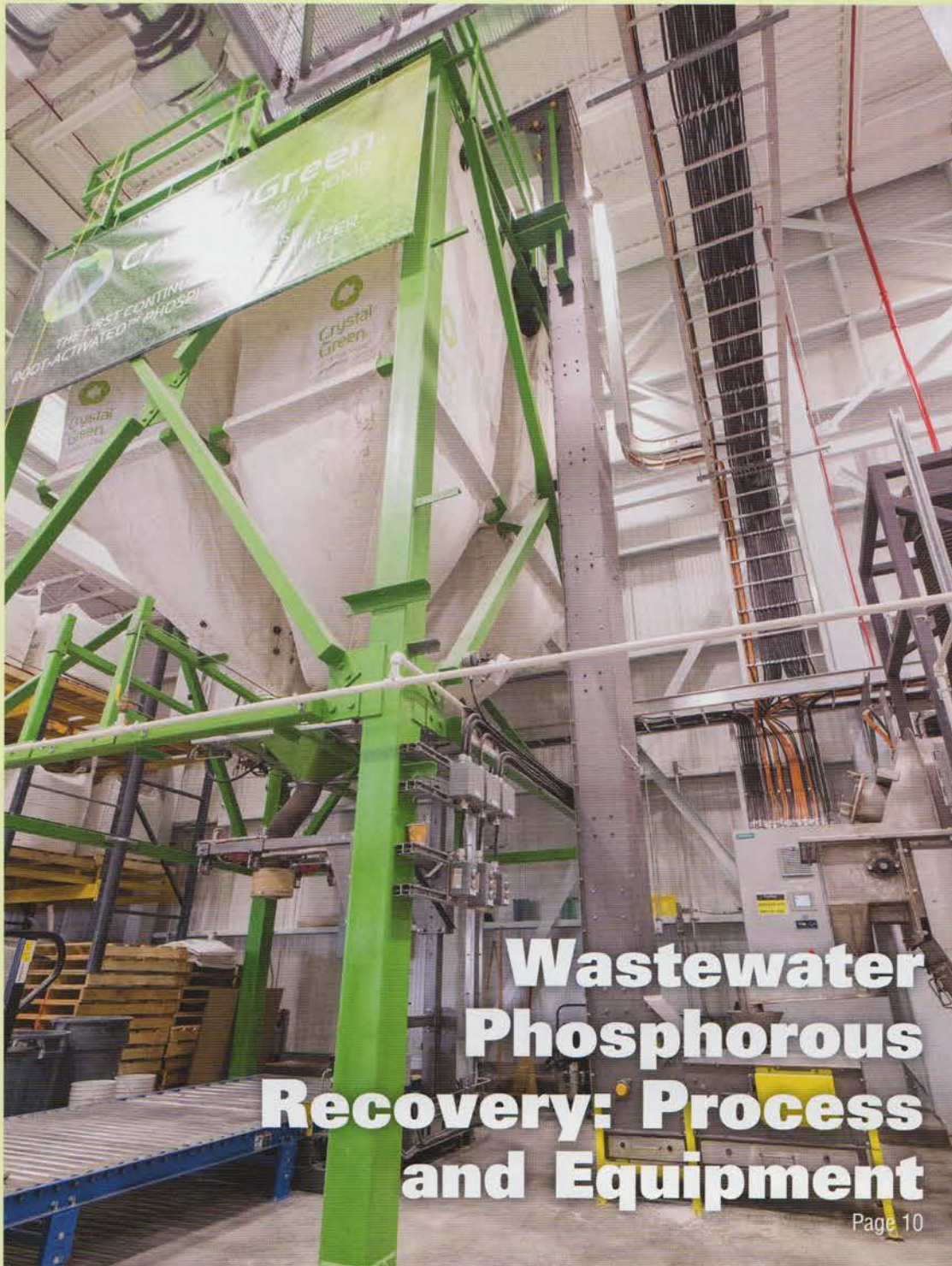


# POWDER & BULK SOLIDS

The Source for Dry Processing and Bulk Handling Technology



## Wastewater Phosphorous Recovery: Process and Equipment

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### Location. Location. Location.

Dennis O'Leary discusses how the real estate mantra is applicable to powder and bulk processing applications and critical to choices made with respect to the selection, placement, and installation of magnetic separation equipment.

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### Material Classification in Drying Operations

Joe Scholl provides examples of the most prevalent drying technologies available, and how only a fluid bed operation can specifically be designed and/or operated to achieve material classification within the drying operation itself.

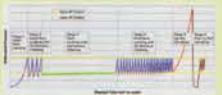
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### Measuring Dust Collector Performance

John Woolever discusses ASHRAE's recently published new test standard that provides a means for dust collection equipment operators to compare relevant performance results, based on an expanded range of characteristics.

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### New Chemical-Free Moisture Analyzer

Twenty years after Computrac introduced the first true chemical-free Karl Fischer alternative, the company is unveiling the Vapor Pro XL (VPXL). The VPXL features an upgraded heater, increased control over testing temperatures, and an advanced touchscreen user interface. It is also compatible with multiple sizes of sample vials and is equipped with stepped temperature testing capabilities for enhanced method development. From plastics to petroleum products, pharmaceuticals to chemicals, food, and more, the Vapor Pro XL is ideal for nearly any application in which Karl Fischer is used.

Arizona Instrument LLC, Chandler, AZ 800-528-7411  
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### Non-Contact Laser Level Transmitter

ABB introduces the LLT100 laser level transmitter that provides continuous, non-contact level measurement of any solid. This product meets the demands of process automation and inventory management in industries such as mining, aggregates, oil and gas, chemicals, food and beverages, power, pulp and paper, pharma, and water and waste water. The LLT100 is a maintenance-free instrument that measures the storage level of any material, independent of its properties or conditions. Solid material is detectable up to 330 ft. Positioning applications, where the position of a tripper car is precisely measured, for instance, can be done at distances up to 650 ft.

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# Mixer Helps Feed Supplement Plant Achieve Precise Ratios

Family-owned Catalyst, formerly Pharm-Tech ([www.pharm-tech.com](http://www.pharm-tech.com)), 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 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 (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."

The 75-cu-ft-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 that had operated stolidly 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 0.1 lb. 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.

The rotary batch mixer achieves total batch uniformity through a series of proprietary mixing flights that create a 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.

"The other thing we appreciate is that virtually no residual product remains in the mixer after it is emptied. If we put 2000 lb of ingredients in, we get 2000 lb 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 20- to 60-lb bags.



The 75-cu-ft-capacity rotary batch mixer proves an economical way to make Catalyst's wide range of feed and nutritional supplement products, in addition to gentle yet thorough mixing, total batch uniformity, and flexibility in batch sizing.





After mixing, the feed products are packaged in 20- to 60-lb bags.

### Adapting to Diverse Batch Size Requirements

Flexibility in batch sizing is another advantage of the rotary batch mixer. It is equally 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 total 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.



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.

Absolute quality control is essential, since Catalyst's supplements are scrutinized not only by customers, but also regulatory agencies, including the FDA and USDA.

"With the diversity of ingredients and their varying densities and properties, we need a versatile and efficient mixer to meet these challenges," said Zamzow. "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."

Munson Machinery Company, Inc., Utica, NY, manufactures mixers, blenders, and size reduction equipment for bulk solid materials. For more information, call 315-797-0090 or visit [www.munsonmachinery.com](http://www.munsonmachinery.com).

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