EUROPEAN COMMISSION

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Strongly improved, highly performant and safe all solid-state batteries for electric vehicles.

GRANT AGREEMENT No. 875189

SAFELiMOVE – Deliverable Report

D5.1 – Characteristics of hybrid electrolyte surfaces and interface characterization

Publishable summary

This report summarizes results of tasks related to Work Package 5 (WP5) “Interface analysis” of the SAFELIMOVE project. The WP5 aims for the understanding of the solid-solid interfaces that are fundamental to the novel SAFELiMOVE battery concept. Design rules for stable and conductive solid-solid interfaces are derived from the gained results.

The WP5 is structured in tasks for i) Assessing Interfaces in Solid Electrolyte, ii) Li Metal-Solid Electrolyte Interface in Anode, iii) Catholyte-Active Material Interfaces in Cathode, iv) Solid-Solid Interfaces at full coin-cell level configuration and, v) Solid-Solid Interfaces at full single layer pouch cell configuration. These tasks are carried out by the consortium partners CIC energiGUNE, SCHOTT AG, Hydro-Quebec, ABEE, CEA and Fundación CIDETEC.

For the assessment of the interfaces in the solid electrolytes by SCHOTT and CIC energiGUNE this report addresses:

- The surface characterization of oxidic electrolytes
- The determination of interfacial resistance between ceramic and polymer
- Set up and evaluation of a trilayer hybrid electrolyte model system

Analytical results and design rules are important information for the development of the materials in WP3 (Advanced Material Set) and the design and processing of components and cells in WP4 (Materials processing and small cell design) and WP6 (Cell design development and prototyping).

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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

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