



New Approach Eliminates Manual Handling, Man Hours & Dust

Manufacturer – 3Sigma

Product - Bricks

Case History #106

Background

A southeast brick maker was looking to modernize a facility by eliminating the numerous transfer steps in getting their mixed coatings from their mixer to their conveying line. They also desired to eliminate the dust associated with numerous mechanical conveying devices used in the process of getting the mixed coatings to the brick line.

Existing Problem

- Many man hours and fork trucks were tied up in moving mixes, in totes, from the mixing area to a storage area and then later moving the totes to the brick line.
- Excessive dust was created by the totes, conveyors and feeders creating a major environmental and health issue in the plant.
- Existing feeders were antiquated and generated a lot of dust.

The Solution

3Sigma worked with the company's project manager and a pneumatic conveying supplier to provide a turnkey solution. The solution included the items shown below.



Tote

The existing tote is placed above the dense phase transporter. Note: Advanced tote technology exists which ensures complete discharge with no operator assistance.

Dense Phase Transporter

Once filled it will automatically transfer the mix to the correct plant and the correct feeder via a PLC based control system.



Receiving Bins

Provide the required storage, which are set atop the coating feeders. The feeders can be configured as volumetric or loss-in-weight feeders.

BrickMaster™ Coating Feeders

- Completely Sealed hoppers - dust tight
- Adjustable coating rates
- Adjustable coating widths
- Feeder can be placed <1" above the brick line thereby eliminating dust in the only exposed area



Bias Cut BrickMaster™ Feeders & Receiving Hoppers

Standard BrickMaster™ Feeder

Results

- The system was installed in the fall of 2006. There were a number of issues in regard to the pneumatic conveying system that were identified and modified to meet the customer's specifications.
- Minimized operator man hours.
- Minimized the tote transfer operation, as they are now moved from the mixer to the transporter station only.
- Elimination of numerous mechanical conveying devices, associated maintenance and dust.
- Dust free transportation to receiving bins and BrickMaster™ feeders.
- Mass flow feeding with the BrickMaster™ feeders, eliminating "operator assistance".
- We worked with the customer, after the installation, to accommodate a major change in the coating rates required.
- In May 2007 an eductor based reclaim system was added to minimize waste. This has translated into thousands of dollars of savings per month, reducing the amount of raw ingredient tote usage by more than 20,000 lbs. per 8 hour shift!



Reclaim Systems

Features a pneumatic conveying eductor system which operates with no moving parts. A small reclaim hopper, fitted with an eductor, is placed below the header feeding system. Once full the venturi eductor system blows the product to the source bin for immediate reuse, or to a storage bin, saving thousands of dollars per month.

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