Granulated Ant Bait Production Goes In-House Using Flexible Screw Conveyors

When Whitmire Micro-Gen Research Laboratories, Inc., St. Louis, moved the manufacture of its granulated corn cob-based ant bait products in-house, flexible conveyors made the shift economically feasible. In less than three years, Whitmire doubled production of these products and slashed production costs compared to previous outside contract manufacturing. The system paid for itself in less than one year, with the flexible conveyor portion paying back in the first six months. At the same time, product quality improved.

Whitmire's results are based on operating with low-cost flexible conveyors from Flexicon Corporation as compared to a pneumatic conveyor. "Flexible conveyors allowed us to affordably get into this business," says Larry Sharp, Whitmire Research plant manager.

Pneumatics Too Heavy

Whitmire first considered a pneumatic conveying system. But pneumatics' bigger, heavier hardware would require a receiving tank outside the facility, a blower and a heavy pipe conveyor. Lightweight flexible conveyors are easy and inexpensive to install and re-route, unlike permanently installed pneumatic systems. Sharp says the pneumatic system would also risk more mechanical problems, having more mechanical parts than the simple-design flexible conveyors, and thus more costly.

Flexible Conveyors

The flexible conveyors handle the corn grit gently without the grinding or crushing that can occur with other conveyors, minimizing fines generation. The conveyors move material through a 4.5" diameter polyethylene outer tube enclosing a rugged, flexible stainless steel screw, driven by a low-power electric motor. The inner screw is the only moving part contacting material. As the flexible screw rotates in the tube, it self-centers to provide clearance between the screw and tube wall. The conveyor cleans easily and quickly, having no cracks, crevices, filters or bearings that can trap particles.

Whitmire receives the granulated corn cob in 500-lb. bags, which a Flexicon bulk bag unloader discharges into an enclosed hopper. Flow promotion devices promote complete discharge from the bag with no manual intervention. The hopper intake chute, with flow control valve, provides safe, dust-free opening and closing of the bag spout, preventing bursts of material from displacing dust into the plant environment as it drops into the hopper.

From the bulk bag unloader, a flexible conveyor transports the granules 10 feet at a 45° angle to a 2,000-lb. capacity holding tank that supplies filling machines that package ant bait in containers from 10-lb. bags to 2-1b. and 8-oz. bottles.

Expanding

Whitmire has expanded its line to add Carpenter ant bait, which requires a finer corn grit and travels through the same flexible conveyors. Whitmire's in-house ant bait line has been so successful that the company plans to step up production. The future expansion will likely operate with the same type of flexible conveying system. "Had we known we'd see this kind of growth, we would have installed a larger flexible conveying system right off," Sharp says. Flexicon Corp., 1375 Stryker's Road, Box 5269, Phillipsburg, NJ 08865, (908) 859-4700 www.flexicon.com

Write in 501 or Reply Online

Granulated Ant Bait Products are manufactured from corn grit, which requires gentle conveying to minimize grinding and crushing.
FLEXIBLE SCREW CONVEYORS BRING PRODUCTION IN-HOUSE

When a manufacturer moved the production of its granulated corn cob-based ant bait products in-house, Flexicon Corporation’s flexible conveyors made the shift economically feasible. In less than three years, the manufacturer doubled production and slashed production costs from previously outsourced manufacturing. In fact, the system paid for itself in less than one year, with the flexible conveyor portion paying back in the first six months, and the product quality improved.

The 7.5 inch diameter flexible screw conveyor (modelled after “the big bag hopper”) provides continuous capacity of 2000-pounds a day. Its frame is mounted on four easy-to-move casters. The conveyor system’s rougher operation would generate far more fines.

Get flexible
Flexible conveyors handle the corn grit gently without the grinding or crushing that reduces grit fine generation. The conveyors move material through a 4.5-inch (114 mm) diameter, polyethylene outer tube that encloses a rugged, flexible stainless steel screw driven by a low-power electric motor. The inner screw is the only moving part that touches material. As the flexible screw rotates in the tube, it self-centres to provide clearance between the screw and tube wall. In addition, the conveyor cleans easily and quickly, having no cracks, crevices, filters or bearings that often trap particles.

How it works
In action, the manufacturer receives the granulated corn cobs in 800-pound bags that a Flexicon bulk bag unloader empties into the receiving hopper. The flow devices promote complete discharge from the bag with no manual intervention. The hopper intake chute, with a flow control valve, provides safe, dust-free bag spout opening and closing, preventing bursts of material from displacing dust into the plant as it drops into the hopper. From the bulk bag unloader, a Flexicon conveyor transports the granules 10 feet at a 45-degree angle into the ribbon blander mixer. A second flexible conveyor moves the product from the mixer 32 feet at a 45-degree angle to a 2000-pound capacity holding tank where filling machines package and load in 25-pound bags or two-pound, eight-couche bottles.

Since introducing the flexible conveyors, the manufacturer has expanded its line to include carpenter ant bait, which requires finer corn grit but travels through the same flexible conveyors. In fact, the in-house ant bait line has been so successful that the company plans to step up production. The future expansion will likely operate with the same type of flexible conveying system. What was the plant manager’s final say? “Had we known we’d see this kind of growth, we would have installed a larger flexible conveyor system right off.”

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