

## **OPENING NICKEL-COBALT-COPPER KEYNOTE PRESENTATION**

### **HEAP LEACHING – LOW COST, LOW CO<sub>2</sub> TECHNOLOGY FOR RECOVERING NICKEL AND COBALT PRODUCTS FROM LATERITE ORES**

By

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#### **ABSTRACT**

Heap leaching is a low cost and inherently low carbon footprint process to recover nickel and cobalt from laterite ores. In comparison with other processing methods for laterites, it is a simple delinked process that has a straight forward ramp-up to steady state production, allowing both lower capital and operating costs.

Located in north-eastern Brazil, Brazilian Nickel's (BRN) Piauí Nickel Project (PNP) heap leach operation aims to be the first large scale commercial nickel and cobalt heap leach facility in the world. The first smaller scale commercial plant, the PNP 1000, produced first nickel product in June 2022 and is ramping-up to produce approximately 1,400 tpa Ni and 35 tpa cobalt in intermediate nickel and cobalt hydroxide products. The next scale of operations will be construction of the full scale plant to produce circa 25,000 tpa Ni and 1000 tpa Co contained in separate hydroxide products. The full scale operation is targeted to begin production in 2025.

Intermediate nickel and cobalt products, such as those produced at the PNP, are now the preferred product for the electric vehicle (EV) battery market. They are easily re-dissolved, either to form sulphates or direct to precursor, for the cathode active materials for the EV batteries.

Advantages of heap leaching for EV battery raw materials include lower capital intensity, lower operating costs, smaller environmental footprint and reduced CO<sub>2</sub> emissions. On the latter, the PNP has been independently benchmarked and will potentially produce one of the lowest carbon-intensity products in the nickel industry, and BRN is looking at innovative ways to reduce or eliminate the CO<sub>2</sub> emissions with a view to becoming a net carbon zero or even carbon negative producer.

*Keywords: Nickel Laterite, Heap Leaching, Low Carbon, Carbon Capture, Nickel, Cobalt, Battery Raw Materials, EVs.*