



## Safeguard Yogurt Quality and Reduce Processing Costs with Pall's Fuente II Filters

### Overview

Yogurt is the most popular cultured dairy product worldwide. Its healthy image supports the dynamic development of a vast array of products featuring new and innovative ingredients, nutritional benefits, and packaging choices.

Modern yogurt production typically demands large volume, continuous processing with critical attention to product quality, from the milk receipt through to final packaging. Protection of the product, defined by its specific flavor and texture profile, requires efficient prevention of microbial contamination in order to reduce the risk of quality defects, such as off-flavors and whey separation, reduced shelf life and subsequent product losses.

While much attention is typically given to the prevention of airborne contamination primarily in the fermentation and filling areas, the quality of water in direct contact with product and process surfaces is just as critical.

In the last stages of the manufacturing process, yogurt is particularly sensitive to re-contamination by yeast and mold, which can easily grow in sweet, acidic conditions. Potential bacteria contamination, mostly coming from the water source, can also lead to product failures and recalls.

### The Challenge

Water is a key process component, with approximately 1 liter used per kilogram of yogurt produced, and is typically distributed via large piping networks to the various points of use, ranging from basic wash-down to more stringent sterile water applications. Yogurt producers have developed strict microbiological specifications for ingredient water or process water used at critical points, in addition to the general water quality requirements regarding clarity, hardness and taste or odor.

Contaminant-free water is commonly used after a cleaning procedure for the final rinse of the

equipment surfaces in contact with the product, and it is also increasingly used to separate yogurt batches from one another and push the yogurt through the process pipelines to the filling equipment.

Short water rinses (10 to 20 minutes) have been demonstrated to be highly efficient for product push, sweeping away yogurt from tanks and piping surfaces. Such water "breaks" allow the various yogurt batches to be packaged one after the other, without causing mixes of the different batches or requiring intermediate CIP cycles. This procedure, used 5 to 10 times a day, requires consistent high quality water, free from spoilage micro-organisms, to prevent yogurt contamination during the transfer operation to the filling line.



Inadequate water quality can penalize yogurt producers with additional processing costs, such as:

- Inefficient protection against contamination
- Increased downtime
- Product yield decrease
- Increase of cleaning chemical and wastewater discharge costs
- Increase of energy costs

Membrane filtration, which consistently removes micro-organisms is a reliable and cost-effective alternative to pasteurization of the water.

Pall, recognized in many industries for process water purification and recycling, offers expertise and capabilities to optimize water quality cost-effectively.

### The Solution: Fuente II Filters for High Quality Process Water

The Fuente II membrane filter provides reliable bacteria reduction for highest product safety. It is designed as a 0.2 µm-rated microorganism retaining filter for use within the Food and Beverage industry.

The filter is comprised of two layers of polyethersulfone membrane. The filter cartridge is manufactured using the Ultipleat® construction, a unique laid-over pleat configuration which maximizes membrane area, resulting in increased flow rates and long filter life.

- Reliable bacteria reduction, providing a sterile effluent, when challenged with *Brevundimonas diminuta* at a specific challenge level of  $>10^7/\text{cm}^2$
- High flow rate characteristics resulting in economical filtration and smaller footprint
- Superior mechanical resistance, with tolerance to high pressure drop and numerous steam sterilization cycles up to 142°C, resulting in reliable performance over long operating life
- Possible combination with user-friendly, high accuracy Palltronic® Flowstar integrity test instrument, for quality assurance and further cost optimization

The Fuente II filter cartridges can be supplied with all 316L stainless steel sanitary housings, available in single or multi-round options to suit customer requirements.

Pall's selection of water treatment solutions offers cost-effective choices for optimizing upstream water quality for a longer life of the final filters, also addressing additional clarification, polishing and other water treatment needs.

Integrity testing of membrane filters at regular intervals provides verification for use throughout their operating life. Palltronic Flowstar instruments, designed with direct measurement technology for integrity control of both liquid and gas membrane filters, which are linked to microbial validation, offer automated, rapid and highly accurate testing of all membrane filters in the dairy plant. The compact



SASE housings



Fuente II filter cartridges





and splash-proof design is optimally suited to be used in production environments. A unique Multiplex version is capable of testing up to eight filters sequentially and automatically further saving operator time.

### Benefits

Fuente II membrane filters provide high water quality which efficiently protects yogurt batches from recontamination when transferred through the pipeline network, thus improving dairy manufacturers' economics.

With the recommended enhancement of integrity testing, dairy operators can be assured of additional reliability and cost savings.

- Maximizing utilization of filling capacity by increasing product yield and daily production
- Savings in water and chemical costs due to reduced chemical cleaning cycles
- Reduction of water discharge volumes produced by cleaning operations



Palltronic Flowstar XC

- Reliable product protection, avoiding costs associated with contamination and product non conformance
- Avoidance of premature filter change-out due to overly conservative preventive maintenance, and enhancement of HACCP programs by use of integrity testing

### About Pall Corporation

Pall Corporation is a global filtration, separation and purification leader providing solutions to meet the critical fluid management needs of customers across the broad spectrum of life sciences and industry. We work with our customers to advance health, safety and environmentally responsible technologies. Pall Food and Beverage provides products and services to ensure product quality and maintain process reliability in beverage and food production. Our solutions also assist in consumer protection, waste minimization and reduction of operating costs.



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