Screening the flow of flavor: Centrifugal screener doubles production and improves washdown rates for powder manufacturer.

If your New Year's resolution was to grow your business, be careful what you wish for. With increasing sales comes increasing demand, a demand that you must fulfill.

Such was the case for Flavorchem Corp., a rapidly growing flavor company with locations in Downers Grove, IL and San Clemente, CA.

An operator opens the Centri-Sifter's hinged-end cover and removes the screen cylinder and paddle assembly. The three-bearing cantilevered shaft enables Flavorchem to complete rapid screen changes and cleaning during frequent product changeovers. Source: Kason.

The company prides itself in its ability to provide a variety of custom services. Yet, recent demand growth forced Flavorchem to reconsider how it screened its flavor powders. The company needed to double its production, fast.

To help determine which type of screener would be best for its needs, Flavorchem turned to Kason Corp. "Based on laboratory tests with some basic powder flavors, Kason sized the sifter for the flow characteristics, bulk density, and flow rate we required," says David Russo, chief engineer at Flavorchem. "We then ran some of our most difficult products on a demonstration sifter." After extensive research and trial runs, Flavorchem chose a Kason model MO Quick-Clean Centri-Sifter.

At Flavorchem, the four basic carriers—cornstarch, yellow corn flour, dextrose and maltrod—are combined with as many as 10 additional ingredients to produce non-free-flowing blends having bulk densities of 28 to 50 lb./cu.-ft.
Carrier materials are loaded into an 80-cu.-ft. capacity blender in 3,000-lb. batches, after which liquid and dry ingredients are added. Following a blending cycle, the batch is gravity-fed into the centrifugal screener. The unit’s feed screen redirects the material into a horizontally oriented, cylindrical nylon screen. Rotating helical paddles, which don’t make contact with the screen, continuously accelerate the flow of on-size particles through apertures in the wall of the screen cylinder and serve to break-up soft agglomerates. The screener’s compact design enables it to be positioned in a restricted space between the blender and 40-in. high fiber drums filled with 100 lbs. of material.

Flavorchem’s frequent product changeovers necessitate a minimum of one washdown per shift. The Centri-Sifter’s three-bearing design enables staff to complete the task quickly. “Operators have cleaned the unit in as little as one hour,” says Russo, “which includes wet washing and blow drying all the assemblies and the machine’s interior.”

As part of the three-bearing design, the shaft cantilevers on a bearing located between the motor end of the shaft and the material feed screw. When the hinged cover is open, the paddle assembly and screen cylinder can be slid off of the shaft for cleaning or screen changes. During operation, the shaft rides on both shaft-end bearings with no dependence on the inboard bearing for support. “The design affords us a smooth operation,” says Russo. “Bearings at both the motor end of the shaft and on the hinged cover at the discharge end provide extra support and eliminate vibration at high speeds and loads.”

In addition to the faster washdown capability, the Centri-Sifter boosted output from 100 lb./min. to 250 lb./min. Pleased with the results, Flavorchem plans to add a second three-bearing centrifugal sifter and a 6,000-lb. capacity blender to triple plant capacity in anticipation of further business growth.

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