

Farm focus

Go behind the scenes at the Kilic Group, Turkey's largest aquaculture company. Page 20



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New products

Discover new innovations in feed, shrimp feed processing equipment, and anti-fouling research. Page 25

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PHARMAQ

PRODUCTS

Centrifugal sifting for feed

Converting from vibratory to centrifugal screening netted a 60-fold screening improvement at Epicore BioNetworks Inc., removing a bottleneck in the production of the company's shrimp farm feed products.

The company produces biologicals and aquaculture feed products that nurture shrimp over their lifecycle, which necessitates producing feed particles in diameters from 300 microns (0.3 millimeters) through 1,200 microns (1.2 millimeters).

The feed is a combination of grains, nutrients and oils.

Epicore had been using a 30-inch (762 millimeter)-diameter circular vibratory screener to scalp oversize particles prior to packaging, but oil in the feed caused particles to agglomerate and plug or "blind" apertures in the screen.

After attempts to rectify the problem, Epicore decided to replace its vibratory unit with a centrifugal screener.

While vibratory screeners rely on gyratory motion to promote the passage of on-size particles through apertures in a horizontally oriented screen, centrifugal screeners utilize rotating paddles that accelerate the flow of particles against the interior wall of a horizontally oriented, stationary screen cylinder.

In addition to boosting the rate at which on-size particles pass through the screen, increasing the speed at which particles impact the screen also serves to break up soft agglomerates of the type that were plugging Epicore's vibratory screens and being ejected as oversize clumps.

Epicore originally supplied products to control pollution and

clean ponds after the harvest. It entered the feed business when it found low-grade feed products encouraged the buildup of harmful bacteria.

"We tried a number of solutions," said Production Manager Sam DeMore.

"We purchased an antiblinding device that essentially acted like a set of rubber windshield wiper arms that swept across the vibrating screen to remove particles lodged in the apertures. We also tried antiblinding rings, which vibrated against the underside of the screen. Both helped, but not enough."

"We typically filled one 20 kilogram drum per hour of our high lipid feed, or about 150 kilograms per hour of our lower lipid feed," said DeMore. "Of course, throughput was highly dependent on the lipid content of the feed."

Epicore could tolerate low sifting rates during the early stages of shrimp feed production, but as business grew, the company needed to boost productivity.

The conversion from vibratory to centrifugal screening overcame Epicore's screening bottleneck.

Throughput was always dependent on the oil content of the feed, but the typical output of the circular screener was 150 kilograms per hour, and the worst case was about half of that.

To confirm anticipated improvements prior to purchasing its screener, Epicore tested a Centri-Sifter model MO centrifugal screener at Kason Corp., manufacturer of the equipment.

"We scheduled a demonstra-



Photo: Kason

WORKS BETTER: Converting from vibratory to centrifugal screening netted a 60-fold screening improvement at Epicore BioNetworks Inc., removing a bottleneck in the production of the company's shrimp farm feed products.

tion at the Kason test lab using 45 kilograms of our bagged particles," DeMore said. "In 17 seconds, the Centri-Sifter processed what would have taken over 17 minutes with our circular vibratory screener."

The centrifugal sifter consists of a vertically mounted feed inlet and a horizontally oriented, cylindrical sifting chamber.

As material enters the feed

inlet, a feed screw redirects it into the cylindrical screen, where a rotating helical paddle assembly continuously propels the material against the screen without coming in contact with it.

Particles either pass through apertures in the screen, break apart and then pass through the screen or, in the case of oversize particles, travel to the open end of the cylinder, where they

are ejected through an "overs" discharge spout.

The Kason screener is powered by a three-horsepower direct-drive motor, and uses nylon screening media. One employee works on the top of the platform, opening bags and pouring their contents into the sifter. A second employee below weighs the sifted product and rolls it onto a conveyor for shipment.

Skretting's upgraded hatchery feed good for both fish and the environment

Upgraded Gemma Diamond feed enhances aquaculture marine nursery production, says feed maker Skretting.

Processing developments at the hatchery feed plant of Skretting have enabled it to upgrade its Gemma Diamond feed by producing highly uniform micro pellets.

The new hatchery feed, available in five pellet sizes from 0.8 millimeters to 1.8 millimeters, is aimed at marine nursery production with fry from 0.5 grams to 25 grams.

The key benefits of using the even-sized pellets are more uniform growth in batches of fish and far less impact on water quality, compared with feeds that contain a proportion of outsize particles and dust, the company said.

Skretting has designated the feed plant in Vervins, France, as its center of excellence in marine hatchery feeds.

One of the unusual features is a unique low-temperature extrusion process that avoids denaturation of heat-sensitive raw materials in the feed, preserving their nutritional value.

Gemma Diamond is formulated with a high protein/lipid ratio.

The feed's high protein content is designed to support the potential for rapid growth during the nursery period, the company said.

The new feed also has Skretting's proprietary marine algal blend.

This blend has proved successful in the other hatchery

feeds, Gemma Micro and Gemma Wean, making the feeds notably more attractive to aquaculture operations.

In addition, Gemma Diamond is fortified with essential oils and immunostimulants that, according to Norway-based Skretting, support the vitality of the fry in sensitive periods, such as when they are being graded or transferred to sea.

Skretting says it's adjusted the physical properties of the micro pellets so they sink slowly, giving the fry more time to find and consume the feed.

Being free of over and undersized particles, Skretting says Gemma Diamond is equally suited to maintaining water quality in land-based nurseries, recirculation systems and cage systems.

Arch opens antifouling tech center in Osaka

Arch Chemicals Inc. in May opened its new Asia Pacific Marine Laboratory in Osaka, Japan, to maximize technical expertise in the ongoing development of antifouling paint technology, and will include work with net coatings for aquaculture applications.

The Arch Osaka sales office will relocate to the same facility as the new marine laboratory.

"We are pleased with the opening of the Osaka laboratory, as it will be instrumental in supporting our global customers for Arch's antifouling biocides in Asia. We also plan to use the center to assist in the development of new products for use in antifouling paints and aquaculture applications," said Bob Martin, global business director for Arch's antifouling biocides

business.

"The creation of the Osaka location further solidifies Arch's commitment to service, and strengthens our position as a global industry leader in the advancement of marine antifouling technology."

Headquartered in Norwalk, Conn., Arch Chemicals is a global Biocides company with annual sales of more than \$1 billion (€806 million).

Arch and its subsidiaries provide solutions to selectively destroy and control the growth of harmful microbes.

Together with its subsidiaries, Arch has approximately 3,000 employees and manufacturing and customer-support facilities in North America, South America, Europe, Asia, Australia, and Africa.