



E-waste and lithium batteries

Treatment and recovery solutions according to a circular approach

Andrea Carluccio, Sales manager at Cobat Spa SB e Integration Processes Coordinator at Haiki +



Our Group

Innovatec Group Holding

With over 60 years of history, Innovatec Group is a key player in the Clean sector Technology. The Group is ready to drive the future a new model of sustainable development and to help communities to become carbon neutral



Haiki + Subholding

Haiki +, thanks to its network and partners, helps companies to integrate sustainable supply chain: it promotes recovery processes of waste materials in order to transform them into value

cobat

Who we are



A service platform for the circular economy



Cobat System ensures the correct end-of-life management of the products put on the market and the extended responsibility for waste management

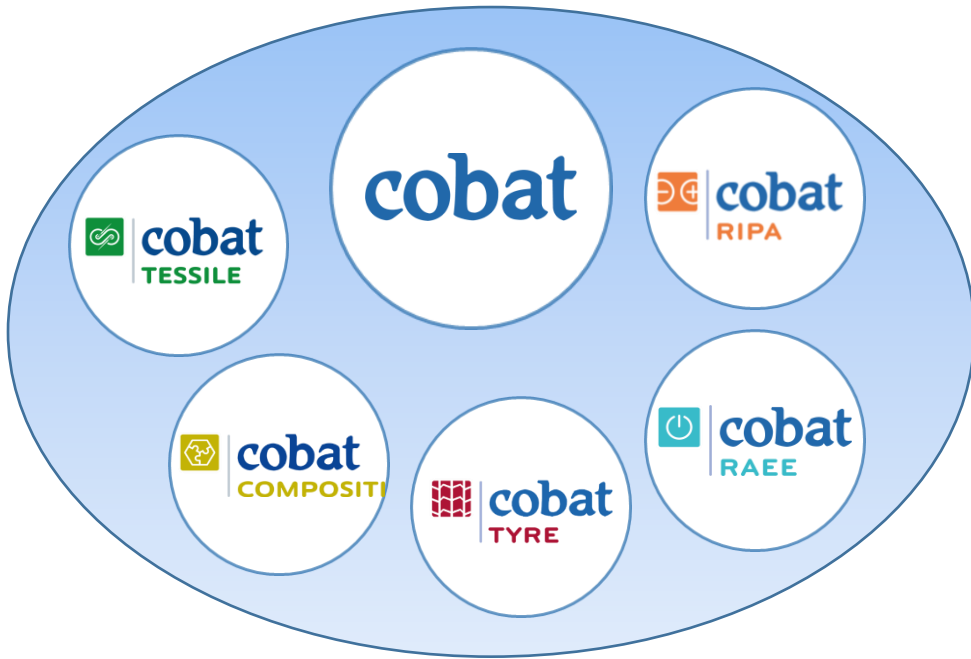


Cobat contributes to the circular economy with the recovery of materials from the management of different types of waste



Cobat provides a wide range of services, from the management of the end of life of products up to training and consultancy

