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Effect of mineralogy on resin in moist-mix leaching of nickel laterite ores under atmospheric conditions

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ABSTRACT

Advancements in ion exchange (IX) technology have introduced the Resin in Moist Mix (RIMM) process as a potential alternative for metal recovery from complex low grade nickel laterite ores. Despite its similarities to Resin in Pulp (RIP), RIMM offers notable improvements in selectivity and process efficiency. This study investigates the atmospheric RIMM leaching process, emphasizing the influence of ore mineralogy on nickel and cobalt extraction. The impact of mineralogical composition on metal dissolution and resin loading efficiency was assessed under varied reaction conditions. Advanced characterization techniques, including X-ray diffraction (XRD), inductively coupled plasma optical emission spectrometry (ICP-OES), and scanning electron microscopy (SEM), were utilized to analyze ore chemistry and mineralogical characteristics. The findings provide insights into the role of mineralogy in RIMM leaching behavior, contributing to process optimization for enhanced nickel and cobalt recovery.

KEY WORDS

Nickel laterite, resin in moist mix, ore mineralogy

BIOGRAPHY

Gertrude is currently a PhD candidate at the University of South Australia. Her research aims at developing new knowledge in understanding the fundamentals of critical battery metal extraction from complex ores. Specifically, her study focuses on processing and extracting nickel and cobalt from laterite mineral ores and wastes.

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