# Iondrive Advances Pilot Plant and Trials Market Expansion to Critical Mineral Processing

## Highlights

- Iondrive has appointed Wave International as FEED contractor for the development of the Pilot Plant, following a competitive RFQ process.
- Commissioning of the Pilot Plant is on track for 2025, designed as a mobile unit, and will be initially located at the University of Adelaide while remaining deployable in key markets worldwide.
- Recent pre-Pilot Plant optimisation trials have demonstrated 100% recovery of both lithium and aluminum from untreated black mass, with potential to significantly reduce black mass pre-treatment costs.
- Additionally, Iondrive is expanding the market potential for its DES technology into critical mineral processing, evaluating mixed hydroxide precipitate (MHP) as a potential feedstock.
- The Company has received MHP from a US based producer, to assess its compatibility with Iondrive's Deep Eutectic Solvent (DES) process.
- These developments maintain Iondrive's position as an early mover in sustainable battery recycling, whilst actively expanding other market opportunities for its DES technology.

**Iondrive Limited (ASX: ION) ("Iondrive" or "the Company")** is pleased provide a corporate update on the continued development of its Pilot Plant, advancements in battery recycling, and the expansion of its DES technology into critical mineral processing, including testing new feedstock from the US.

**Iondrive CEO Ebbe Dommisse commented:** *"The Pilot Plant is a major milestone in our strategy to accelerate the commercialisation of Iondrive's sustainable battery recycling technology. Unlike incumbent processes, our closed-loop DES technology provides a cleaner and more efficient alternative to traditional battery recycling methods. With engineering on track for year-end, we remain focused on executing our commercialisation roadmap and delivering a scalable, low-impact solution for critical mineral recovery.*

*We are also expanding into the US, where we see strong potential for our DES technology in critical mineral processing. This aligns with broader industry trends and further strengthens our position in key markets."*

**Wave International CEO Ryan Hanrahan commented:** *"Having recently demonstrated multiple Australian innovations in critical minerals processes, we are pleased to now be demonstrating this Australian innovation in the field of battery recycling. Iondrive are ideally positioned to commercialize their technology as end-of-life lithium ion battery inventories grow in their target regions. Having had the opportunity to work with Iondrive and complete our technical due diligence in the lead up to this appointment, we have every confidence this technology will play a material role in emerging circular economies.'*

## Pilot Plant Progress

Iondrive has progressed the design and build of its Pilot Plant with the appointment of Wave International to lead the Front-End Engineering Design (FEED) and subject to a Financial Investment Decision (FID) at the end of FEED and acceptable commercial terms, the Engineering, Procurement, & Construction (EPC) phase. Wave's extensive experience in pilot plants and battery recycling technology strengthens Iondrive's path to commercialisation.

The Pilot Plant is critical in demonstrating that, in a continuous process at scale, Iondrive's proprietary DES process continues to achieve high metal recoveries in a cost competitive manner, and with a low environmental footprint. The Pilot Plant operations aim to progressively further derisk Iondrive's technology, placing it on a solid footing for deployment at commercial scale. An operational Pilot Plant by December 2025 will be a significant milestone for the Company.

Early-stage engineering work commenced in January, with a compressed project timeline targeting commissioning and startup by year-end.

Carnac Engineering oversaw the competitive RFQ process as Owner's Engineer, ensuring a rigorous scoping and bidding review.

Designed as a mobile unit, the Pilot Plant will be located at the University of Adelaide and can be deployed in key markets worldwide. Iondrive expects the Pilot Plant to process 10 tonnes of black mass per year at full capacity, demonstrating the scalability of its DES technology.

In parallel, Iondrive has been conducting a series of optimisation tests at the University of Adelaide to refine process parameters ahead of the Pilot Plant development. Additionally, upcoming semi-continuous testing will provide valuable insights into process stability and scalability under continuous operating conditions, further enhancing the technology in readiness for the Pilot Plant.

Notable results from recent optimisation tests include achieving 100% recovery of both lithium and aluminum from untreated black mass, with the potential to significantly reduce black mass pre-treatment costs. These results reinforce the efficiency and selectivity of Iondrive's DES process, underscoring its potential to streamline existing battery recycling methods while minimising waste and environmental impact.

## Expanding into Critical Mineral Processing

Iondrive is also expanding the potential application of its DES technology into mineral processing, building on its progress in battery recycling. Over the next two months, the Company will test MHP as a potential feedstock for its unique environmentally friendly DES refining process. The Company will receive MHP from a US-based Company, to assess its compatibility with Iondrive's refining process.

These tests have the potential to open a significant new market opportunity. MHP is a key intermediate product in the nickel supply chain, mostly produced from nickel laterite ores, or recycling streams. MHP typically contains around 40% nickel and 1-10% cobalt and is supplied by major mining operations in Indonesia, New Caledonia, Madagascar, Cuba, Philippines, Australia, and China.

MHP is used as a feedstock for producing battery materials by typically refining it into a mixed nickel and cobalt sulfate material, using conventional hydrometallurgical processes. The mixed sulphate then requires further processing to individual sulphates and/or blending to the desired feedstock for pCAM manufacturing.

Iondrive's DES technology has the potential to convert MHP directly by first separating Ni and Co before converting them into battery grade materials, in a more cost effective and environmentally sustainable way.

*Approved for release by the Board of Iondrive Limited.*

## Further Information

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## About Iondrive

Iondrive is developing an innovative battery recycling and metal extraction process using Deep Eutectic Solvent technology (DES). This proprietary method is designed to efficiently recover critical battery metals, including nickel, cobalt, lithium, and manganese, from black mass in a closed-loop, environmentally friendly process. Unlike conventional hydrometallurgical and pyrometallurgical approaches, Iondrive's DES technology operates at lower temperatures, eliminates the need for aggressive acids, and offers a tuneable chemistry that can selectively extract individual metals.. Whilst progressing the battery recycling application for its DES technology, Iondrive is actively seeking to expand the commercialisation opportunities into other markets, including mineral processing and recycling of electronic waste.

## About Wave International

Wave International are a global firm, focusing on the development of the lithium-ion battery raw materials supply chains. Wave have recent experience in the development of pilot and demonstration plants for the production of high purity metals and salts to support commercialisation of new processes and innovation. Wave International's global project footprint includes Australia, Europe, Canada and the US, spanning Iondrive's key strategic market regions.