

# JKTech Specialist Consulting

## Flotation Circuit Optimisation



*The JKTech flotation optimisation methodology was developed from over fifteen years of research conducted by the Julius Kruttschnitt Mineral Research Centre (JKMRC) in Australia, the University of Cape Town (UCT) in South Africa and McGill University in Canada.*

### Five steps to circuit optimisation

The JKTech flotation optimisation methodology, incorporating the JKSimFloat software, is a sequence of the following steps:

- 1. Measure**
- 2. Analyse**
- 3. Simulate**
- 4. Optimise**
- 5. Implement**



### 1. Measure

In order to develop an understanding of a specific flotation circuit, JKTech flotation specialists conduct metallurgical surveys, laboratory flotation tests and flotation cell characterisation measurements on site.

These measurements have been developed and validated over the past fifteen years through research conducted at many flotation operations, and is continually improved through ongoing research.



### 2. Analyse

Analysis of the flotation circuit measurements, including gas dispersion, mass balancing, pulp and froth zone characteristics and floatability component analysis are performed to develop the flotation model that is used for process simulation and optimisation.

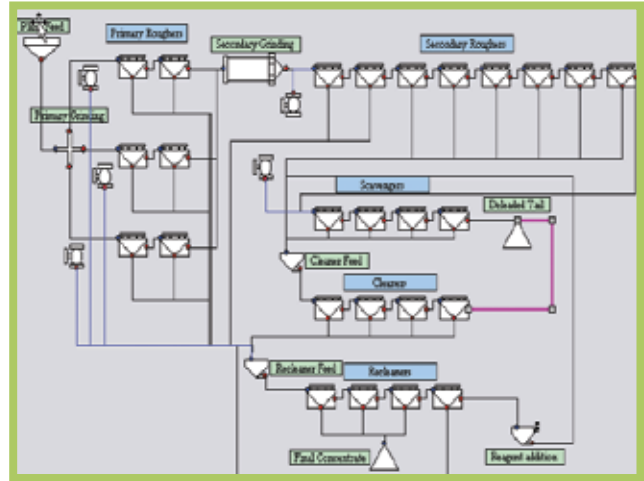
The model can be developed on either an unsized or a size-by-assay basis.



### 3. Simulate with

The flotation simulation software package, JKSimFloat, was developed to assist in understanding and optimising the flotation process.

In this stage, the JKSimFloat simulator is calibrated so as to predict the operating results of the plant during the survey and measurement campaign.



### 4. Optimise

Once the JKSimFloat model has been calibrated, the simulator can be used to predict the effect of circuit and operating variable changes on flotation circuit performance.

This allows changes in circuit performance to be evaluated without the high risk and cost of the “trial and error” approach which is commonly used by operations.



### 5. Implement

Recommendations from the previous stages in the optimisation process are either implemented independently by site personnel or in consultation with JKTech.

A review of the implementation is also conducted by site personnel and this is used in the further development of the optimisation methodology.



#### JKTech Services

- Consulting (comminution, flotation, mineralogy, mining & geometallurgy)
- Process Mineralogy and In-House Instrument Analysis
- Specialist Software (JKSimMet, JKSimFloat, JKMultiBal, JKSimBlast)
- Specialist Equipment (ore breakage characterisation, flotation characterisation)
- Metallurgical Laboratory Services
- SMI Knowledge Transfer

#### Contact

David Collins  
Manager Flotation

Telephone: +61 7 3365 5970

Facsimile: +61 7 3365 5900

Email: [d.collins@jktech.com.au](mailto:d.collins@jktech.com.au)

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