



Chemeca 2025 and Hazards Australasia
28 – 30 September, Adelaide, South Australia

Recovery of nickel and cobalt from complex low grade siliceous goethite ores

A Pan-Blacklock ^{a, b *}, G Acquah ^{a, c}, P. Spiridonov ^{a, c}, A Norori-McCormac ^b, R Asamoah ^{a, c}

^a Future Industries Institute, University of South Australia, Mawson Lakes, SA 5095, Australia.

^b University College London, Gower St, London WC1E 6BT, United Kingdom

^c AISRF for Advanced Recovery of the Battery materials and REE from Ores and Wastes, University of South Australia, Mawson Lakes, SA 5095, Australia.

*Email address: richmond.asamoah@unisa.edu.au

gertrude.acquah@mymail.unisa.edu.au

ABSTRACT

Siliceous goethite laterite ores, characterized by high silica content and dominant goethite phases, pose unique challenges in hydrometallurgical processing due to their complex mineral composition. The study investigated the elution behavior of nickel and cobalt adsorbed onto chelating ion exchange resins with functional groups such as iminodiacetic and bispicolylamine during resin-in-pulp (RIP) and resin-in-moist mix (RIMM) processing of these ores. The results showed that the resins effectively and selectively recovered nickel and cobalt, in the presence of competing impurities such as Si, Fe, Al, and Mg ions.

KEY WORDS

Siliceous goethite ore, chelating resin, iminodiacetic and bispicolylamine functional groups

BIOGRAPHY

Aaron is currently pursuing a Master's degree through a joint program between University College London and the University of South Australia. His research centers on the development of eco-efficient hydrometallurgical methods for processing and extracting critical metals, particularly nickel and cobalt, from laterite mineral ores. By focusing on sustainable extraction techniques, Aaron aims to contribute to the advancement of environmentally responsible practices in the field of mineral processing.

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