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What do fish and ethanol have in common? A lot more than you think thanks to Fluid Quip Process Technologies

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Feeding the Fish

Back in 2015, Fluid Quip Process Technologies made it to #149 on The Digest's Hot 50 List, showing that it is worthy of attention, but it didn't quite make it up to the actual top 50 that year. But here's why we think they might be worth another look for next year's Hot 50 list. Oh, clean sugar technology, how I love thee, let me count the ways…

First, FQPT has been around forever…well, these days over 20 years seems like forever. What started as engineering and manufacturing separation equipment for corn wet milling and pulp and paper applications, FQPT has more recently leveraged wet milling knowledge to develop enhancements for dry-grind ethanol plants.

But even though they've been around for more years than many tech companies around today, they are like Bob Dylan's song and are a' changin'. And that is key to survival and growth – new technologies, new innovations, new opportunities.

Second, they have some advanced technology that helps companies convert waste into highly valuable products, like fish feed for the aquaculture industry. Check out the scoop on their technology "Changing the Sugar Paradigm: The Digest's 2017 Multi-Slide Guide to Fluid Quip clean sugar technology."

Lastly, they just announced their largest clean sugar technology order to date. FQPT reached an agreement with White Dog Labs to provide an 18 million bushels/year Clean Sugar Technology to WDL's first full-scale production plant.

More on the White Dog Labs order

WDL has developed and scaled up ProTyton, a Single Cell Protein ingredient that exhibits upwards of 85wt% crude protein and over 35wt% essential amino acids. The product is highly digestible and performs well in multiple aquaculture diets with leading indicators of health benefits beyond nutrition. ProTyton fermentation, similar to that of ethanol, is a simple anaerobic process, thus allowing straightforward conversion of ethanol plants to ProTyton production.

The patented CST technology was developed by FQPT as a bolt-on to dry mill ethanol plants to produce a sugar slip stream that allows diversification of co-products, thus providing additional revenue streams without detracting from existing co-products. The CST system, first commissioned in 2016, leverages many FQPT technologies in the ethanol space. It separates the slurry stream into clean sugar, spent grains, and corn oil. FQPT will provide the CST technology, separation equipment, process engineering, construction oversight, and startup support for the ProTyton plant.

CST is the 5th commercially proven ethanol industry technology released by FQPT in five years. Each of these technologies are designed to bring diversification in co-product revenue streams to the industry.

"We are delighted to be a part of WDL's first ProTyton plant," said Neal Jakel, Vice President of Strategy and Technology at FQPT. "In addition to their organism and process development work, WDL has completed an impressive process scale-up, using their 5000 gallon in-house fermenter."

ProTyton, is estimated by aquaculture analysts to command a $2000/ton price while its production costs are estimated to be below $500. It thus offers the ethanol industry a profitable diversification into the large, and ever-growing aquaculture industry.

"We are privileged to work with FQPT," said WDL's CEO, Bryan Tracy. "They are the premier process engineering firm in the biofuels industry, and their track-record of successful MSC and CST installations will contribute to the plant's start-up and production ramp." Tracy added, "Our collaboration will start with the initial construction of our pre-production line."

FQPT and Green Plains

As reported in The Digest earlier this month, Green Plains signed a Letter of Intent to implement Fluid Quip Process Technologies' MSC Protein System at their Shenandoah, Iowa facility. In the discussion during a quarterly investors call, CEO Todd Becker also discussed starting there and rolling it out to other facilities.

This will be FQPT's 5th installation of the patented MSC protein system. The fourth is at Flint Hills Resources Fairmount Nebraska plant and they are nearing completion with a startup planned for this summer, according to Michael Franko from FQPT.

"This proven bolt-on technology produces high-protein animal and fish feed ingredients from a portion of distillers grains and is expected to provide a consistent uplift of at least 10 cents per gallon to the ethanol margin structure," said Todd Becker, Green Plains' President and Chief Executive Officer. "After the careful evaluation of several technologies, we are excited to choose Fluid-Quip's MSC for our first implementation at Shenandoah, Iowa. As we have indicated in the past, we believe the margin contributions of corn oil and high-protein feed ingredients will help our returns become more predictable and consistent over time."

FQPT and Flint Hills

In January 2017, the Digest reported that Flint Hills Resources and Fluid Quip Process Technologies conducted over 15 NexPro feed studies with independent and well-respected university researchers to demonstrate value in tilapia, trout, shrimp, dairy, swine and poultry. The results of these studies have shown NexPro to be an excellent source of nutrients in the diets of these animals.

The new technology, called Maximized Stillage Co-Products, was developed exclusively for the dry mill ethanol industry by FQPT. FQPT provides the MSC technology, separation equipment, process engineering, construction oversight, and startup support for the Fairmount system.

The technology uses a series of mechanical processes to separate protein from the solids leftover after ethanol distillation. Centrifuges are used to isolate protein molecules from residual fiber and carbohydrates. Once the protein is isolated, it is sent to a protein dryer where it is dried into a fine powder. The drying process is essential to ensuring the high-quality of the protein product.

In addition to its high protein content, NexPro is expected to have about 3.5 percent crude fiber, 4.5 percent fat and 1.1 percent phosphorus. The feed also contains yeast leftover from the ethanol fermentation process. The remaining yeast contains lysine – an important amino acid essential for growth in animals – giving the product more total lysine than traditional corn gluten meal.

Bottom Line

Now that you've seen the latest and greatest on FQPT, keep an eye on them as we expect further announcements coming from them as more orders for their clean sugars technology and other innovative tools of the trade come pouring in. After all, the times are a' changin' and one day they just might be on the Hot 50 list.