Consortia System

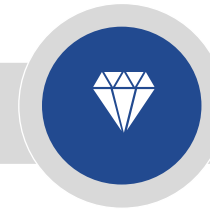


Less Waste



We reduce waste, with a positive impact on the environment

More Materials



We constantly source materials and critical raw materials

Good impact



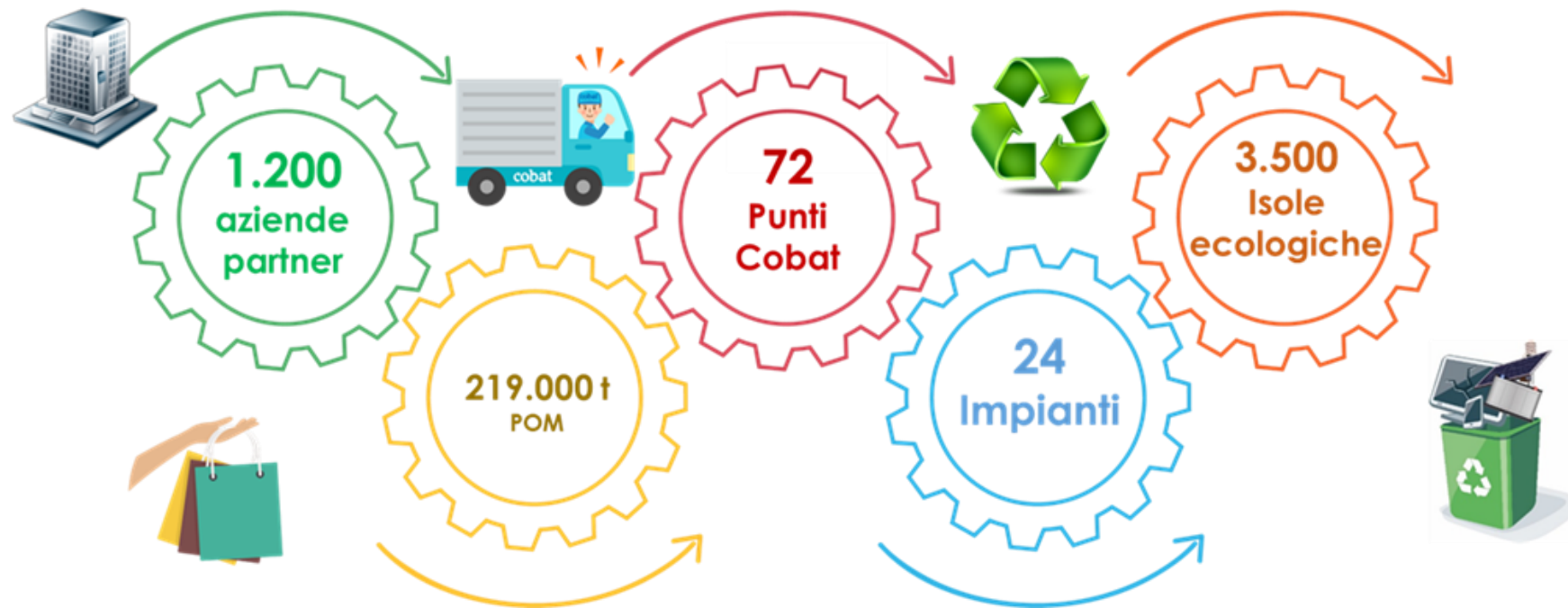
We create a positive social and economic impact, through an industrial and economic system

Compliance Solutions for:



Cobat recovers material from end-of-life products, promoting a circular approach and a virtuous system

Partner's Network



Ethic and Behaviour Code adopted (231 Model)

Treatment and recovery solutions for WEEE

CRT TVs & Monitors treatment

An innovative WEEE treatment plant recovers lead glass from collected cathode ray tube TVs and monitors (CRT cone).



Small Appliances treatment

Most important and advanced Plants in Italy are main partners. Since the beginning advanced treatments lines were implemented to separate components and recycle the materials so to make them valuable.



Flat Screen TVs & Monitors treatment

New treatments lines were adopted since first period to separate components and recycle most part of them.

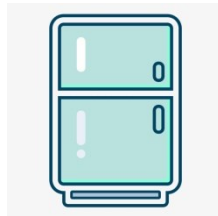


Led and Lights

Able to manage every kind of illumination appliances reducing pollution risk.

Fridges and coolers treatment

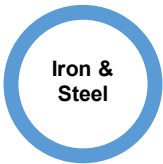
Most of them are rich in materials but also in hazardous gases. All our treatment plant are implemented with specific BAT to protect earth ozone shield and environment.



Solar panel treatment

Cobat invested in 3 brand new special treatment plant in Italy (North, Centre and South). The technology implemented can delaminate and recover the glass and all other materials (plastics, connections, silicon and other materials). The glass delamination process in particular avoids contaminating it with other elements present inside the photovoltaic panel.

What is recovered?



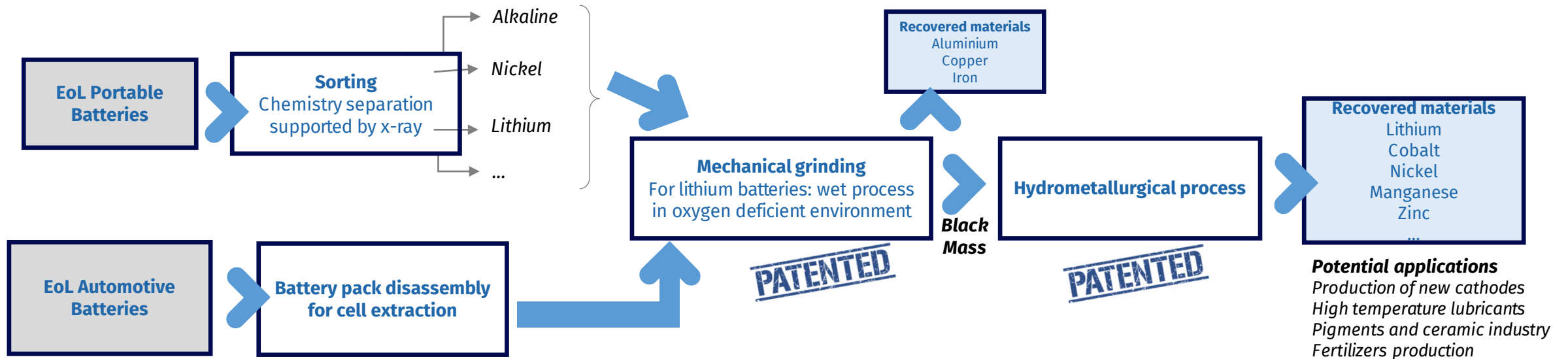
Treatment and recovery solutions for Batteries

