

# INTERVIEW: Altium outlines plans for scaled-up battery recycling operations

Battery materials | Lithium carbonate | Nickel sulfate | Metals | Nickel | Manganese | Lithium | Black mass | Cobalt | 10/18/2023 12:36:22 UTC

Author [Euan Sadden, euan.sadden@spglobal.com](mailto:euan.sadden@spglobal.com)

- **Teesside recycling facility to encompass 'full battery circularity model'**
- **Plant will process combination of different battery chemistries**
- **Altium also retrofitting existing SX-EW hydrometallurgy plant in Bulgaria**

UK-based clean technology company Altium is developing a suite of technologies covering the entire battery supply chain from the collection and transportation of discarded batteries through to the processing of black mass and the production of cathode active material, the company's cofounder and COO, Christian Marston told S&P Global Commodity Insights in a recent interview.

In November, the company announced plans to build its first UK battery recycling facility in Teesside, northeast England. The new plant designed by engineering consultancy Hatch will have the capacity to process approximately 50,000 mt/year of black mass, producing 30,000 mt of cathode active materials.

When batteries are manufactured or reach their end of life, production offcuts or used batteries can be collected, dismantled and shredded to produce black mass, from which critical metals including lithium, nickel, cobalt and manganese can be extracted.

The recycling of black mass has become increasingly important as a supplement to virgin material supply, as well as to reduce the carbon footprint in the battery supply chain.

Marston said the Teesside project will encompass the "full battery circularity model", with discarded batteries being collected by a battery electric vehicle and delivered to the new site, which incorporates both battery processing and hydrometallurgical treatment operations.

Altium's Series B financing, which will focus exclusively on the Teesside project, is expected to launch during the first quarter of 2024, with the plant itself expected to take around 36 months to construct.

The plant will comprise two processing facilities, a chemical plant producing 95,000 mt/year of battery precursors including lithium carbonate and nickel sulfate, and a cathode active material plant producing 30,000 mt/year of CAM.

## Optimizing black mass supply chain

"We think of battery recycling as achieving the largest scale we can to the highest value component in the battery supply chain," said Marston.

"The process will allow us to collect a battery from an automotive OEM and return battery-ready CAM for reintroduction into a supply chain."

The plant has been designed to process a combination of different battery chemistries including lithium-cobalt, lithium-iron-phosphate, or LFP, and nickel-manganese-cobalt, as well as primary nickel mixed hydroxide precipitate, he said.

"It's possible that we could experience tight availability of scrap during the early days so in order to allow for imbalances in quality and quantity it's important that we are also able to process primary raw material," Marston said.

Although there is still work to do in terms of securing the necessary feedstock volumes, Marston said he was hopeful the company wouldn't need to resort to primary feed and could focus instead on optimizing its black mass supply chain.

"Selling battery chemicals is easy. It's securing the battery scrap into the plants at scale which is worth thinking about," he said.

The site will utilize low-cost green energy and benefits from established logistics infrastructure, which will enable Altilium to deliver CAM to continental Europe within 24 hours, Marston said.

In addition to its Teesside battery recycling plant, Altilium is also retrofitting its existing SX-EW hydrometallurgy plant in Bulgaria to produce battery intermediates MHP and lithium sulfate. The plant is being upgraded to process up to 8,000 mt/year of black mass, with commercial operations expected to start in 2024.

### **Funding awards**

On 13 Sept. Altilium [announced](#) that it had secured a \$2.6 million investment from SQM Lithium Ventures, the venture capital subsidiary of Sociedad Quimica y Minera de Chile, one of the world's leading producers of lithium, as part of its Series A funding round. The investment will support the scale-up of Altilium's demonstration line in Devon and reflects SQM's interest in sustainable low carbon battery raw materials from secondary sources, Marston said.

SQM's support is not just financial, with the lithium major holding a seat on Altilium's board of directors, Marston said. In addition, engineers from SQM have visited the hydrometallurgy plant in Bulgaria and are providing valuable expertise to support the scale-up of the company's activities.

"We need to develop green processing technologies and then we need to build at scale battery recycling infrastructure," he said.

"We have a positive sense of urgency because it all needs to be built now. There is no 2050, Everything needs to be done at least by 2030."

Altilium has enjoyed a steady stream of positive developments this year, and the company has securing more than \$6.5 million in backing from UK government innovation awards.

On Oct. 9, the company was [awarded](#) additional funding under the Automotive Transformation Fund feasibility studies competition. Altilium said the undisclosed amount would fund its project with UK electric vehicle company Lunaz, which is converting used diesel trucks to battery electric to collect old EV batteries and transport them to battery recycling stations.

Platts, part of S&P Global, assessed cobalt payables for Ni-Co black mass EXW Europe at 65% basis European cobalt metal 99.8% on Oct. 17, stable on the day.

Platts assessed nickel payables at 65% basis LME nickel Oct. 17, also stable on the day.

The above assessments were basis Platts specifications of minimum 4% Li, minimum 10% Co, minimum 20% Ni content in black mass.