

# Taking centrifugal separation to a whole new level

Thanks to a revolutionary new disc stack design, Arla Foods in Vimmerby, Sweden processes up to 40% more milk in its two separators from Tetra Pak.

[www.tetrapak.com](http://www.tetrapak.com)

The modern milk truck unloads its 40 tonnes of locally produced milk in the dairy's spacious reception area. On average, the Arla Foods facility in Vimmerby handles 1.5 million kilos of milk daily. Here, 25% of Arla Foods' total milk is efficiently processed into milk powder and cream.

About 90% of the milk powder is exported to the Middle East and countries such as China, Egypt, Nigeria, Greece and Italy. The cream is transported to Arla Foods' plant in Götene, about 240km northwest of Vimmerby, where it is used mainly for production of butter and dairy spreads.

"My job is all about continuous improvements. There is always something to improve here," Allan Leandersson, Project Leader Product & Technology Development at Arla Foods, told International Food & Meat Topics.

"At a large plant such as this one, there are many opportunities to save or earn money – on water or energy consumption, waste, increased capacity, etc."

One of the many successful improvement projects started in November 2014. The timing was perfect. Capacity at the milk



powder plant had to be increased. At the same time, Tetra Pak wanted to test a new technology for its separators. A technology development project was formed with the aim to drastically increase separation capacity and efficiency. "The separation technology has not really evolved much since the 1950s, so it was exciting to be part of this project."

Traditional separator discs have spacers welded to the discs. The new technology features a high number of polynodes that are totally integrated in the disc material. This secures an even distance between the spacers, allowing for more discs to be stacked in the separator. In turn, this results in a much higher separation efficiency.

The first attempts of the technology development project failed. In the first few months the trials showed no clear improvement in efficiency or capacity. But Allan had faith in the project team. "At the time the separators were bottlenecks in our two identical processing lines and we really wanted to increase our capacity. In addition, every kilo of fat that can be separated means a little more money for Arla Foods' farmers, so improving efficiency was also key," he told us.

After six months, the team finally made a breakthrough. Step by step, the capacity increased, and after a few more months of trials the capacity had increased by 40%.

Furthermore, when running at lower speeds the fat content separation figure was improved to 0.035%. "Anybody that has worked with milk separation knows that this is very difficult to achieve. We now have a stable process, delivering a consistent level of accuracy and capacity. It is a fantastic result."

Another advantage with the separators from Tetra Pak is low energy consumption. The project team achieved even further energy savings by reducing the separators' speed, especially when running the Cleaning-In-Place programme, or by managing lower capacities. High skimming efficiency also enables a lower bowl speed, as do cases where optimal performance is not a priority – for instance, when producing full-fat milk powder.

Besides the technology development project involving the separators, Arla Foods is also making other investments in the plant to future-proof the business.

The biggest investment entails installation of cyclones to improve the quality of the end product. And all investment and improvement efforts have paid off.

"Our milk powder is of very high quality, suitable for making baby formula products. I'm really proud of what we have achieved here," says Allan. ■

## Main benefits with the solution:

- Drastically improved capacity.
- More efficient separation.
- Lower energy consumption.

## Leading in northern Europe

Arla Foods is owned by some 11,200 dairy farmers in Sweden, Denmark, the UK, Germany, Belgium, Luxemburg and the Netherlands. It started in Sweden in the 1800s and is one of the leading dairy companies in Europe and worldwide. With 2,700 farmers in Sweden, it is the country's number one dairy company. The site in Vimmerby was built in 2004, employs 90 people, processes more than 500 million kilos of milk per year and produces around 55,000 tonnes of milk powder.

