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HALION PROCESS™ BREAKTHROUGH IN HALIDE LEACHING

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ABSTRACT

The extraction of minerals using chloride lixiviants has been thoroughly investigated and proven to offer major advantages in low-cost, highly versatile minerals processing, with extremely low carbon footprint.

Loop Hydrometallurgy continues to innovate in advanced halide-based minerals processing. The Halion Loop™ employs mixed halides to extract copper, nickel, cobalt, lead, zinc, silver, gold, REEs and other metals from a broad range of concentrates, tailings and industrial waste materials. It operates at atmospheric pressure and less than 100 degrees Celsius, with no noxious gas emissions and no liquid effluents.

In its latest breakthrough, Loop Hydrometallurgy has proposed an entirely new form of leaching that significantly extents the capabilities of economic and efficient processing for refractory materials. This new form of leaching has undergone successful initial trials in the extraction of cobalt from pyrite tailings.

This new technology offers the prospect of reagent-less leaching for materials that would otherwise be expected to be highly acid- or alkali- consuming by conventional hydrometallurgical processes.

By extending the capabilities of the extraction step, the Halion Loop™ has also been shown to enable significant efficiencies to be captured upstream of the concentrate, at the mine and mill.

This paper will discuss the outcomes of initial studies of the breakthrough technology, as well as some of the broader potential applications in critical and battery minerals, gold processing, the stabilisation of arsenic, and beyond. It will also discuss the outcomes of economic analysis for processing non-traditional concentrate feedstocks, including low grade and polymetallic bulk concentrates, and materials containing high levels of arsenic.

Keywords:

Critical minerals, chloride leaching, halide leaching, cobalt process, hydrometallurgy