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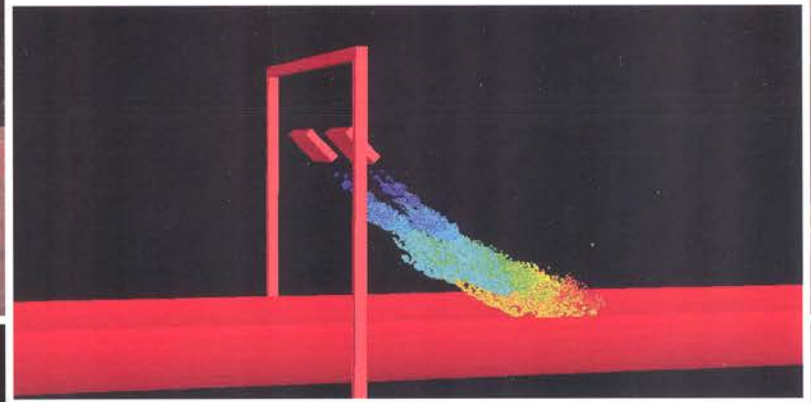
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US feed plant achieves precise ratios with rotary batch mixer

Family-owned Catalyst, formerly Pharm-Tech, custom formulates and manufactures feed and nutritional supplements for customers in the livestock, poultry, pet, wildlife and aquaculture industries.

It operates five production plants, three in Idaho and two in Iowa. Its range of over 100 products includes digestive aids, mineral supplements and most recently Certified Organic blends and finished feeds.

One of Catalyst's lead products is OCM Global, an all-natural blend of minerals that the company says has established a worldwide reputation for improving the digestion and absorption of nutrients for livestock, while encouraging the elimination of waste.

Catalyst's manufacturing process places high demands on mixers. Batches need to be thoroughly mixed to a homogenous blend, despite large numbers of ingredients, wide variation in ingredient weights, and range of bulk densities.

"FSMA (U.S. Food Safety Modernization Act) regulations are changing the way we do business," said Jos Zamzow, Catalyst's chief operations officer. "The new requirements with regard to ingredient tracking, certifications, and product registrations make our large Munson Rotary Batch Mixer the most economical way to make products. It enables us to build larger batches at a time, cutting down on batch-by-batch

paperwork and sample testing requirements," he added.

The 2125 l capacity 700-TH-75 Rotary Batch Mixer was installed in Catalyst's Des Moines facility as part of a plant upgrade, replacing the original Rotary Batch Mixer, which had operated since the 1960s.

Mixing disparate ingredients in wide-ranging ratios

The number of ingredients in a single Catalyst product can vary from as few as four to more than 30, plus individual additions of trace elements and vitamins in amounts as small as 45g. The mixer needs to distribute both primary and trace ingredients with total uniformity.

Catalyst's products are often added to larger finished feeds by customers in ratios ranging from 1:40 to approximately 1:700, mandating that these additives are blended precisely throughout the batch. "Our customers rely on us to retain exacting concentrations in the blends we make for them," Zamzow said.

According to Munson, the Rotary Batch Mixer achieves total batch uniformity through a series of proprietary mixing flights that create a unique tumble-turn-cut-fold blending action. Continuous rotation throughout the blending cycle assures that materials remain in motion at all times, preventing segregation during discharge regardless of disparities in the size, shape, bulk density or blend ratio of ingredients.

The mixing action also imparts minimal energy to the batch material, helping to preserve the chemical and physical properties of sensitive ingredients. "We see that some ingredients can change their properties during mixing if they are blended in another style mixer," Zamzow said. "Our Rotary Batch Mixer's action creates little or no friction, allowing us to run higher concentrations of products like vitamin E without problems. The 'Munson', as it's nicknamed at our facility, is gentle but very thorough, making it perfect for our wide range of formulas."

He added, "The other thing we appreciate is that virtually no residual product remains in the mixer after it is emptied. If we put 900 kg of ingredients in, we get 900 kg of finished product out. As we continue to get ready for FSMA, simple things like that make the Munson an invaluable tool for us."

Primary ingredients are fed from a weigh hopper above the mixer while minor pre-weighed ingredients are added by hand. Once blended, the batch discharges into a bucket elevator and is conveyed to holding bins before being filled into 9 to 27 kg bags.

Adapting to diverse batch size requirements

Flexibility in batch sizing is another advantage of the Rotary Batch Mixer, says Munson. It is equally



According to Munson, the 2125 l capacity Rotary Batch Mixer proves the most economical way to make Catalyst's wide range of feed and nutritional supplement products.



After mixing, the feed products are packaged in 9 to 27 kg bags.



Catalyst's feed products contain as few as four to more than 30 ingredients, in varying weights and bulk densities, but are mixed to a homogenous blend.



efficient down to 10 percent of rated capacity, making it less restricted by traditional batch sizes. "Formula adjustments are easy and small batch sizes are possible, which is a tremendous competitive advantage," Zamzow said.

Each batch is typically loaded and blended in less than 12 minutes, with only two to three minutes of actual mixing time required to achieve uniformity of ingredients once loaded.

Complete evacuation of blended batches eliminates waste and allows rapid cleaning of the interior, all of which is visible and accessible through large access doors, preventing cross-contamination and allowing quick changeovers.

Absolute quality control is essential, since Catalyst's

supplements are scrutinized not only by customers, but also regulatory agencies including the FDA and USDA.

Zamzow concludes: "With the diversity of ingredients and their varying densities and properties, we need a versatile and efficient mixer to meet these challenges. And as food safety regulations become more complex and the marketplace more competitive, the right tool for the job is critical. The Rotary Batch Mixer plays a vital part in achieving this."

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