

Improved Flow Measurement in Lithium Brine Extraction and Evaporation Processes

Results

- Magnetic flow meter, level and temperature technology solution optimizes measurement availability
- Magnetic full-pass meter optimizes control in noisy, high-solids content application with High Process Noise diagnostic
- *WirelessHART*® technology implementation minimizes installation costs/time, enables remote monitoring of measurement points and provides access to device and process health data in real time



Application

Extraction of Lithium Brine, which is a mixture of water and dissolved salts, to produce Lithium Carbonate.

Customer

A mining company in Catamarca, Argentina.

Challenge

The customer, located in Argentina, started a pilot project that required accurate measurement of brine flow between brine pools and the entrance to the lithium carbonate production plant. Since the lithium carbonate is drawn from the brine, it is important to correctly control the flow between the pools, as well as know the evaporation rate (temperature and level measurements) to guarantee the right amount of raw material enters the plant.

The challenges are the high abrasive solids content and the use of caustic reagents, which make for a noisy application. The company intends to expand this greenfield facility which also requires careful planning and engineering of channeling, installation and maintenance of a traditional wired system.

The high demand for lithium expected in the coming years means the company is experiencing rapid growth. However, they are looking for ways to continue to optimize the process of getting lithium carbonate from brine.

Solution

A team from Emerson and the Local Business Partner worked closely with the customer to define the necessary instrumentation for the process and a wireless solution was chosen as the best option. The solution balanced operating costs and capital costs, providing both diagnostics through *WirelessHART* network protocol, and ease and speed of installation.

“The application expertise provided and Emerson’s broad technology portfolio enabled the implementation of a solution that optimizes measurement availability.”

Project Engineer
Mining Company



Rosemount™ 8705 Magnetic Flow Meter, Rosemount 5408 Level Transmitter - Non-Contacting Radar, Rosemount 248 Wireless Temperature Transmitter, Emerson Wireless 1410D Gateway and Emerson Wireless 775 THUM™ Adapter

For flow measurement, thirteen Emerson Rosemount 8705 magnetic sensors and thirteen Rosemount 8732E magnetic transmitters were installed. These products are able to offer the following advantages:

- Full pass meter minimizes solids content problem
- Teflon liner and nickel alloy electrodes optimize measurement availability
- Noise control means solids in the flow don't impact readings

Resources

Emerson Automation Solutions Industries

[Emerson.com/Minning](https://www.emerson.com/Minning)

Rosemount Magnetic Flow Meters

[Emerson.com/RosemountMagneticFlow](https://www.emerson.com/RosemountMagneticFlow)

Rosemount

[Emerson.com/Rosemount](https://www.emerson.com/Rosemount)

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