Sustainable Recycling Batteries Processes

A safe, environmentally sustainable and economically advantageous integrated treatment of:

- portable **alkaline** and **nickel**
- portable and automotive **lithium**
- **other** “minor” chemistries such as mercury, silver, etc. (except lead batteries)

This is an integration of a multidisciplinary set of innovative KETs targeted to the maximization of materials recovery through innovative pre-treatments (sorting, grinding) and end-treatments (recycling, recovery) processes in a Circular Economy perspective.



Patented innovative technologies::

- **Plant for the disposal of lithium batteries and recovery of lithium** owned by Esplodenti
- **Hydrometallurgical process for the treatment of the lithium batteries and recovery of the metals contained therein** owned by COBAT and developed by the CNR-ICCOM of Florence

Treatment and recovery solutions

Main output fractions

Recycling Efficiency: 71,5%.

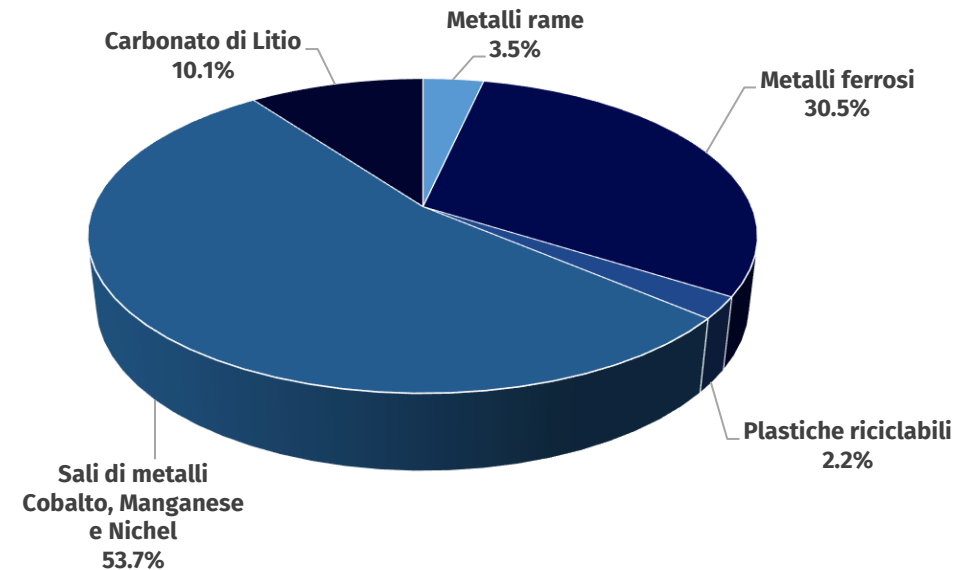
Current EU minimum target: 50% (Lithium as “other batteries”).

New Battery Regulation set specific targets for Lithium batteries: 65% in 2025; 70% in 2030.

Cobalt: as Nitrate is mainly reused as trace element for fertilizer; as chloride has higher % of cobalto in weight (\approx 24% Vs 21% of the sulphate) and can be used in stead of sulphate for cathodic materials assembly (LiCoO_2).

Lithium: it is possible to recover as hydroxide idrossido or carbonate. The carbonate has much more market for batteries (purity at 99%) and glass industry.

Nichel e Manganese: as salt are used in galvanic and in the ceramic industry



What's still missing?

- ✓ **LEGISLATION UPDATE:** End of waste, re-use standards, etc..
- ✓ **Stakeholder who "close the circle" and reuse the materials from the treatment of WEEE and Batteries in Italy**



Thanks!

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