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Upon discharge, the 140-cu. ft.-capacity rotary batch mixer evacuates completely with little or no residual, allowing fast, thorough cleaning between batches. Continuous rotation of the drum assures that all materials remain in motion, preventing segregation in batches of varying material densities.

Photo courtesy of Munson Machinery.

SWITCH TO ROTARY BATCH MIXER CUTS COSTS AND BOOSTS OUTPUT

Equipment conversion allows a food ingredient processor to save maintenance time and improve its critical quality-control points.

QUALITY POWDER LTD. of Newmarket, Ontario, custom blends a variety of food ingredients for one of Canada's largest makers of gum-based ingredients used in packaged foods, such as hamburger patties, breads, fish, chicken and dairy products. In 2010, Quality mixed more than 2,755 tons of ingredients using a ribbon blender, which did a sufficient job of blending, but presented problems.

"We were spending significant time maintaining the ribbon blender," says Charles B. Abarado, company president. "The shaft seals come in contact with powders, some of which corrode or dry out the seals, requiring seal replacement every three or four weeks.

In addition, the seals contaminate the ingredients."

"As our volume increased, so did the amount of maintenance required," he adds. "At the same time, we began to increase the number of product changeovers. Every time, we had to spend as much as 1 1/2 hours just to make a cleanout because residual powder would settle at the bottom of the blender's trough." When one of Quality's customers decided to increase volume without outsourcing to multiple toll houses, it decided to expand along with them.

"We blend special types of gums that are used in prepared foods as binders and stabilizers," says Abarado. "It's customized, so we blend formulas that



Powders discharge from mixer into hopper and then to bagging machine, which fills 55-lb. bags or 2,000-lb. bulk bags.

Photo courtesy of Munson Machinery.

can include anywhere from two up to 11 types of ingredients in one batch. Particle sizes of raw materials range from 60 to 300 mesh, and bulk densities range from 30 to 50 lb./cu. ft."

Raw materials typically arrive at Quality's 16,000-sq.-ft. facility in 55-lb. bags. After blending, they are packaged in 55-lb. bags or in 2,200-lb. bulk bags for shipment to the customer.

"We were looking for a way to eliminate maintenance related to seals, and time related to manually removing 15 or 20 kg (33.7 or 40 lb.) of residual material every time we blended a different formulation or shut the equipment down," says Abarado. "On some days, our workers have a minimum required output. If there was a product changeover during a shift, they lost an hour or more doing a cleanout, sweeping, vacuuming and making sure that residual material was removed from the ribbon blender."

Quality decided to increase its capacity with a Munson Model 700 stainless steel rotary batch mixer with a 140-cu.-ft. capacity. It accommodates batch weights of 5,500 lb. above what can be handled by a

cone blender. Because the drum rotates on external trunnion rings, there is no internal shaft with seals immersed in the material, eliminating a maintenance and cross-contamination problem. In addition, the mixer evacuates upon discharge with little or no residual, allowing rapid, thorough cleaning.

Quality received the mixer in 2011 and performed its own installation. "We just mounted it on our own structure, connected the power, and we were ready to go. We had no problems with startup; everything internally on the machine was connected, and we just began blending," states Abarado.

Cleaner, faster production

According to Abarado, each batch blends in about three minutes, and Quality doesn't have to worry about leftover residue. "It's a complete cleanout because the rotating drum's internal mixing flights and lifters direct material toward the discharge gate, which discharges 100 percent of the batch," he adds.

Quality also needed a better product blend that is more homogenized. Continuous rotation throughout the entire blending cycle assures that all materials remain in motion, preventing segregation in batches of varying material densities. The machine tumbles, turns, cuts and folds the material in a four-way mixing action that produces a homogenous blend with no segregation upon discharge.

Quality ordered the machine with two doors and a drain for unrestricted access to internal surfaces during washouts. "After a batch is blended, we clean the machine and proceed directly to blend the next batch," says Abarado. "We don't have to wash out after every batch, even though the ingredients vary according to the customer specifications. If we do need a washout, the drain makes it easy." The absence of residual material, coupled with dual, cleanout doors, allows sanitizing in minutes, preventing cross-contamination between changeovers.

Abarado says, food safety-wise, the equipment is well compliant. All product contact surfaces are stainless steel. Internal welds have a minimum 1/4-in. radius to eliminate corners, cracks and crevices to avoid material entrapment.

"Our plant personnel prefer to work on the Munson line due to reduced labor and approximately one-sixth the maintenance of the ribbon blender line," says Abarado. "Because the rotary mixer also delivers greater batch uniformity, we use it to blend all of our food products for which homogeneity is critical." **PFW**

Munson Machinery

www.munsonmachinery.com