

VIBRA SCREW CASE HISTORY



C-217

Bin Activators Handle Both Quicklime and Limestone at Lithium Corporation

Customer

Lithium Corporation of America, Bessemer City, N.C. Largest producer of lithium, the lightest known metal, and lithium compounds used in numerous industries. A major byproduct, sodium sulfate, is widely used in the pulp and paper industry.

Problem

The Lithium Corporation uses 150-200 mesh ground limestone for pH control. Quicklime is used as a raw material which is reacted with lithium carbonate to make lithium hydroxide, an ingredient in high temperature automotive greases. The quicklime and the limestone are separately stored in concrete stave silos 28 ft. in diameter by 60 ft. high. Bulk densities of the quicklime and the limestone range from 45 to 70 lbs. per cu. ft. Both products feed to 10 in. screw conveyors into an elevator and then into process. Originally, the company had air slides in the bottom of the silos, but they were unsatisfactory because moisture in the air would cause the limestone to get wet and then hang up, with the result that the company could not get consistent feed from storage. Required flow of limestone is 8-10 tons per hour.

Solution

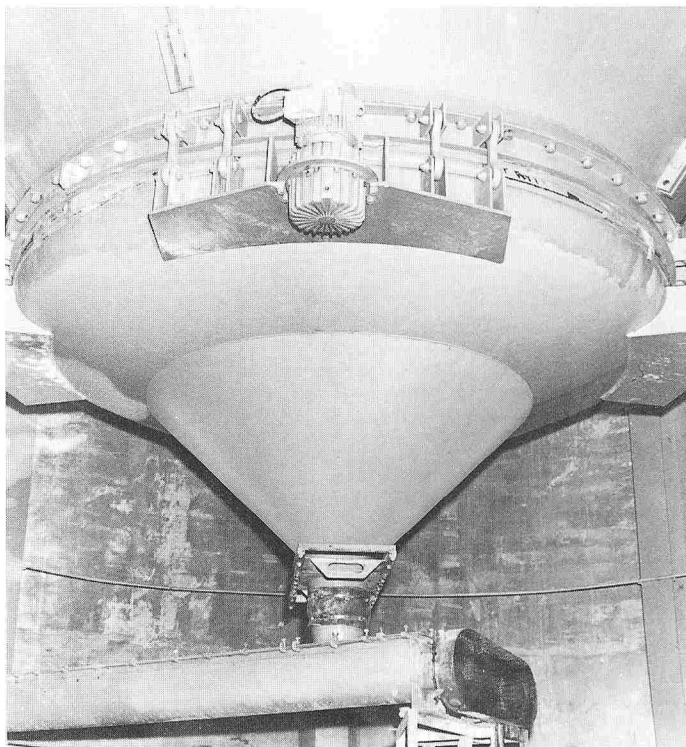
2 Vibra Screw Bin Activators, 12 ft. diameter, carbon steel construction, preassembled mounting rings.

On the basis of their previous successful experiences in moving intractable materials out of storage at Lithium Corporation, Bin Activators were installed on the quicklime and limestone silos. The Bin Activator is a patented vibrating discharger which is flexibly attached to the bottom of a storage bin with a preassembled mounting ring. A powerful gyrotor attached to the Bin Activator and riding with it provides horizontal vibratory thrusts which vibrate the Bin Activator, its contents, but not the bin itself. An integral baffle relieves headload over the outlet, and resolves the horizontal thrusts into strong vertical impulses extending far up into the material in the bin. This eliminates overhead bridging and facilitates uninterrupted flow.

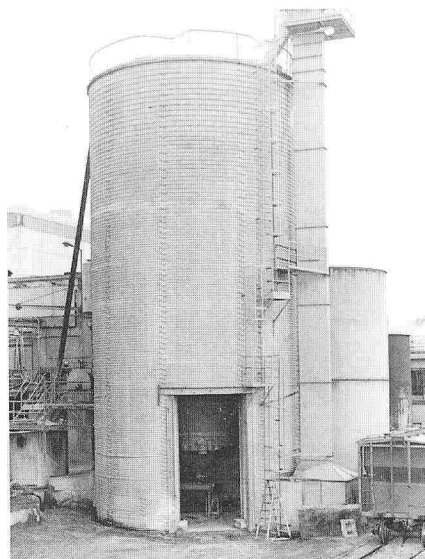
Results

Lithium Corporation has had such success with Bin Activators that it has recently purchased two

additional units to use on steel silos for storage of sodium sulfate, their major byproduct. There are now 10 Bin Activators in use at the Bessemer City plant.



A powerful gyrotor (center) attached to the Bin Activator and riding with it provides horizontal vibratory thrusts which vibrate the Activator, its contents, but not the bin itself.



A 12-ft. dia. Bin Activator discharges 8-10 tons of limestone per hour from a 28-ft. dia. by 60-ft. high silo.