

Happy



Anniversary

Rotary mixer *boosts* dietary supplement

Phoenix Custom Manufacturing manufactures and packages recognised brands and private-label protein powders, amino acids, functional foods and encapsulated dietary supplements. Services include blending, encapsulation, sachet filling, bottling and packaging.



Blends discharge with no residual through the stationary outlet into bulk bags that are transferred to the packaging lines.



Internal mixing flights create a gentle four-way mixing action that causes particles to recombine 288 times per minute with no heat generation or product degradation.



Blends are homogenous and volume is up fivefold.

In 2020, Eric Manfull, an 18-year veteran of the food and dietary supplement industry, was brought on as general manager to expand production and develop the firm into a full-fledged contract manufacturer. “The main bottleneck was the mixing operation,” Manfull says. “We needed to blend 150 000kg a month, but we couldn’t even scratch at volumes like that with the equipment we had.” His predecessor tried to solve the problem with a used V-blender, but its shaft cracked. Manfull then reached out to Munson Machinery which offered a factory-refurbished Rotary Batch Mixer. “I had used a Munson before and I knew how good they were, so I wrote a cheque that night. It’s been key to our success.”

Since installing the mixer, volume is up fivefold, labour is down by half, airborne dust is down 90%, blends are more homogenous, and nine-months of production backlogs were cleared within 60 days, according to Manfull.

FASTER BLENDING WITH LESS DUST AND LABOUR

The 2 549L mixer has no agitators or internal shafts or bearings that contact the product. Instead, the horizontal vessel rotates on external trunnion rings located at each end. Within the vessel, mixing flights, or lifters, create a gentle four-way tumble-turn-cut-fold action that does not generate heat or degrade the product.

Phoenix Custom installed the mixer in a dedicated room that also houses a bag dump station and vibratory sifter. To load the mixer, an operator empties 25kg bags of ingredients into the bag dump station which feeds the material to the sifter. Fitted with a 10- or 20-mesh (2- or 0.84-mm) screen, the sifter breaks apart clumps and prevents foreign objects such as bag pieces from entering the vessel. On-size material passing through the sifter flows past rare earth magnets and into a chute connected to the mixer’s inlet, which remains stationary as the vessel rotates.

With a batch capacity of 1 500kg, the mixer is larger than Phoenix Custom’s other units: a conical blender with a 600kg batch capacity

and a smaller multi-axis tumble blender. The new mixer has proven easier and faster to load and discharge, while producing homogenous blends more quickly and with less dust.

The company manufactures about 30 products, some having just two ingredients and others as many as 50. The Rotary Batch Mixer handles protein and amino acid powder applications, while the conical and tumble blenders mix smaller-volume products.

“It takes us an hour on each end to load and unload the conical blender of a 600kg batch, we can charge the Rotary Batch Mixer with twice as many ingredients in 15 to 20 minutes and discharge in 10 minutes.” With faster throughput, the company overcame a nine-month backlog while also meeting current demand. “We do more in one shift with this mixer than we could in two shifts with other blenders,” he says. “Instead of blending four days a week, 20 hours a day, we’re blending four days a week over one 10-hour shift.”

PRODUCTION UP FIVEFOLD

Production has jumped from 2 000 to 5 000kg a week to between 17 000 and 25 000kg. “It’s just a huge savings in time and labour,” he highlights.

Blends discharge from the mixer through a stationary outlet equipped with a pneumatically actuated discharge door that allows the operator to control flow. Protein powder blends flow into bulk bags holding up to 450kg. These are transferred in-house to packaging lines that fill pre-formed poly bags and pouches of various sizes. Other products are transferred to a capsule-filling machine and packaged in bottles. Some protein powder blends are shipped out for packaging elsewhere.

The company fully cleans and test-swabs the equipment, including the fillers, taking about three hours. According to Manfull, drying takes longer than cleaning and they are back into production with minimal downtime. •

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