

JKTech Specialist Consulting

FLOTATION GAS DISPERSION



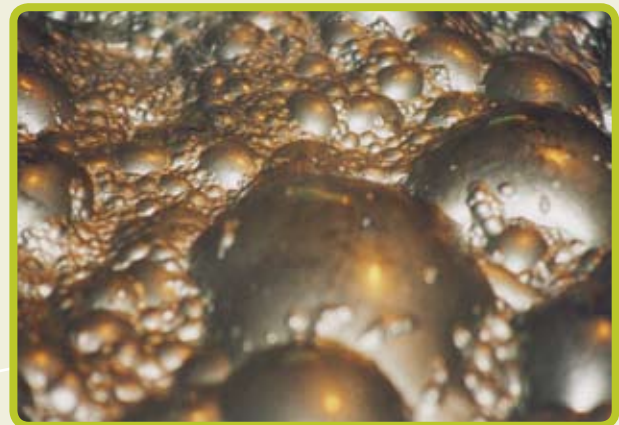
The JKTech gas dispersion methodology was developed from over fifteen years of research conducted by the Julius Kruttschnitt Mineral Research Centre (JKMRC) in Australia, the University of Cape Town (UCT) in South Africa and McGill University in Canada.

Gas Dispersion Characterisation

A gas dispersion analysis can help improve the performance of flotation circuits by optimising the operation of individual cells and aligning the gas dispersion characteristics of same-duty flotation cells. A gas dispersion analysis provides potentially high benefits at a low cost and fast turn-around time and has proven successful at over 50 flotation plants around the world.

Characteristics Consist of:

- Bubble size and bubble size distribution
- Superficial gas velocity
- Gas hold-up
- Bubble surface area flux



Superficial Gas Velocity

Superficial gas velocity is the rise velocity of the bubbles relative to the cell cross-sectional area. It is directly measured within the flotation cell using a mechanical measurement device. Superficial gas velocity is proportional to cell air rate and provides useful information about the flow patterns, mechanism performance and gas dispersion within a flotation cell.



Bubble Size

Bubble size and bubble size distribution are measured within a flotation cell using a photographic technique. Bubble size can be measured in all types of flotation cells including mechanical cells, columns and Jameson cells. Bubble size measurements can be used to determine the efficiency of the cell mechanism to produce fine bubbles as well as to assess the effect of operating parameters on bubble formation.

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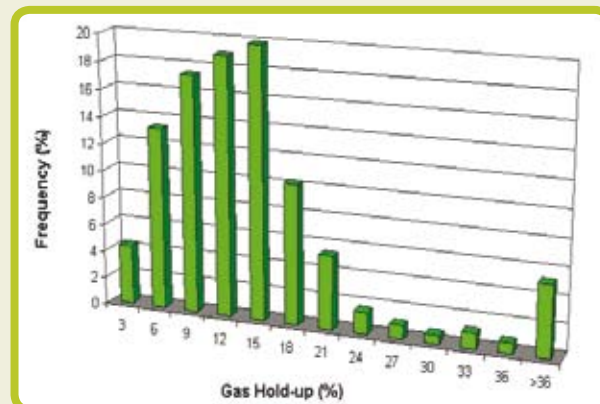
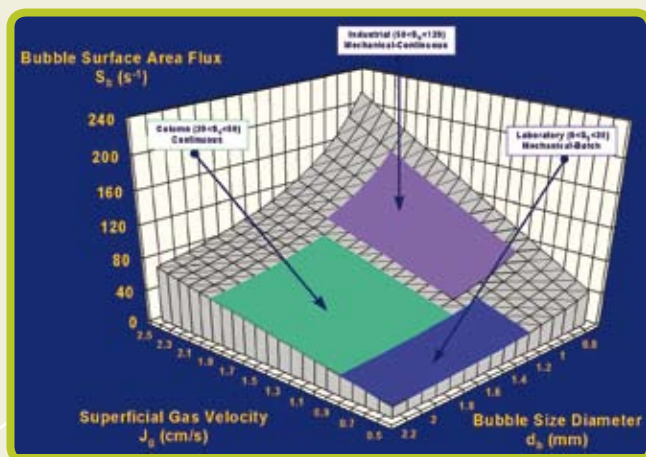
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Delivering world class solutions to
the minerals industry

The Complete Solution For Understanding Your Flotation Circuit

Gas Hold-Up

Gas hold-up is the volume of the flotation cell occupied by the gas phase. Gas hold-up directly affects the residence time in the flotation cell as it reduces the volume available for flotation, hence it is a critical measure of flotation cell performance.



Bubble Surface Area Flux

Bubble surface area flux is defined as the flux of bubble surface area rising up a flotation cell per cross-sectional area. It is a function of the bubble size and superficial gas velocity and has been found to be linearly proportional to the first order flotation rate constant. It is a direct measure of the efficiency of flotation in the pulp zone of a flotation cell.

JKTech Can Perform

- Gas dispersion measurements in all types of flotation cells
- Flotation cell mapping: measurements in various horizontal and vertical locations in the cell
- Flotation bank profiling: analysis of the gas dispersion profile down a bank of flotation cells
- Comparisons to the JKTech gas dispersion database of thousands of flotation cells including cells of different sizes, types and duties from around the world

Deliverables

- A gas dispersion analysis and full gas dispersion report
- A fast turnaround on the results and report
- Recommendations to improve plant performance based on gas dispersion measurements
- Gas dispersion equipment and training for operating sites to perform routine measurements

Other JKTech Services

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

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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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