

# BATTERY RECYCLING PILOT UPDATE – KEY COBALT MILESTONE ACHIEVED

## HIGHLIGHTS

- Independent pilot test-work generates high purity (+99%) cobalt sulphate product at high recovery rate (+98%)
- Project economics strongly driven by cobalt, recoveries to date exceed scoping study assumptions
- Pilot test-work advancing well with copper, cobalt and manganese recovery complete – nickel and lithium to commence imminently with substantive completion in December 2019
- Successful pilot results are the key milestone for 50:50 JV formation with German conglomerate, SMS Group
- Joint preparations underway for European demonstration plant and engineering cost study

Neometals Ltd (ASX: NMT) (“**Neometals**” or “**the Company**”) is pleased to provide an update on its lithium-ion battery (“**LIB**”) pilot test-work (“**Pilot**”) and announce the successful recovery of high purity (+99%) cobalt sulphate from the hydrometallurgical processing stage of its patent pending recycling technology. Importantly, cobalt recovery from feed into the hydrometallurgical processing stage exceeded 98%.

Pilot test-work being undertaken by SGS Canada Inc. (“**SGS**”) represents part of the pre-development activities for a proposed commercial LIB recycling venture targeting greater than 90% recovery of LIB materials from electric vehicle and consumer electronics production scrap and end-of-life cells. Neometals successfully shredded and processed 2.3 tonnes of spent commercial LIBs during the Feed Preparation Stage of the Pilot. A total of 980 kg of unbeneficiated mixed cathode and anode materials (“**Black Powder**”) were fed into the subsequent Hydrometallurgical Processing stage from which cathode metals are currently being recovered and refined into high-purity chemical products.

The Hydrometallurgical Processing stage leaches the Black Powder and sequentially recovers cathode materials which are refined to generate high-purity chemical products for sale directly into the battery supply chain. The Pilot test-work program draws towards completion with copper, manganese and now cobalt sulphates having been recovered. The recovery of nickel and lithium into sulphate products will commence imminently.

The recovery rate of cobalt sulphate exceeds Neometals expectations and represents a significant milestone in the confirmation of the technical feasibility of the proprietary process. The recovery of cobalt and nickel are key drivers of the project economics and these results strongly support the results of previous economic evaluations.

The Company remains on schedule for substantive Pilot completion in December 2019. Successful completion of the Pilot test-work program and confirmation of the mass-energy balances are the key technical considerations for SMS Group’s due diligence for a 50:50 JV decision (see *Neometals ASX announcement dated 17<sup>th</sup> October 2019*). Data from the Pilot will be used to finalise the detailed design of the proposed European demonstration plant, as well as to provide technical documentation for government approvals and support carbon life-cycle analysis calculations to quantify sustainability benefits. Other pre-development activities including final product benchmarking and feedstock/offtake negotiations will be run in parallel with engineering studies. A final investment decision on a commercial-scale LIB recycling plant is expected to be considered in the December quarter 2020.

Neometals Managing Director Chris Reed commented:

*“I congratulate our technical team on this achievement. It represents the most significant technical milestone in what has been a very comprehensive Pilot campaign to deliver the most robust, eco-friendly recycling solution to the lithium-ion battery supply chain. Our strategy of disciplined evaluation with business model flexibility has attracted a multi-billion dollar equipment manufacturer to consider a 50:50 JV to fast track commercialisation. With the massive investments in lithium-ion battery megafactories globally, our conviction to responsibly produce battery raw materials and provide sustainable recycling solutions continues to grow.*

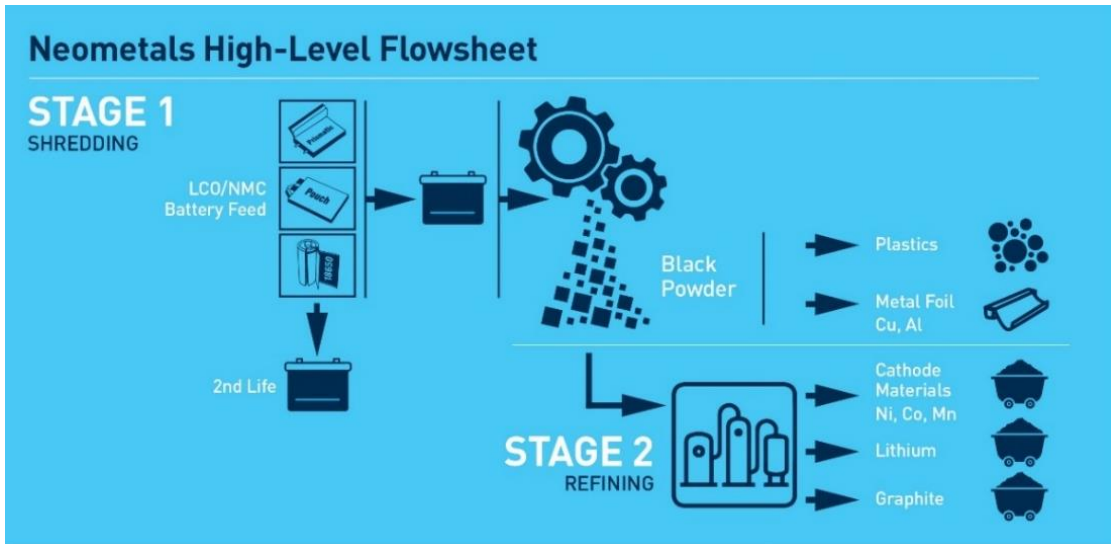


Figure 1 – Neometals LIB high level recycling flowsheet

**Test-work Summary**

Pilot hydrometallurgical test-work at SGS in Lakefield Canada has seen treatment of Black Powder to recover high purity chemical products. Campaigns have been run to sequentially recover each of the target metals. Black Powder from the Feed Preparation phase of the Pilot was leached and copper was the first metal successfully recovered into a high purity (99.9%) copper sulphate product. Cobalt and manganese were recovered next and this campaign comprised multiple continuous runs over a two-week period. Both cobalt and manganese were recovered into individual high purity sulphate solutions at excellent recovery rates. The cobalt recovery circuit is shown below. The next campaign will imminently target recovery of nickel sulphate leaving lithium as the last element to be extracted.



Figure 2 - Cobalt Recovery Circuit of the Neometals Pilot at SGS

## ENDS

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## About Neometals Ltd



Neometals innovatively develops opportunities in minerals and advanced materials essential for a sustainable future. The strategy focuses on de-risking and developing long life projects with strong partners and integrating down the value chain to increase margins and return value to shareholders.

Neometals has three core projects:

- Lithium-ion Battery Recycling – a proprietary process for recovering cobalt and other valuable materials from spent and scrap lithium batteries. Pilot plant testing currently underway with plans established to conduct demonstration scale trials with potential JV partner SMS Group;
- Lithium Refinery Project – Progressing plans for a lithium refinery development to supply lithium hydroxide to the battery cathode industry, underpinned by a binding life-of-mine annual offtake option for 57,000 tonnes per annum of Mt Marion 6% spodumene concentrate; and
- Barrambie Titanium and Vanadium Project - one of the world's highest-grade hard-rock titanium-vanadium deposits, working towards a development decision in mid-2021.