

POWDER & BULK SOLIDS

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Designing Mixing Systems

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New Ways to Improve Ribbon Blender Efficiency

A reliable method for solid-solid blending is at the core of production and the ribbon blender is a popular choice due to its efficiency and economy.

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Bin Activators & Dischargers

Metalfab bin activators feature a dual-baffle design that promotes the continuous flow of powders, granules, pellets, flakes, fibers, and flocculants from bins/silos by eliminating bridging and ratholing.

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Driving Process Quality, Efficiency, and Safety with Inline Powder Induction, Dispersion

A U.S. beverage manufacturer approached Admix to improve its batching processes. The company's existing protocol required workers to carry and dump hundreds of pounds of powders from 50-lb bags.

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Vibration App



With vibe2know, anyone can determine a vibrating machine's current performance. The user simply inserts a smartphone into the specially designed mount and attaches it to the equipment. The app then immediately measures vibratory amplitude, frequency, oscillating angle, and operating speed, and enables the user to visualize the vibrating machine's motion pattern. By getting a quick indication of these key parameters, operators can avoid a sudden production outage and plan a timely maintenance intervention. vibe2know is available via app stores for iOS, Android, and Windows.

Schenck Process, Kansas City, MO 816-891-9300
www.schenckprocess.com

Inline Solid-Liquid Mixer

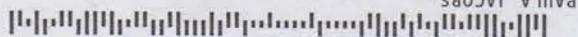
The CMX 2000 inline mixer incorporates powders into liquids and mixes these materials reliably and consistently in a batch process. Its multi-level design and unique pumping stage enables processing of high-viscosity products without any additional aggregates. This enables extreme suction rates and minimal production times to be achieved. The CMX system is usually supplied with a solid material dosing feeder and mixing containers.

IKA Works Inc., Wilmington, NC 910-452-7059
www.ikausa.com



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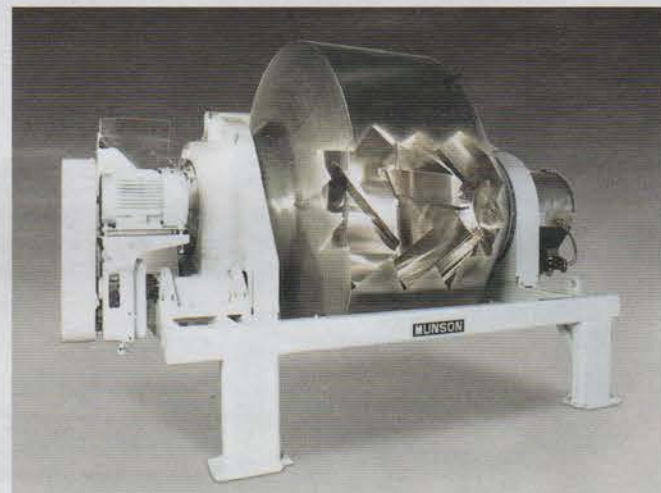
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Rotary Batch Mixer Helps Feed Company Achieve Uniformity

Micron Bio-Systems is an international biotech company that produces feed preservation additives, mycotoxin remediation treatments, and probiotic feed supplements for livestock including beef and dairy cows, calves, lambs, pigs, and chickens.

Blending of these nutritional supplements is a critical step of the manufacturing process due to the diverse sizes, shapes, and bulk densities of ingredient particles, supplement-to-feed ratios as low as 1-to-400, and the need to achieve 100 percent batch-to-batch uniformity.

Micron Bio-Systems blended its products successfully for more than 40 years using a 25-cu-ft rotary batch mixer from Munson Machinery, Utica, NY. When increased demand for its products called for higher throughput, the company specified a new 50-cu-ft version of its original mixer design.



Staggered mixing flights create a four-way mixing action that uniformly distributes ingredients with little or no degradation or frictional heat.

Whereas the original unit had a screw drive that augured raw ingredients in from a hopper, the new feed system features an overhead hopper into which an operator manually empties bags of ingredients. The company is also upgrading to an automated bulk bag discharger with programmable logic control to feed primary ingredients into the new mixer.

Achieving Uniformity with Disparate Ingredients, Dust-Free

To suppress the dust generated when blending clays, dried cultures, extracts, vitamins, and other ingredients, the new model 700-TH-50 AR mixer is equipped with a nozzle that sprays a mineral-based oil onto a large bed of moving material during the mixing process.

Staggered right-hand/left-hand mixing flights create a four-way mixing action that cuts, turns, tumbles, and folds as the drum rotates. The design achieves uniform distribution of ingredients with little or no degradation or frictional heat that could adversely affect the finished blend.

According to Lineberry, "Our QC department checks our batch runs daily and it is always a good mix, always in spec. We have not had any rejects or complaints from customers about our products. And even though the mineral oil sprayed on the dry products for dust suppression tends to ball-up sometimes, the mixing flights gently break it up."

Rapid Mixing Yields High Throughput

The unit's mixing action achieves uniform blends in one to three minutes per batch, regardless of



The 50-cu-ft-capacity rotary batch mixer meets increased demand for feed products having a homogenous blend with uniform ingredient distribution.

Updating a Proven Process

"The original mixer was reliable, and we replaced very few parts on it over the years," says Micron Bio-Systems production manager Shannon Lineberry. "The new one also gives us a good homogenous blend with uniform ingredient distribution, even though the materials have varying particle sizes and densities."



Rotary batch mixing action – cut, turn, tumble, fold – achieves uniform blends in one to three minutes per batch.

whether it is filled to 100% or 10% of capacity. It runs one eight-hour shift per day, five days a week. In Micron Bio-Systems' applications, the total cycle time for each one-ton batch is about 15 minutes from loading to blending to discharge.

One noticeable difference between the original blender and the new one is a pneumatic air-cylinder option that Micron Bio-Systems chose for the inlet door opener. It includes a safety switch that stops the mixer if the door opens. "Our former mixer had a manual slide gate," Lineberry recalls. "If vibration during operating would open that door slightly, there was always the chance for product contamination." The new mixer precludes that possibility.

Once the product is blended, it is discharged to a paddle track conveyor that feeds a 50-lb bag filler. "We can fill between 400 to 440 of those bags – about 11 tons of product," said Lineberry. "We like that the mixer provides a complete, 100% discharge so there is no 'shrinkage' for lost or wasted ingredients that would cost the company money."



Blending is a critical step in Micron Bio-Systems' manufacture of feed additives and nutritional supplements for livestock.

Total Discharge Allows Rapid Cleaning

Most of Micron Bio-Systems' livestock feed supplement products incorporate similar ingredients, albeit in slightly different

proportions. Since no medicated products are involved, and because the self-emptying design of the rotating drum's lifters evacuates the entire batch, Lineberry simply runs the mixer with an abrasive, granular cleaning agent and absorbent as part of a monthly preventative maintenance program.

"The new unit was also easy to install," said Lineberry. "It was basically 'plug and play'."

For more information on Munson Machinery Company, Inc., Utica, NY, call 315-797-0090 or visit www.munsonmachinery.com.

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