

## **TomAlgae case study downstream harvesting process with 2x Evodos 25 units.**

Belgium-based TomAlgae is developing freeze-dried microalgae for feed in shrimp hatcheries. The company has created its own microalgal “cultivar” and manufactures a lyophilized (freeze-dried) product exceptionally rich in omega-3 fatty acids, both EPA and DHA, proteins and vitamins.

The initial scale-up was a 50-fold production increase, with open raceway ponds inside greenhouses that enable year-round production and procurement of equipment including the Evodos 25 dynamic settler to complete the crucial downstream (harvesting) process. When sustainable production was obtained, TomAlgae increased the production capacity x4 to meet the increased market demand and purchased a 2<sup>nd</sup> Evodos 25 dynamic settler to fulfill the capacity requirement.

TomAlgae’s downstream product consists of a paste, which is subsequently lyophilized to maintain cell integrity and biochemical value, and then packaged in small (20g) sachets. The product is pathogen free. (Live algae are the principal vectors for vibrio and protozoal infections in shrimp production, so converting to TomAlgae’s solution can eliminate this risk.)

Traditionally, algae are grown on-site, where live feed is often unstable, producing unpredictable yields and using a large amount of space that could otherwise be used to grow commercial species. TomAlgae offers products that can be stored on-farm and readily prepared into a suspension on site, while maintaining cell integrity and biochemical value – thereby mitigating the risk of seasonal fluctuations in quality and volume.

TomAlgae’s product replaces the need for the live algae currently used in the first three critical phases (Z1-Z3) at shrimp hatcheries. The first application of the product (Z1) is direct feed to shrimp larvae (one of the fastest growing sectors in aquaculture) followed by enrichment for Artemia and rotifers that, in turn, can be fed to fish larvae (indirect application).

“One of the critical parameters of the product we deliver is that cell integrity is maintained,” said William van der Riet, CEO of TomAlgae. “Our algae cultivar is fully digestible and cultivated to the size and composition required by the target species. In order to maintain the cells intact we have been using the Spiral Plate technology from Evodos in our downstream process. The Evodos dynamic settler turned out to be the only solution for harvesting the algae cells undamaged”

The algae paste obtained from the dewatering process is dried in a controlled process to prevent loss of valuable components like Poly Unsaturated Fatty Acids and pigments. (During the downstream process, no preservatives are used.) Only the water is evaporated during this drying process, the final moisture content of the product is between 2% and 5%. After drying, the product is packed in the 20g sachets and boxed up for shipping.

“The aquaculture market is growing 6% year on year and we have already passed the mark where the consumption of cultured fish is higher than wild catch,” says William van der Riet. “This has an enormous impact on the sustainability of our oceans and fits well as part of our overall vision to help create a sustainable sector.”