Industry: Minerals Processing

- Copper Production – Chalcopyrite Slurry Line

CiDRA® Minerals Processing

Application Note

SONARtrac® SOLUTIONS

Metals Processing Plant Improves Up-Time and Efficiency, Lowers Costs with the *SONARtrac* Flow Monitoring System

Benefits

- *SONARtrac* flowmeters provide accurate, repeatable flow measurement in high solids-content slurries providing more accurate mass balance
- Eliminates maintenance expense due to electrode and flowtube cleaning/replacement as a result of scaling
- Clamp-on installation eliminates process down-time
- Rapid return-on-investment demonstrated with clamp-on *SONARtrac* flowmeters versus existing magmeters

SONARtrac flowmeters clamp onto the existing pipeline and deliver superior performance with lower cost compared to magmeters in high-solids content slurries with scaling problems.

Process

About 80% of the world's primary copper is produced from sulphide ores such as chalcopyrite (copper iron sulfide, $CuFeS_2$), which contain on average of 1% copper. Typically, the ore is crushed into fine powder, and then separated by means of a flotation process.
Volumetric flow measurements are required to maintain process control and efficiency.

Challenge

The typical technology for measuring volumetric flow in flotation circuits is the magmeter. But for this customer, severe scaling of electrodes and flowtubes in existing magmeters caused unacceptable variations in performance.

In order to achieve an acceptable level of performance, a maintenance schedule was established to clean the electrodes and flowtubes at frequent intervals before scaling affected the measurement. After several cleanings, replacement of electrodes and flowtubes is required. Eventually, the entire magmeter requires replacement due to damage caused by the frequent maintenance cycles. In addition to the high maintenance cost, the indirect cost of process down-time was highly undesirable due to the need to increase plant output to take advantage of current high base metal prices.

SONARtrac Solution

The customer has replaced existing magmeters with *SONARtrac* flowmeters. The *SONARtrac* flowmeters clamp onto the steel pipes and have no wetted parts that can be affected by scaling caused by the process fluid. In addition, the *SONARtrac* flowmeters have delivered improved accuracy versus the magmeters due to the fact that performance does not undergo degradation cycles due to scale buildup on electrodes and flowtubes followed by removal/cleaning. Measurement repeatability also improved due to the elimination of flowtube and meter replacement.

The customer's investment in *SONARtrac* flowmeters is expected to deliver a rapid payback due to lower maintenance costs and improved process efficiency.

SONARtrac® Technology

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