

# ALTILIUM METALS

## Altilium Metals Provides Operational Update Following Significant 2022 Progress

- Completion of technical studies into the recycling of battery waste from 24,000 EV's at its existing SX-EW Hydromet plant in Europe.
- Opening of an Electric Vehicle Battery Recycling Innovation Centre, to scale up a proprietary recycling process direct to CAM, with heavy investment in our own R&D to compete with established recyclers in the US and Asia.
- Winning of over £3 million (\$3.6m) in UK Government Innovation Awards for its Altilitech Recycling Process, including partnership with Imperial College, London.
- Final stages of a Definitive Feasibility study for the UK's largest EV battery recycling facility in Teesside, treating waste from 150,000 cars direct to Cathode Active Material for reuse in new cell manufacture.
- Examination of its production capabilities of copper concentrate from mine waste at its SX-EW plant on the largest site of copper tailings in Eastern Europe.
- Successful Crowdfunding campaign, achieving 110% of its target and sale of circa 1% of company to retail investors, giving an opportunity to diversify funding and interact with the local community in Teesside, as well as supporting its social license in Devon, site of the Technology Centre.
- Achievement of all key development milestones set this year.

**23<sup>rd</sup> December 2022:** Altilium Metals, a UK based innovator in circular economy critical metal R&D, hydrometallurgy and production, provides an operational update following the achievement of key development milestones this year and the significant progress made towards the Company's future growth plans.

In July 2022, we completed a study in conjunction with Hatch on the retrofit of existing infrastructure at our existing Medet SX-EW plant in Bulgaria to process EV battery waste from 24,000 electric vehicles. Incremental capital costs to modify the flow-sheet to treat "black mass" from end-of-life electric vehicle batteries is substantially lower than a greenfield project.

There are few environmentally friendly options to recycle end-of-life batteries in Europe given the capital expenditure required, the environmental permitting timelines associated with building a hydrometallurgical facility such as ours and long lead time items, giving Altilium Metals a first mover advantage. The plant will produce 3,000 MT of a Mixed Hydroxide

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Precipitate of Nickel, Cobalt and Manganese and 1,900 MT per year of Lithium Sulphate in Q3 2023. The hydrometallurgical refinery is expected to provide higher yields at a lower cost and at significantly lower energy intensity, compared to traditional pyrometallurgical facilities.

Future steps will consider additional equipment required to take all material streams to battery-grade precursors and introduction of proprietary technology to directly produce cathode active materials from black mass.

Significant progress has been made in financing and a 10 year off-take of production. The facility will benefit significantly from Bulgaria's wealth of engineering talent in the field of hydrometallurgy and the number of employees at the facility will increase significantly in 2023.

This year the company was awarded grants of over £3 million (\$3.6 m) from Devon County Council and the UK Government's Innovate and Automotive Transformation Fund to demonstrate and scale-up its EV battery recycling technology. In July 2022, Altilium Metals opened a Technology Centre in Devon, UK to strengthen its competitive edge in recycling of li-ion battery scrap. The Technology Centre will allow it to scale recycling innovations faster and speed up its time-to-market. The centre was awarded a permit from the Environment Agency to recycle EV battery black mass at the "metric ton" scale, the only one existing in the UK.

Significant progress has been made at our newly established facility and the new process engineering team will move to the site start of January 2023. The new centre has been equipped with analytical and hydrometallurgical laboratory, plus a demonstration line to progress the scale-up of the Altilitech "direct to CAM" process. Commissioning of the demonstration line is expected early January 2023, and first recycled critical metals produced by the end of January.

The demonstration line gives the operational capability to allow research on a hybrid feed of battery waste including LCO, NMC and LFP chemistries as well as primary raw materials feeds of MHP. The scale-up processing line will allow us to attain data to make informed decisions on materials handling, scalability and product quality at our planned commercial scale operations.

In September 2022 and in collaboration with consultant Hatch and under the support of the UK Government's Automotive Transformation Fund, we commenced a Definitive Feasibility Study for the UK's largest planned EV battery recycling plant, processing waste from 150,000 EV Batteries.

The "black mass" for the planned site will come from end-of-life lithium-ion batteries as well as off-spec material from cell producers. In the short term, to alleviate possible shortage in

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battery waste, the plant designed by Hatch will incorporate an option to process raw materials sustainably mined from Altilium Metals assets in Indonesia.

This feasibility study which will be completed in February 2023, will accelerate and support the investment decision regarding development of a new UK site capable of processing EV battery waste to reclaim scarce technology metals such as lithium, nickel, cobalt at a quality for direct re-use in cell manufacture. The extracted metals will be used to produce Cathode Active Material (CAM) and will enable a circular economy for the battery value chain, significantly improving the CAM product carbon footprint.

**Dr Christian Marston, COO of Altilium Metals, commented:** *“I am incredibly pleased with the progress that has been made in 2022 and at the heart of our success is our differentiated approach to supply the critical metals needed for the energy transition from existing waste stream, such as mine tailing and old EV batteries, promoting a circular economy and preserving natural resources by reducing mining of raw materials.”*

*“The significant volume of end-of-life batteries and scrap from giga-sized battery manufacturing expected in the UK and Europe requires mega-scale recycling solutions, and it is important to develop the required infrastructure before the growing number of energy storage projects coming online today reach end-of-life later this decade.*

*“The significant progress in the retrofit of our existing European hydromet facility and the plans for the largest recycling plant for the UK are just the first operational step towards our ambition to ensure a supply of indigenously sourced metals that will be vital for an electrified automotive supply chain and energy security in the region.”*

For more information and news on Altilium Metals, please visit [www.aitilium-metals.com](http://www.aitilium-metals.com)

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