VIBRA SCREW

CASE HISTORY

C-254

MassWeigh Clears the air At White's Pelletizing

Customer

White's Pelletizing, Paradise, Pennsylvania facility. A new plant for pelletizing fine ground limestone for the agricultural market.

Problem

This new facility, located at the quarry site, had to overcome production problems and environmental dust that had historically plagued limestone handling with the use of open, belt type weigh scales.

Milled and dried lime, delivered fine ground and heated to approximately 160°F to achieve ½% moisture, tends to fluidize if handled on belt-type conveyors and creates an airborne environmental danger to plant employees which cannot be tolerated under modern industrial safety codes.

The consistency of fine ground lime causes flushing from open belt conveyors resulting in product loss, cleanup and increased equipment maintenance. Flushing could be overcome with sealed screw-type conveyors, but at the expense of accuracy. And accuracy with traditional weigh scales was neither precise nor consistent. This problem alone would have called for a new approach to feeding and control in order to improve the consistency of pellet size and reduce high reject levels. Excessive reject levels require reprocessing and the use of a higher ratio of the rejected pellets to raw material in producing a quality product.

Solution

Vibra Screw MassWeigh weigh feeder Model IV, completely factory assembled and fed through a Vibra Screw three foot diameter Bin Activator.

White's Pelletizing was the first installation of MassWeigh, a new use of the proven en masse principal of moving materials. The company's president, Scott White and production manager, Carl McKinney, provided Vibra Screw's Test Lab with approximately 1000 pounds of their product for testing at Vibra Screw's laboratories in Totowa, New Jersey. Tests of the fine ground lime, provided accuracies of ± ½. Flushing is eliminated by MassWeigh's en masse design. And, the tests showed that airborne lime was all but eliminated by the product's sealed operation.

White's replaced their weigh belt with the MassWeigh, fed through an existing three foot Vibra Screw Bin Activator, and are currently feeding 60,000 pounds of lime per hour to their pelletizer.

Within the MassWeigh, evenly spaced pusher blades circulate by chain from the inlet through a close-tolerance feed trough to the discharge. Gentle vibration conditions the lime before it enters the trough and ensures even filling of the spaces between the blades. Vibration is also used at discharge to ensure complete release of the lime from the blades.

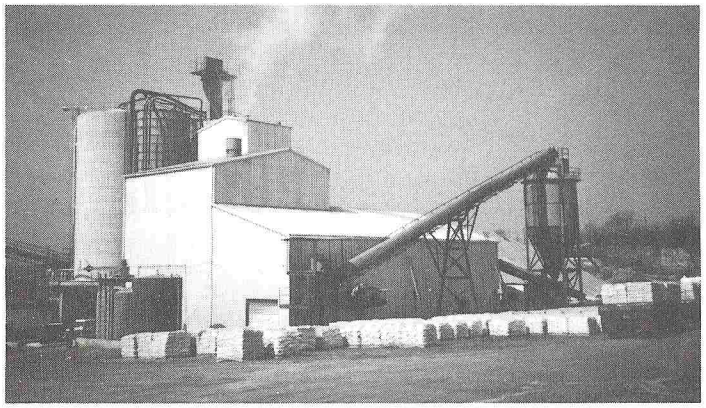
The entire feed portion of the unit is flexure pivoted at the inlet point and supported at the discharge on a precision load cell. A microprocessor controller monitors chain speed and material loading via the load cell. It calculates actual feed rate, compares it to the preset rate and corrects for deviations.

Results

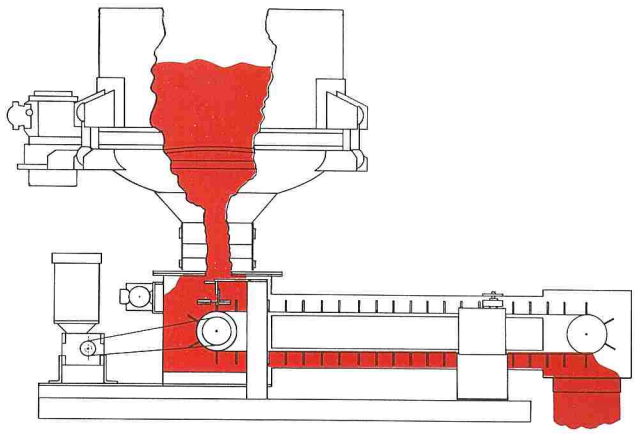
The MassWeigh has operated at White's new facility since September of 1987. Continuous operation at approximately 60,000 pounds per hour has shown it to be the environmental solution for White's and other processors of materials subject to fluidization and flushing.

Environmentally, Scott White calls MassWeigh "Top of the line" for it's virtual elimination of airborne lime previously created by the weigh belt. Accuracy and consistency have reduced rejected pellets and correspondingly reduced the amount of reject material necessary to combine with virgin lime to produce the company's product.

White's is considering use of additional MassWeigh units at their main plant in Castlewood, Virginia where the company processes lime as well as industrial mineral fillers and agricultural fertilizer fillers.



The MassWeigh weigh feeder at White's Pelletizing in Paradise, Pennsylvania feeds 60,000 pounds per hour of fine ground lime at accuracies of ± ½%, continuously.



The sealed MassWeigh feeder creates no dust and has reduced environmental problems.