

SECOND LIFE / REUSE OPTIMIZATION OR RECYCLING OF LITHIUM BATTERIES



SERMA Technologies guides you for each step of the REUSE OPTIMIZATION, SECOND LIFE & RECYCLING

Batteries Vs. usage / application
automotive usage (electric vehicle, bike,...), stationary usage
(storage on solar installation,...), technology, ...

Standardization

Mission profile Study,
Battery Passport Evaluation.
Technology Vs Usage match
(benchmark)

Dynamic tests & Support

State of Health (SOH)
estimation and Embedded
in BMS in real time, State
of Charge (SOC) validation.

Are your batteries Safe?
Reusable? How long?
Can you sell it? Buy it?
We help you to decide

Static tests

State of Charge (SOC) validation,
Safety, Physical Vs. Failure
prediction.

& Support

Test plan design Vs. Evaluation
and Vs. Model needed.

Second life

Recycling

Neutralization service

Overdischarge & Immersion
(cell, module, pack).

& Support

Expertise in safety of
battery related installation.

**1. Reconditioning
modules/packs for new
safe and performant
batteries**

**1. Remove the
residual energy
present in the
batteries**

Engineering & Support

Selection of battery
technology, Setting Battery
Management System (BMS)
Real time parameters
(Prognostic & health
management, SOH predictive
maintenance).

**2. Qualification tests of
new products**
Environmental, endurance,
abuse tests

**2. Destruction of
batteries into powders
(black mass)**
Mixture, separation, elements
to be recycled, reused

Characterization of materials

Laboratories and access
to characterization
experts for macroscopic,
microscopic and
nanoscopic analyses
from the surface to the
product.

Battery Testing Services

Test plan design
Environmental, endurance
& abuse according to
standards, qualification and
tailored tests.

**3. Integration of the new
product in your system**
Modelling, reliability,
performance, prediction, Artificial
Intelligence

**3. How qualitative is the
recycled materials**
Purity, impurity type,...

Implementation Support

Design for Health
Monitoring – Prognostic
Health Management and
associated models (with
Artificial Intelligence).