as giving, any right, title, ownership, interest, license or any other right in or to any IP, know-how and information.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 875189. The information and views set out in this publication does not necessarily reflect the official opinion of the European Commission. Neither the European Union institutions and bodies nor any person acting on their behalf, may be held responsible for the use which may be made of the information contained therein.

## Publishable summary

This report aims at gathering some information related to Work Package 4 (WP 4) of SAFELiMOVE project which is focused on the materials processing assessment and optimization to develop small pouch cell prototypes (~1 Ah) based on hybrid ceramic polymer electrolyte (HCPE), high voltage cathode (NMC) and lithium metal anode. The objective of the Task 4.1, which is the purpose of this report, is to address:

- Li/HCPE/NMC cell's design according to the different levels/formats (coin cell, monocoil and ~1 Ah stacked pouch cell) defined in WP 2.
- Cell assembly process definition, particularly focusing on current collector-less design variations and solid electrolyte handling in stacked pouch cells.
- Cell balancing and manufacturing constraints, including considerations for upscaling to ~10 Ah size.

This task is aligned with WP 2, in which the design of the 10 Ah prototype pouch cells has been defined to reach the targets of the SAFELiMOVE project. The design of the electrodes and the HCPE layer to be tested in the WP 4 (composition, loading, thickness) need to respect the considerations done in the WP 2.

The aim of the WP 4 is then to define the assembly procedures to be able to manufacture cells from coin cells to 1 Ah pouch cells.

## Appendix A- 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