



PROBLEM SOLVED™ PAPER

SOLUTION: Martin® Air Cannons

INDUSTRY: Food Processing

LOCATION: Lipton Monarch
Belleville, Ontario, Canada



Sugar accumulations on the walls of this 80-ton silo slowed flow and required expensive reprocessing before it could be used.



Martin® Air Cannons were installed on the silo to prevent the buildup of sugar on vessel walls.

PROBLEM

"Fine sugar," used in a line of powdered drink mixes, would build up on the walls of the storage silo. These accumulations choked the flow of sugar out of the silo, leading to slowdowns in production. By the time of the annual plant outage, there would be between 18 to 30 metric tons (40,000 to 60,000 pounds) of sugar stuck to the vessel walls. The cost to recover and reprocess this sugar was a considerable drain on the budget.

The plant manager pointed out, "We bought the sugar in the first place and paid to have it delivered. Then we paid for the labor to clean it out, paid to haul it back to the refinery, paid to have it reprocessed and then paid to have it delivered again. The cost was roughly \$20,000 (Canadian) a year."

SOLUTION

Martin® Air Cannons

To prevent the slowdowns and reduce the costs for silo cleaning and sugar reprocessing, the plant decided to install three Martin® Air Cannons.

The Martin® Air Cannons were installed on the silo at the cone level. The cannon discharges sweep down the cone at a 30-degree angle to boost the flow out of the silo and prevent material accumulation on walls. The air cannons discharge automatically, with one firing every hour.

"With this schedule, we do not even use much compressed air," the facility manager reports. "But the cycle keeps the sugar from building up on the walls of the vessel."

RESULTS

The installation has provided a marked improvement in sugar storage.

"This year at shutdown the vessel had only 1870 kilos (4,100 pounds—roughly two tons) of sugar that didn't fall freely out," the manager reports. "Mathematically, we had about one-sixteenth of the problem we had before. The money we saved on clean-out and reprocessing in the first year alone more than paid for the installation of the Martin® Air Cannons."

Martin® XHV Air Cannon Valve is protected by U.S. Patent No. 5,853,160.

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