Centrifugal Sifters, Flexible Conveyors Meet HACCP Demands

In expanding its blending operation for starch-based stabilizers, Opta Food Ingredients, Inc. installed a bulk transfer system consisting of two centrifugal sifters and three flexible screw conveyors to move as many as 12 ingredients at a high rate discharging from two plough-axles for bagging. The fully enclosed, dust-free system is a central component of the company's HACCP (hazard analysis and critical control points) program for food safety and quality, ensuring that final packages contain uniform size particles that are free of foreign matter.

In the first line, a flexible screw conveyor transfers blends from a 45 cu ft (12.6 cu m) capacity plough blender to a Kason Model KO Centri-Sifter® centrifugal sifter. From the sifter, a second flexible screw conveyor moves the screened material through a metal detector to a bagging station. The smaller line consists of one conveyor moving blended intermediate material from the second plough blender to a second centrifugal sifter that discharges directly into bags that are weighed manually.

Bulk Densities Vary

The transfer system moves a variety of blended materials having bulk densities of 25 to 60 lb/cu ft (400 to 960 kg/cu m), and moisture contents from 1 to 11 percent. Twelve thousand pounds (5400 kg) of material per day pass through each sifter at a rate of 25 lb/minute (11.3 kg/minute).

The operation produces some 200 starch-based blends of dairy product additives that thicken, bind, stabilize, enhance texture or impart other properties. Ingredients include gums, whey protein, salt, mono- and diglycerides, starch, dextrose, among others. Some, like soy, lecithin and sugar, are heat sensitive or hygroscopic, and tend to agglomerate. The centrifugal sifter breaks down small agglomerates, as well as scalps all remaining oversize material, bag scraps and other foreign matter, from the on-size material.

The transfer system and blenders occupy a space of 10 ft (3 m) wide and 14 ft (4 m) high, into which the flexible screw conveyors and Centri-Sifter sifters fit comfortably.

Components Clean Quickly, Easily

The centrifugal sifters are constructed of stainless steel with polished welds for easy cleaning. Opta foods perform wet cleaning of the sifters every few weeks. An operator opens the side access door and end cover, both fitted with hand knobs allowing quick and easy access without tools, removes the screen, and spays the interior with cleaning solution prior to rinsing.

Centrifugal Sifter Operation

The centrifugal sifters employ rotating helical paddles that impart centrifugal force to the particles, propelling them continuously against and through the 10-mesh nylon cylindrical screen. The on-size powder falls through the center of the separator. Less than 2% of the flow constitutes ‘overs’, which are collected in a bag and discarded.

The transfer system runs practically maintenance free, says Frank Mullee, plant manager. “We haven’t changed the screen from installing the first Centri-Sifter sifter in 1999. It just works, and you forget about it.”

Prior to installing the screening system, Kason’s area representative, Bob Steiner, of Windham Process Equipment, St. Charles, IL, had samples sent to Kason’s laboratory, which demonstrated screening capability at the desired production rate.

The company manufactures numerous types and sizes of circular vibratory sifters and centrifugal separators for separating virtually any solid from any liquid or slurry, as well as agglomerators, powder coaters and circular fluid bed dryers, coolers and moisturizers.

Conveyor success for Pennine

Yorkshire-based Pennine Industrial Equipment Ltd, manufacturers of conveyor parts is launching a campaign to increase public awareness of the actions that can be taken to cut production noise through the introduction of plastic components.

Pennine Industrial Equipment is already a prominent supplier to the food, beverage, pharmaceutical and material handling industries and is hoping that more companies will benefit from its range, thanks to greater knowledge of the advantages in noise reduction that plastic components can provide.

Central to the company’s trading activities is its extensive range of EH/’aiwpe extrusions and conveyor components. This includes plastic fixed and adjustable brackets, articulating and ridged levelers, bipods and tripod bases, conveyor support stands, spacers, cross blocks and ratchet handles.

The extrusion range includes bar snap on, flat bar clip on, aluminium and stainless steel backed EH/aiwpe profiles.

Typically these extrusions are supplied in white 1000 grade EH/aiwpe, however other colours and grades like Nalco-5, which is created by allowing together EH/aiwpe and a fluid lubricating system, are also available.

The lubricants are present throughout the plastic and are easily activated through the application of contact pressure. Approved for direct contact with food, it is offered in a standard colour of grey.

For companies seeking non-standard components, Pennine offers a custom design and build service in an extensive choice of materials.

The company has extensive expertise in working on advanced plastics suitable for high temperature, low friction, high impact and even anti-static applications.