

FRITZ INDUSTRIES

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Fritz 2020 & Beyond! Update July 2020

It has been long overdue, but Fritz Business Development team wanted to give everyone an update on our efforts. We received great participation from everyone by submitting over 115 ideas from 45 different employees. Of the ideas submitted 46 are being further investigated and have been grouped into five different teams. The teams are Consumer Products led by Phillip Coffman, Agricultural Products led by Milleo Melendez, Polyacrylate/Construction Chemicals led by Kyle Hagelin, Polymer Products and Toll Manufacturing led by Steve Laramay. Each of these groups have formed teams that are investigating, developing, and marketing products that Fritz can produce and sell to these markets.

Consumer Products Group

Pool products are being developed by the Consumer Products Group. Water soluble polymers, scale inhibitors and algaecides are used in pools to keep the pool clean, clear, and safe to swim. Fritz will leverage our water-soluble production capabilities to produce polymers that are used to limit scale and stain formation. These polymers can then be blended with other additives using our liquid blending capacity which we can then use our expertise in high volume consumer packaging to package these ready-to-use products. New polymers and polymer blends have been formulated in the laboratory. Initial lab testing is very encouraging as these products are outperforming products currently used in the industry. The next steps will be to produce these products in the Pilot Lab and strategize how we are going to market these products.

We currently produce algaecides for ponds and aquariums in the Specialty Division and we have used our expertise to formulate two different algaecides for pools. A product like Coppersafe has been developed and results from lab testing showed comparable performance to a commercial product. A second product like Fritz Algaecide has been formulated and successfully tested in the lab. Both formulations will be scaled up in the Pilot Lab for further testing.

A third idea being pursued and spearheaded at HTC is solid pool scale inhibitors that are safer to handle compared to liquid scale inhibitors which are corrosive. They also have the advantage of extended release that keeps the concentration of the scale inhibitors at a constant concentration, without having to constantly add liquids. These products will be produced by leveraging our dry blending expertise and then pressing the dry blend into a tablet. Potential formulations have been developed in the lab and have been tested. A batch has been produced in the Pilot Lab and the material is out for tablet production since we don't have the capability to produce large tablets. Once the product becomes a success, we can consider the purchase

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of a tablet press to produce the tablets in-house. Once we have developed the solid scale inhibitor, we plan to develop other pool tablet products.

One way everyone can help is to name our pool product line. If you have a catchy name for this line, we would love to hear from you. You can email us at Fritz2020@fritzind.com or call 972-329-8845 and leave a voicemail. Please help us!

Dust suppressants is another new market being investigated. Dust suppressants help cities, counties and states meet federal clean air standards. Applications include new construction, roadways, arid soil near roadways, golf cart paths, mining and many other uses. These products are also water-soluble polymers. A successful scale up of this product has been conducted in the Pilot Lab. Both Fritz and a partner company have extensively tested the first product and are currently optimizing the formula so that the minimum amount of polymer can be applied to the surface, while providing a long-lasting treatment. This will be a product line composed of multiple product types, each one with specialized functions.

The last area for this group, is consumer cleaners and sanitizers. This will be a product line of multiple types of sanitizers and cleaners. Due to the COVID-19 pandemic, there has been a significant increase in sales and use of sanitizers. In order to state claims of effectiveness (such as kills 99.9% of bacteria and viruses), surface cleaning products must have data and approval (registration) by the US Environmental Protection Agency (EPA). Fritz is working on obtaining this approval through sub-registration through other companies. We currently have an EPA registered facility and manufacture an EPA sub-registered algacide in Specialty. We are working with two different companies on multiple sanitizers to sub-register and manufacture sanitizers that are effective against the virus that causes COVID-19. The first product in this line is a general-purpose cleaner that removes tough, oily stains from surfaces. We are currently designing the label for this product and next will select the packaging, followed shortly by the release to manufacturing.

Agricultural Chemicals Group

In the production of nitrifying bacteria, a nutrient-rich effluent is currently being discarded as a by-product. Based on analyses, this effluent may find applications as a fertilizer for greenhouse crops, landscape annuals and hydroponics, an industry worth approximately \$5 billion in the state of Texas. A fertilizer that is effective and available in liquid form derived from living organisms would quickly find a substantial market. Fritz Industries Nitrate Effluent (FINE) is currently being investigated as a fertilizer in a joint project with the Texas A&M University - Commerce Plant Science Center. The test involves height, width, chlorophyll content measurements and overall appearance of four annual landscape plants. After four weeks of testing, the FINE product showed comparable performance with a commercial fertilizer. The project will continue until the end of August. While this project is on-going, much knowledge has been gained from this collaborative work. Mesquite Technology Center (MTC) will begin to setup in-house testing of a biofertilizer using our nitrifying bacteria products and another bacteria for nitrogen-fixation.

