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Optimizing coarse composite flotation: the role of mixed collectors

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# ABSTRACT

Coarse particle flotation is greatly influenced by particle hydrophobicity, as enhanced hydrophobicity reduces bubble-particle detachment. However, low mineral exposure in coarse particles limits collector attachment, reducing flotation efficiency. Mixed collector systems, combining collectors with varying adsorption characteristics offer potential solution by improving hydrophobicity, selectivity and stabilizing bubble-particle aggregates. Additionally, the interaction between collectors influences dosage, as synergistic effects can reduce overall reagent consumption while maintaining or improving performance. This study explores the impact of mixed collectors on both flotation efficiency and dosage requirements, evaluating their role in optimizing bubble-particle stability, recovery and selectivity in flotation of coarse sulphide particles.

# KEY WORDS

Coarse particle flotation, mixed collectors, bubble-particle detachment, hydrophobicity

# BIOGRAPHY

Daniel is currently a PhD candidate at the University of South Australia. His research is focused on optimising coarse composite flotation in Hydrofloat. This project addresses key questions across mineral liberation limitations, surface chemistry, dry comminution, and selectivity.

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