

## **Lithium mineral flotation: The past, present, and future**

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The global demand for lithium is expected to outpace supply over the coming decades; governments around the world have responded by incentivizing the rapid development of their lithium resources, including hard-rock mineral deposits. To extract lithium from hard rock ore, lithium-bearing minerals first must be separated from associated gangue by two primary methods: Dense media separation and/or flotation. Dense media separation is a straightforward process with relatively low operating costs, making it a preferred processing route for lithium mineral recovery. However, when finer grinding is required to liberate lithium minerals from ores with greater mineralogical complexity, flotation is the critical method of separation. This presentation explores the industrial history of lithium mineral flotation around the globe, highlighting practical challenges and gaps in our understanding of flotation mechanisms. A review of recent advances in lithium flotation research reveals a pressing need to expand global research and innovation capacity in the field – from reagent development to bespoke equipment design.