

## AIRSWEEP SYSTEM KEEPS LITHIUM CARBONATE FLOWING IN THE DESERT OF NORTHERN CHILE

In Chile, Albemarle Ltd. is the second leading converter of lithium brine into **lithium chloride and lithium carbonate**. The production process begins with the treatment of natural brine that is obtained by pumping from the core of the Salar de Atacama and is available in open air pools, which are subjected to the intense solar energy of the Atacama Desert.



*Lithium Brine Beds – Salar de Atacama Region in Chile*

The natural brine used by Albemarle for its process contains a lithium concentration close to 0.2%. Due to evaporation produced by the sun, the brine becomes more concentrated and moves between different pools until reaching a 6% lithium content.

The concentrated brine is transported in tank trucks to the La Negra Chemical Plant in Antofagasta. Here, the brine extracted from the Salar de Atacama is subjected to a series of purification and chemical processes to produce products such as Lithium Carbonate-Battery Grade which is used in electronic devices, electric cars, and safety equipment, among others.

### THE PROBLEM

**Poor flowability** of processed lithium carbonate through **drop chutes and a discharge** pipe was an ongoing problem for the Albemarle La Negra Plant due to the product's high moisture content. While maintaining a powder/talc consistency, the moisture content of lithium carbonate is 10-25%, with a density of 35-100 lbs/ft<sup>3</sup> (561-1601 kg/m<sup>3</sup>).

**Hammers were being used to loosen processed materials** that were stuck in the drop chutes. The chutes measure 10" (25.4 cm) in diameter with stainless steel walls lined with PTFE (Teflon). From the drop chute/discharge pipe system, bins were filled using a screw feeder, which discharged to various silos.

## THE SOLUTION

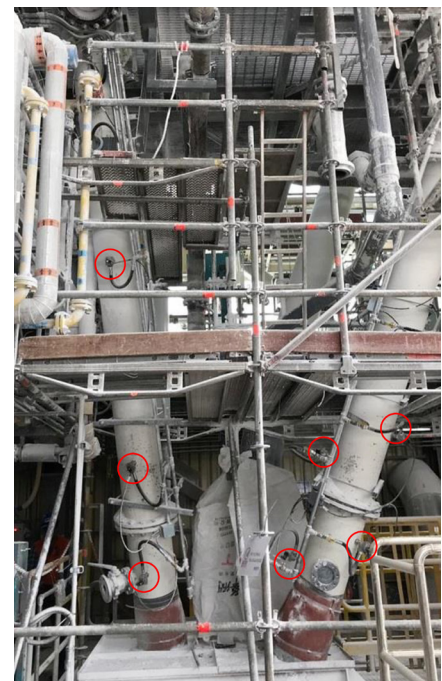
Initially, [twenty-four \(24\) Model VA-06 stainless steel AirSweep units](#) were proposed for this project. Upon closer scrutiny, the typical welding and bolting installation methods of the VA-06 standard mounting coupling could not be used due to the PTFE-coated interior walls of the drop chute. **Control Concepts** recommended the [AirSweep Outside-In Mounting Coupling](#), which allows AirSweep units to be attached to vessels without welding or bolting.

This solved the mounting problem and all **24 VA-06 units** were attached. Holes were drilled into the refractory, then mounted with rings on top of the incoming duct.

## THE RESULT

Michelle Williams, Senior Project Manager of the Albemarle La Negra plant, reported their material filling **time goal of 1.65 metric tons per hour** was achieved due to the AirSweep system **eliminating the material plugging and poor flow**.

Additionally, the operators could finally "Drop The Hammers!" After successful initial trials, two more projects have been purchased and installed, with new applications being considered.



*Strategically-placed VA-06 AirSweep units  
(inside red circles) on the drop chutes*





*Control Concepts, Inc. provides a 7-year warranty on the AirSweep® unit.*

## MORE INFORMATION

[AirSweep Model VA-06 Product Sheet \(PDF\)](#)

[How to Install the Airsweep Outside-in Mounting Bracket](#)

[AirSweep® vs. Air Knocker](#)

[Watch our AirSweep® videos](#)


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