A pilot batch of a minimum risk pesticide using DE sprayed with an essential oil blend that will kill and repel fleas and ticks has been successfully completed. The granular product can be broadcast by hand or device. The brand name is "Fleave Me Alone" and provides an aroma shield to keep bugs at bay. Packaged in a rigid

dispensing jug and a 10-lb resealable bag, this aromatic sprinkle has a refreshing scent that destroys bugs. Similar items on the market claim up to 30-day activity. We are looking at how exposure to the elements will impact the longevity of odor and the size of DE. Fine particles of DE destroy insects much like razor blades while the essential oils breakdown the exoskeleton. Efforts to expand the line include formulas for dog and cat flea-tick spray, flea shampoo, hot-spot spray (for bite irritations), indoor area spray (carpet, baseboards), and an outdoor hose attachment yard spray. Logo and branding efforts are in the works with an online artist. We are reviewing additional formulas specific to mosquitos, flies and gnats, ants, and snakes.

Diatomaceous earth (DE) based soil amendments (In Fritz's past when we produced potassium humate (KHumate), an effort was undertaken to sell KHumate to the agricultural industry as it is great for promoting growth in plants, vegetables, and lawns. KHumate is also known to help aerate soils that are high in clays, which is a problem in North Texas which hamper growth because plants can't grow in the compacted soils. One problem this effort encountered was that the liquid was difficult to handle and spread in the field due to its clumpy nature. The new idea is to absorb KHumate on DE, leveraging the production technology we have to produce Sorbs. Samples have been produced and tested in the lawn of one of our fellow employees. The test was hampered by the amount of rains we had during the test and the strength of the product may have been too low to be effective. A stronger product is being formulated for another field trial.

Polyacrylate/Construction Chemicals

After reviewing the construction chemicals market, the group determined that initial efforts should be finding a partner that is in the industry and determine if we could produce products for them. Two companies have been identified to pursue in this industry. One company is a large chemical company that supplies chemical additives to the construction chemical, and we could complement their operations and provide production and packaging support. The second company is a smaller company that provides many products into this industry. This company is also a partner in the introduction of our dust suppressants that we have developed over the last few years.

Polymer Products Group

The focus of this group is development of water-soluble polymers that can be used as scale inhibitors in oil production, mining, water treatment and other industries. Polymers have been produced in the lab with varying success. Work in continuing in the area to develop polymers that suitable scale inhibitors.

Two scale inhibitors have been developed in the lab which are not polymers. These inhibitors would use current liquid blending to produce these products. Favorable testing in the lab has been completed in a variety of scales and the products are currently being marketed to our current oilfield clients. There is interest and a client has asked for more testing to determine if the products will meet their needs.

Toll Manufacturing Group

Three different avenues are being investigated to date. We have been working with an external company to dry one of their latex products. The aim of this project is to convert a coater into a fluid bed dryer that could dry the latex efficiently without destroying the product. Lab trials were conducted at 2900. Samples of dry powder were produced in the lab coater and the company liked the samples produced. The next step, which

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is currently ongoing, is to run drying trials in a coater at 500E. A team composed of Production Chemistry, Maintenance, Operations and Engineering has conducted trials with success. The trial to be run is a long-term test to determine expected yield and to determine costing.

The second avenue was producing a feed additive for a company that is trying to enter the market. The process seemed easy enough that we should be able to produce this product in the lab and in production. A procedure to produce the product in the lab was completed and our client was happy with the product. With this information, production cost was estimated, and it was determined we could not produce at a low enough cost for the company to enter the market. We are still in discussion, but we are not hopeful for commercialization.

Lastly, we are exploring contract testing, R&D services, and pilot services as potential markets. As the oil industry continues to lay off employees, many of our clients do not have the resources to perform testing and we can help with that testing. We also can perform analytical testing for our oilfield customers as well for other industries. We can also leverage our Pilot Lab capabilities to clients that need pilot plant services. A linchpin for this pursuit is the updating of our branding and website to explore new markets which is being undertaken by another group.

We would like to thank everyone for this help in getting Fritz 2020 & Beyond! off the ground. We have been making progress and we have a few projects that are close to the finish line that hopefully allow us to meet our aim of strengthening Fritz for all our fellow owners.

Fritz Business Development Committee