

EuroLiion

High energy density Li-ion cells for traction



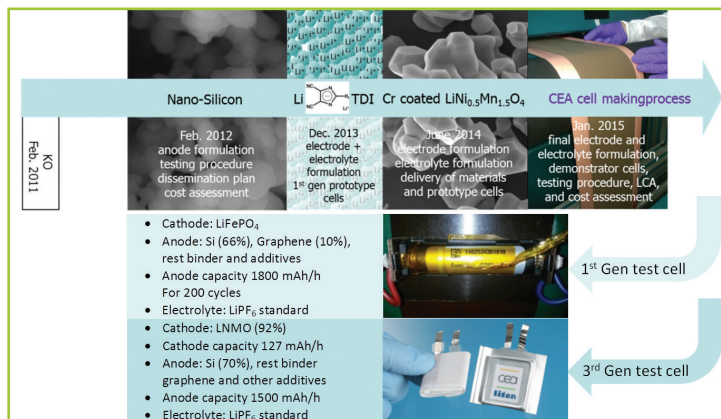
MOTIVATION AND OBJECTIVES

Development of a new Li-ion cell for traction purposes with the following characteristics:

- An energy density of at least 200 Wh/kg.
- Low costs: i.e. a maximum 150 €/kWh.
- Meet or exceed safety standards.
- Specific power of at least 1000 W/kg (at normal operation).
- Durability, reflected by a life time of 10 years and a lifecycle of 2500 cycles.
- Operating temperature from -40 °C to 50 °C.
- Use of environmentally friendly and sustainable materials.
- Protecting European technology.

PROJECT PLAN, MILESTONES AND DELIVERABLES

The figure summarises the relevant milestones and deliverables and visualises the current status of the achievements.



TECHNICAL APPROACH

- Formulate, develop, test and optimise electrode and electrolyte formulations.
- Synthesis of electrodes and cells.
- Design, develop and test emerging Li-ion cells based on the above formulations.
- Develop an adequate testing procedure.

ACHIEVEMENTS

- WP1** Month 48 – project finished.
- WP2** Final technical requirement specification of Li-ion cells for heavy-duty HEVs and test procedures overview.
- WP3** Nano-Silicon particles and new binders for Si-based electrodes were defined. Kilograms of Si were delivered. Formulation of negative electrode composition established and passed over to WP6.
- WP4** Electrolyte compatibility towards the electrodes was verified.
- WP5** Kilograms of optimised LiNi_{0.5}Mn_{1.5}O₄ (LNMO) has been prepared by partners and a commercial supplier according to EuroLiion's recipe.
- WP6** Si/C negative electrodes and LNMO cathodes were prepared and successfully implemented in the 1st Gen cylindrical 18650 test cells and 3rd Gen 53437 pouch test cells, respectively (2nd Gen testcells with EuroLiion electrolyte were not assembled and tested).
- WP7** Test procedure for benchmarking. 1st to 3rd Gen test cells were tested.
- WP8** Final costs assessment performed on novel EuroLiion materials. Final reviewed Li-ion battery recycling methods evaluated based on their process strategy.

Budget	5.52 M€	Funding	3.95 M€
Duration	48 months	Start	February 2011
DG	Research & Innovation	Contract n°	CP-2010-265368
Coordinator	Erik Kelder, TU Delft	Contact	e.m.kelder@tudelft.nl
Partners	13 partners among them 7 Alistore-ERI partners, Volvo, Renault, Spijkstaal, CEA, ZSW and AIT		
Website	www.eurolion.eu		

