

JKTech Specialist Consulting

FLOTATION SURVEYS & MASS BALANCING



The JKTech flotation surveys and mass balancing 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.

Benchmark Your Flotation Circuit Performance Using **JK SimFloat**

JKTech can benchmark your flotation circuit performance through metallurgical surveys and mass balancing of the data using JKSimFloat. This sequence includes the following four steps:

1. Perform metallurgical surveys
2. Analyse survey samples
3. Mass balance survey data
4. Recommend improvements

1. Perform Metallurgical Surveys

In order to benchmark a flotation circuit, JKTech flotation specialists conduct and manage metallurgical survey measurements on site. These measurements include sampling and flow rate estimation and have been developed and used over the past fifteen years at many flotation operations. The surveys can be performed around the main streams of the circuit or for individual flotation cells.



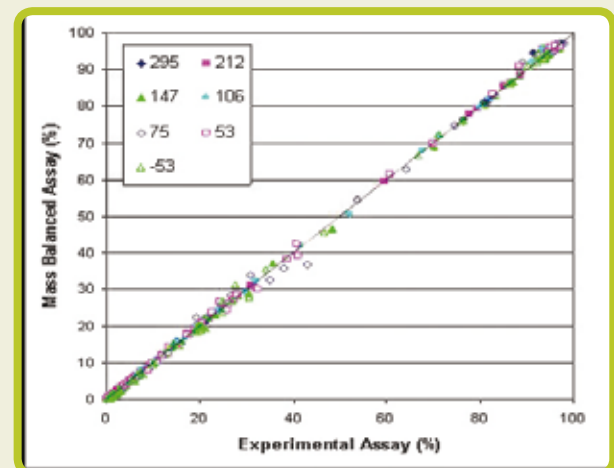
2. Analyse Survey Samples

Once the survey samples have been gathered, an analysis of the samples must be performed. The analysis includes percent solids and elemental composition. A size analysis and mineralogical analysis (MLA) can also be performed to benchmark the circuit on a size-by-assay-by-mineralogy basis. These analyses can be performed either on site or the samples sent to JKTech.



3. Mass Balance Survey Data

The experimental survey data, including chemical assays and estimates of circuit flow rates, must then be mass balanced to provide a consistent set of performance data. The mass balancing is performed using JKSimFloat which is able to mass balance chemical assays and flow rates on an unsized basis, as well as size distribution data and size-by-assay data.



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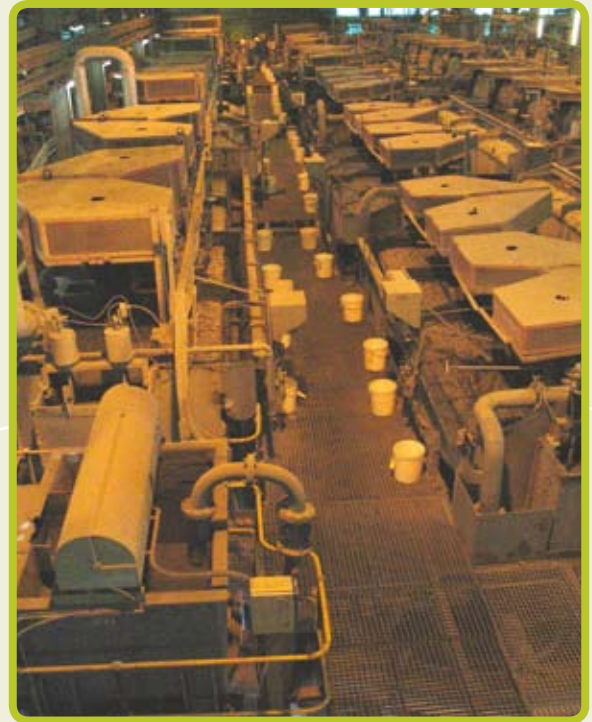
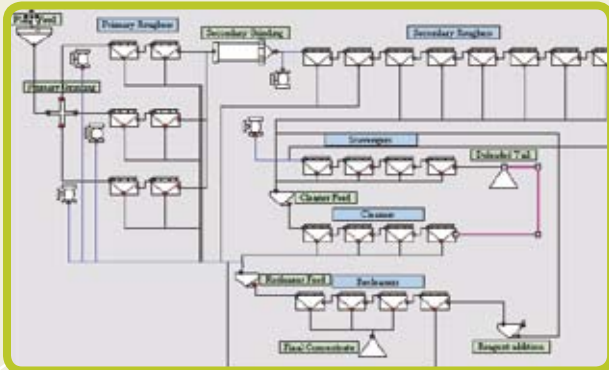
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Delivering world class solutions to
the minerals industry

The Complete Solution For Understanding Your Flotation Circuit

4. Recommended Improvements

Recommendations to improve circuit performance are made using the mass balanced survey data. The recommendations may include circuit configuration changes, process control strategies and investigation into other methods of improving circuit performance. The recommendations can either be implemented independently by the flotation operation or in consultation with JKTech.



JKTech Can Perform

- Metallurgical surveys of any size of flotation circuit including all types of flotation cells and regrind circuits
- Metallurgical surveys of the overall flotation circuit as well as down-the-bank surveys
- Sample preparation of survey samples including chemical assays
- Mass balancing of survey data using JKSimFloat on an unsized or size-by-assay basis
- Detailed benchmarking analysis to determine performance indicators such as grade-recovery profiles and mineral losses to the tails

Deliverables

- A flotation circuit performance analysis and full performance report including mass balanced survey data
- A fast turnaround on the results and report
- Recommendations to improve plant performance based on benchmarking results
- Metallurgical sampling equipment and training for operating sites to perform routine measurements
- Mass balancing and statistics training

Other JKTech Services

- Consulting (comminution, flotation, mine-to-mill)
- Quantitative Mineralogy (MLA and JKMineralogy)
- Specialist Software (JKSimMet, JKSimFloat, JKSimBlast)
- Metallurgical Laboratory Services
- Training Courses

Contact

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JKTech's range of technologies is supported by the ongoing research activities of the world renowned JKMRRC.

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