

Computer Aided Design and Synthesis of Flotation Circuits*

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ABSTRACT

The design and synthesis of flotation circuits is conventionally based on rules of thumb derived from industrial practice. The heuristic approach is dependent on past experience and engineering judgement of experts. With the advent of relatively inexpensive computing power and easy availability of powerful optimization techniques, it is now possible to synthesize optimal multicomponent, multistage flotation separation based on rigorous quantitative analysis of alternate possibilities.

For optimum synthesis of flotation circuits both circuit configuration as well as operating parameters are optimized simultaneously. Existing literature on circuit synthesis and optimization is broadly divided into two groups. While the literature pertaining to group one incorporates the flotation models directly in the optimization models, those belonging to the second group use flotation models to characterize the constraints on component flows from a flotation bank only. The mass balance equation comprising the optimization models in the latter category are independent of flotation models. Recent advances in the field are reviewed in this paper.

Key Words : Flotation circuit design and synthesis, Process optimisation, Flotation models.

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