

## Industry: Minerals Processing

- Copper Concentration by Flotation – Gas Holdup Measurement

### SONARtrac<sup>®</sup> SOLUTIONS

#### Copper Processing Plant Improves Efficiency and Lowers Costs with the SONARtrac Gas Holdup Meter

##### Benefits

- Real-time, on-line and robust gas holdup measurement
- Improved control and optimization of column flotation cells and mechanical flotation tanks for production of copper concentrate
- Improved metallurgical performance of complete rougher and cleaner flotation circuits
- Understanding characteristics of flotation cells
- Sparger characterization for maintenance and design enhancements
- Wash water control
- Quick and simple installation of SONARtrac Gas Holdup Meter requires no process downtime, accelerates return-on-investment
- No maintenance or periodic calibration

**SONARtrac Gas Holdup Meter provides an industry-first robust on-line, real-time measurement of gas holdup**

##### Process

The majority of the world's primary copper is produced from sulphide ores, which contain approximately 1% copper. After extraction by hard rock mining techniques, the ore is crushed into a fine powder. It is then mixed with water and fed into the flotation cells. Chemical treatment causes the hydrophobic copper to attach to rising bubbles created by air introduced at the bottom of the cell. The extracted slurry is approximately 30% copper concentrate, and is sent on to be smelted to higher copper purity.

##### Challenge

The benefits of an on-line real-time gas holdup measurement have been known for some time, as discussed by researchers and operators. A few gas holdup instrumentation systems have been developed and field tested over the years. Test results of these earlier systems have shown that a direct measurement of this key flotation parameter can be linked to improved metallurgical processing. However to date, an on-line maintenance and calibration-free measurement of gas holdup in real-time has not been commercially available.



##### SONARtrac Solution

The SONARtrac Gas Holdup Meter has been installed in a flotation circuit. Knowledge of this key gas dispersion parameter provided by the meter has increased understanding of the flotation cell operational characteristics, and will result in improved control and performance.

The use of the SONARtrac Gas Holdup Meter is expected to produce a short payback period based on improvement in the grade versus recovery relationship. The meter can similarly be used in flotation processes for beneficiation of other minerals such as molybdenum, zinc, phosphate, iron, potash and gold.