

## HOW TO TRULY OPTIMIZE PHOSPHATE FLOTATION, WHEN FEED GRADE IS EVER-CHANGING

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Optimizing a reagent package or beneficiation process on an average feed experienced at a float plant is one of the key objectives in successfully achieving an optimal, average grade/recovery for any mineral being processed. However, unlike the quality controlled processing chemistries, or engineered process, the mineralogy is minimally controlled by selective mining at best. The change in mineralogy can be a blessing or curse, and can even devastate a plant in matter of minutes. Therefore, applying techniques such as using the core samples from mine planning, or sophisticated analytical instrumentation can assist with planning when a detrimental change will occur. However, seasoned and informed flotation operators are necessary for ensuring the plant is prepared to handle these changes. This paper focuses on the results obtained from the application of a technical service program, which allowed for the investigation of various problematic feeds that plague a phosphate flotation plant. The purpose of this investigation was to investigate the cause, and develop a response plan for the flotation operators and engineers for when these difficult feeds reach the plant.

This paper will introduce three feed types, with all three requiring significantly different processing requirements in the plant. All three feeds were investigated to provide the most optimal mill conditions, which will be provided. The graph below shows how all three respond to the current controls in place, thus the need for change.

