ALTA 2024
27 - 31 May | Perth, Australia

# INTEGRATED TECHNOLOGIES FOR EFFICIENT RECYCLING OF LITHIUM-ION BATTERIES: SHREDDING, BENEFICIATION, AND SOLVENT EXTRACTION

By

Christian Reiche

Neometals Ltd, Australia

Presenter and Corresponding Author

Leonel Yew

## ABSTRACT

Lithium-ion batteries have become essential components in various industries, from consumer electronics to electric vehicles, leading to a surge in demand for efficient recycling processes. This presentation highlights the innovative integrated technologies developed by Neometals/Primobius for the recycling of lithium-ion batteries, emphasizing the critical role of the interplay between the shredding and beneficiation spoke and a Hydrometallurgy hub.

The shredding and beneficiation spoke of our integrated system consists of advanced technology designed to efficiently disassemble and separate battery components, resulting in the generation of "Black Mass" as the output. This Black Mass serves as the high-quality input material for the subsequent processes in our Hydrometallurgy hub.

Our Hydrometallurgy hub incorporates advanced techniques to extract and purify metals from the Black Mass with high efficiency and minimal environmental impact. This hub plays a pivotal role in closing the loop of the lithium-ion battery lifecycle by enabling the reclamation of critical metals for reuse in new battery production.

Through the integration of these technologies, Primobius has established a comprehensive and sustainable approach to lithium-ion battery recycling, addressing the environmental concerns associated with e-waste and contributing to the circular economy. The presentation will showcase the technical aspects and benefits of our integrated system, demonstrating its potential to revolutionize the recycling industry and support the growing demand for clean energy technologies.

*Keywords: Lithium, Shredding, Beneficiation, Solvent Extraction, Li-ion batteries, Recycling,*