

Cohesive sand flows freely through Live Bottom Bins

Customer

Pennsylvania Glass Sand Corporation, Berkeley Springs, West Virginia. Producers of fine-grain, high quality Oriskany sand for paint, fibre glass, high voltage insulators, vulcanization of rubber, household cleansers and other applications.

Problem

The finest grade of sand produced by Pennsylvania Glass Sand Corp., 5 micron grade, is so fine it feels like face powder. Its bulk density is 32 lbs. per cu. ft., and in a fluid state it behaves like water. In storage, however, it packs, bridges, and clings to everything. It ratholes in a bin, forming a hole right down the middle, while the sides stubbornly stand straight up. Formerly, sand went from a classifier to a static bin and from there to a screw bagger. In an effort to move balky sand from the bin, the company tried aeration pads, pneumatic rappers, and manual prodding, but the sand proved unmovable.

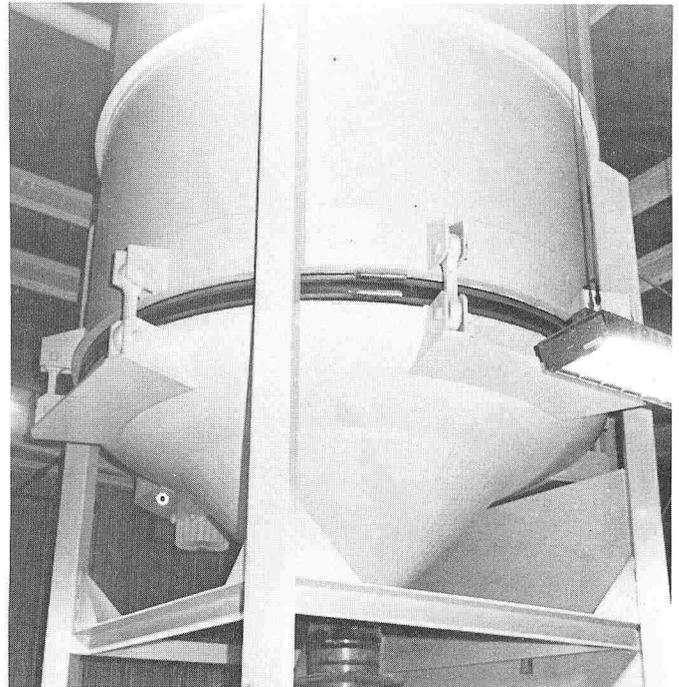
Solution

Vibra Screw Live Bottom Bin 8-500, carbon steel construction, epoxy coated internal surfaces, 12-in. outlet.

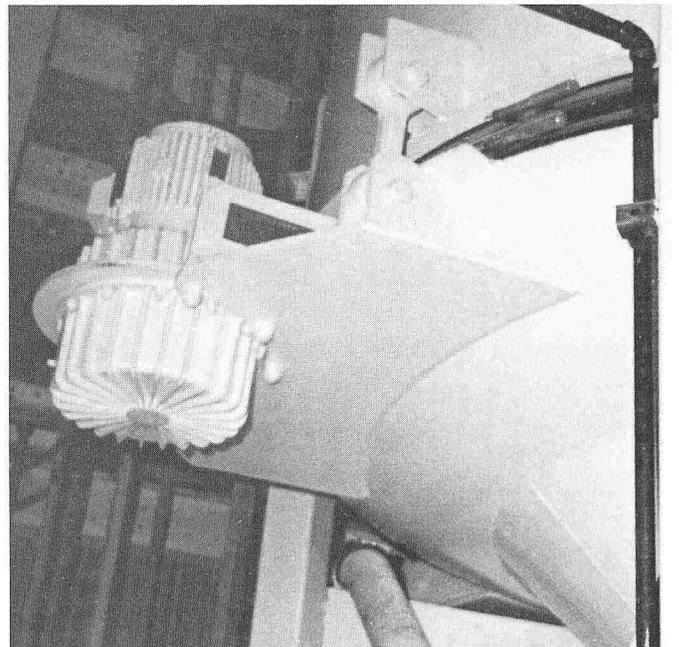
The company now uses an enclosed pneumatic system which conveys sand from the classifier to a Live Bottom Bin, through which it flows uninterrupted to the screw bagger. The Live Bottom Bin consists of a 500 cu. ft., 8 ft. diameter cylindrical static bin to which is flexibly attached a Bin Activator of the same diameter. The Bin Activator, but not the bin, is subjected to controlled vibration. The Bin Activator incorporates an integral vibrating baffle which relieves headload and compaction at the outlet below. Vibrations from the baffle are transmitted upward into the sand to eliminate bridging and ratholing. The combination of the vibrating bin bottom and integral baffle keeps sand flowing continuously on a 16-hour a day schedule without ever needing manual force or auxiliary aids. Another Live Bottom Bin is used on a large outside storage tank for efficient loading of tractor trailer tanks.

Results

The company has achieved marked benefits from its Live Bottom Bins. Bagging time has improved by at least a third, with consequent increased production. With more consistent flow of sand, downtime and maintenance costs have decreased. In addition, the company has improved physical appearance and cleanliness of the production area.



The Vibra Screw Live Bottom Bin keeps the finest grade of sand produced by Pennsylvania Glass Sand Corporation flowing continuously on a 16-hour a day schedule.



Controlled vibration of the bin bottom and material in the bin is supplied by a patented gyrotor—guaranteed for 20,000 hours of continuous use.