

The process overcomes the formation of a surface passivation layer leading to improved copper recovery and reduced operational costs.

Technology Overview

Chalcopyrite is a common but low-grade copper ore, and NWU researchers have developed an innovative method to improve copper dissolution and extraction from this mineral. This is achieved by harnessing galvanic interactions between chalcopyrite and magnetite, they achieved more efficient copper recovery. In the process, magnetite acts as a leaching additive and enhances copper dissolution from chalcopyrite. The process achieves a high copper recovery and fast dissolution rates under moderate reaction conditions.

Market Opportunity

Chalcopyrite is a critical source of copper, accounting for nearly 70% of global copper reserves. However, its slow dissolution kinetics pose significant challenges for efficient copper extraction. Traditional methods like flotation and pyrometallurgy are economically unfeasible for low-grade chalcopyrite ores.

Furthermore, pyrometallurgical processes are energy-intensive and emit pollutants. This technology provides an alternative as a more sustainable process.

Technology Benefits

- **Cost Efficiency:** Implementing this method can reduce operational costs associated with copper extraction.
- **Environmental Impact:** The process operates at atmospheric pressure, minimizing environmental footprint.
- **Process Optimization:** Further technology development focusing can address scaling-up challenges so as to maximize copper recovery.

Technology Status

The proof of concept has been demonstrated in the lab environment.

A patent for the technology was filed and granted in South Africa.

Partnership Opportunity

We currently seeking partners for licensing of the technology.

Contact Details

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