Money is powder

Regulations and consumer fears concerning allergens in food products has prompted Compact Industries, a USA-based packer of powdered beverage mixes, to sanitise its processing equipment more frequently. As a result, it has also had to find a way to compensate for the resulting effect on productivity.

The company blends and packages powdered cocoa, cappuccino, spray- and freeze-dried coffees, smoothie mix, non-dairy creamers, punch mix and other powdered drink mixes that sell through retail and food service outlets under Sun-Up, Ghirardelli and other brands.

"Matching powder consistency with product use is central to success in the powdered beverage business," explains Steve Metzger, Compact's maintenance manager. "Consistent powders are not only easier to package, they meet the expectations of consumers who do not want to open a pouch and find a lump. But if the powder is too fine, it will float and take longer to dissolve."

Maintaining tight particle size control with beverage powders is a challenge, however, due not only to foreign matter, but also to sugars that agglomerate with friction, heat or moisture, and fats that tend to lump.

To remove these particles, the company was positioning a screener below each of its nine blenders. But the horizontal-bed vibratory type screeners struggled to keep pace with output.

"Overall plant production was limited to the capacity of our screeners which were already at 100 per cent utilisation," says Metzger. "And so the added downtime for sanitising incurred unacceptable losses in output. As bed screeners utilise vibration and gravity, separating over-size particles from on-size particles passing through the screen is a relatively slow process."

Bottleneck

To overcome the bottleneck, the company replaced five of its nine horizontal-bed vibratory screeners with Centri-Sifter centrifugal screeners from Rason Corp — with each of the new screeners doubling the capacity of the one it replaced.

The centrifugal separator contains revolving helical paddles that accelerate and propel powders through the apertures of a horizontally orientated, stationary, cylindrical screen. The paddles do not contact the screen, but they propel over-sized agglomerates and foreign particles through the open downstream end of the screen cylinder and eject them through a discharge spout.

"The design creates more dynamic sifting and helps break up agglomerated clumps," explains Larry Lindberg, Compact's vice president of operations. "The way these units operate has improved our ability to capture 'overs' — the particles and elements we want filtered out."

Between production runs, the wedge wire basket and helical paddle assembly of the screeners are removed, allowing sanitising of the machine's internal components and screening chamber.

Big advantage

All nine of the company's blenders, which range in capacity from 794 kg to 3,175 kg, are installed on the second floor of the plant. The centrifugal separators are connected to the bottom outlet of each blender at the ceiling level of the first floor. Each sifter discharges into a stainless steel hopper, and from there product feeds by gravity directly into packaging machine fillers. Lindberg says that throughput averages about 9,072 kg/h depending on the powder.
Thirst place

The British Standards Institution (BSI) has announced that it is to work with Coca-Cola Hellenic Bottling Company to introduce its powerful Entropy system across 28 countries.

The software system, a web-based platform which offers a solution for organisations to collect and report data with regard to environmental and health and safety compliance, will help the beverage group to further strengthen management of Corporate Social Responsibility (CSR) and sustainability commitments throughout its countries of operation.

The company has a strong reputation of environmental responsibility and works with more than 200 organisations in pursuing sustainability goals. In line with global reporting standards, it publishes annual CSR reports that were previously created on standard spreadsheets. But Entropy software will now allow Coca-Cola Hellenic to improve its reporting process by providing a more efficient method of gathering information and communicating effectively across the company’s 80 sites.

“Entropy software will help us to assess and control risk, compliance and performance in areas of CSR such as corporate governance, environment, health and safety, quality and supply chain compliance management,” says Dr Gary Brewster, quality, audit and compliance director for Coca-Cola Hellenic. “It will also allow us to capture occupational health and safety incidents, which is another key area of importance.”

Rob Wallis, managing director of BSI in the UK, adds: “We welcome the opportunity to work together with Coca-Cola Hellenic. With its extensive pan-European country network, the Group’s deployment of Entropy software will add considerably to the protection of the environment and the health and safety of many thousands of people.”

Stringent regulations

Over the course of a production shift, Compact moves from the lightest flavours in its product line to the strongest to simplify between-product cleanings. “Our drink mixes have many ingredients in common, the primary differences being the proportions of primary ingredients and the addition of powdered flavours,” explains Metzger. “Between production runs of similar products we do a sugar wash. The sugar is an abrasive and works well for this kind of simple cleaning.”

Between production runs of products with significantly different flavour profiles, different colours or different formulations that may contain a potential allergen, Metzger’s crew gives the equipment a full wet washdown. The ease with which the screens of these separators can be removed for washdowns allows workers to focus on sanitation rather than on complicated disassembly.

With increasingly stringent food processing regulations incurring production setbacks, bringing an operation back up to speed as quickly as possible is critical to success.

Concludes Metzger: “The screening aspect of our operation is no longer a bottleneck, due to the increased capacity and cleanliness of our centrifugal screens, particularly the quick-clean cantilevered shaft models.”

“...we can use the same mesh screens in the separators for all of our blenders. That’s a big advantage,” says Metzger, explaining that the interchangeability means keeping fewer screen sizes on hand.

He goes on to say that the stainless wedge wire screening material of the Centri-Sifter units has proven capable of handling heavier loads and lasts longer than the nylonscreening material of the bedtype vibratory separators.

Metzger adds that the cylindrical screen cylinders of the centrifugal units can be changed faster than the flat screens of the vibratory separators. “It’s a matter of undoing a couple of clamps, opening the end bell and sliding the screen out,” he says.

Four of the five centrifugal separators at Compact are ‘quick clean’ models featuring a hinged end cover and a three-bearing shaft that cantilevers on two of those bearings when the overs discharge door is opened for cleaning, allowing internal components to slide freely from the shaft end.