

Industry: Minerals Processing

- Zinc Production - Acid Leach Line

SONARtrac[®] SOLUTIONS

Highly abrasive/corrosive slurry not a problem for SONARtrac flowmeter

Benefits

- Eliminate yearly magnetic flowmeter replacement cost
- Eliminate shutdown costs related to magmeter replacement
- Improve measurement accuracy
- Installs in one hour without process shutdown
- Better than 2 year pay back based on hardware cost and installation alone.

Application

- Hydrometallurgical Zinc Production, Acid Leach Line

It was necessary to replace the magmeters twice a year because of abrasion of the magnetic meter flowtube.

Process

In zinc production, zinc sulfide concentrate derived from mining operations is converted to zinc calcine by burning the concentrate in a fluid bed roaster. The zinc calcine, leach solutions and acid are mixed in agitated tanks to produce a zinc sulfate solution and residues. This slurry is distributed to separation tanks where the leach residues are separated from the clear zinc sulfate solution. The zinc sulfate is then pumped to the cell house and the zinc is removed from solution through electrolytic deposition. In this application, the SONARtrac flowmeter measures the volumetric flow of zinc sulfate slurry to the separation tanks, which is a fundamental measurement for control of the separation process.



Challenge

The solids slurry resulting after acid leach of zinc calcine is highly abrasive. Ceramic lined magmeters have been used to monitor the quantity of this slurry delivered to separation tanks. It was necessary to replace the magmeters twice a year because of wear in the flowtube. Additionally, due to the wear, accuracy of the magmeter measurement was known to degrade over time. This measurement inaccuracy made it difficult for the customer to reconcile production totals with flow totalization numbers recorded by the magmeters.

SONARtrac Solution

SONARtrac Flow Monitoring System clamps on to the existing piping. The meter permanently installs in one hour without interrupting the process. Because the SONARtrac flowmeter clamps onto the outside of the pipe, and due to the passive SONAR measurement principle, long-term measurement accuracy is unaffected by the slurry.

The customer estimates the SONARtrac flowmeters will provide a better than 2 year return on investment.