

Membrane filtration:

Optimization and sustainability are top priorities - both now and in the future

Highest food safety and quality, sustainable production, and optimized and integrated solutions will continue to be the core of all Tetra Pak Processing's activities in the future. In the field of membrane filtration, new solutions within milk and plant-based products are constantly in the mold.

About Tetra Pak

Tetra Pak has more than 25,000 employees.

Customers are served locally by market companies in Europe, the Middle East, Asia, Oceania, and the US.

Membrane filtration can be installed in all types of dairies and plant-based food productions, either for production of specialty recipes or for reuse of water from various product streams.

New product areas

Our dairy customers are working relentlessly to meet new demands from consumers; quickly, efficiently, and with the highest utilization of raw materials. One market in strong growth is protein concentration of goat and sheep whey for baby food especially in China, where products with special properties and nutritional benefits are in demand. These types of milk come into the picture because they are easier to digest than cow's milk and have properties that are closer to breast milk. Also, the lower lactose content in goat's milk, compared to cow's milk, makes it interesting. Standardization of the same milk types for cheese is a growing market as well.

Plant-based alternatives to the classic dairy products such as cheese and yogurt in addition to concentrated plant proteins from grains, nuts, and beans for a wide range of foods are also a major area of growth for our customers in the food industry.

Higher dry matter content

The development in the concentration of dry matter from whey and milk is a constant focus area. Both because a higher solids content ensures savings on transportation costs for the next stage of the production chain, as well as savings on the consumption of water and power for the evaporation into powder.

Within a few years, we expect to reach a dry matter content of approx. 45% by RO concentration. This makes filtration an even more interesting technology for customers, because improved raw material utilization and thus efficiency and sustainability go hand in hand.

Whey as a clean-label premium product

A refinement of the bacterial and fat rich WPC60 fraction that results from bacterial removal on whey is a growing market, just as we will see further fractionations of whey



proteins or casein. An example is filtration to separate alfa-lactalbumin and beta-lactoglobulin for infant nutrition, as filtration is a cheaper solution compared to other alternatives.

At the same time, we partner with other protein fractionation players, with demand for ever-cleaner fractionation being one of the most important business drivers.

Removal of calcium is an important part of the filtration process. The calcium content is crucial for the concentration of dry matter. Removing calcium from the UF permeate not only achieves higher solids content, but, equally important, avoids acid dosing in the whey to keep the calcium dissolved. Thus, the whey can be classified as clean label, which many customers want.

In addition, the removal of calcium in lactose powder production means that the evaporator has a longer production time and requires less cleaning.

Cradle-to-grave development of membranes

New types of membrane, where we ensure an even higher utilization of raw materials, will see the light of day; a process which is well under way. Furthermore, there is a challenge regarding disposal of the polymer membranes, which we also work with our membrane suppliers to solve.

Where the ceramic membranes have a lifetime of approx. 10 years, there is greater replacement of the polymer membranes, which typically lasts 1-3 years.

Reduction of water and power consumption

The new filtration systems from Tetra Pak have optimized water and power consumption. For existing systems, customers are offered energy-saving upgrades. The patent pending VarioBoost software, which significantly reduces the power consumption of the

booster pumps, is an example. Another software solution is Green Flush, which reduces water consumption during flushing with up to 40%.

Our dedicated water optimization specialists offer a review of production to ensure that as much water as possible is recycled rather than discharged as wastewater. A business area that is growing rapidly as costly water is, or within a few years, becomes the most critical resource in keeping food production running. ●

TETRA PAK FILTRATION SOLUTIONS




Upgrade your filtration system to highly sustainable

Driven by our strong focus on sustainability, we have developed a number of features to reduce the environmental impact of your filtration system: www.tetrapak.com/sustainable-filtration/

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