

# Dairy Evaporation plants up-grade

## Retrofit - Revamping

Existing plants are often running at their limit and even beyond after years of operation and therefore may become the bottle-neck of a dairy processing line (in terms of capacity or product quality for example).

At the same time, the legal and commercial environment is in constant evolution and as a consequence, there is an increasing gap between what the plant can offer and the demand. Processed milk producers wanting to stay competitive may need to examine the various possible ways to fill the gap.

Plant revamping can be a pragmatic and economic answer to this. Both in the perspective of solving technically identified problems or adapt the plant to potential new market requirements.

Revamping requires a good knowledge of evaporator technology, access to the design details via a performing archive system and an understanding of the original concept.

GEA Process Engineering France can offer services to revamp existing evaporators, advise the best possible modification with the aim of minimizing the necessary production stop.

### Revamping can be considered within the following fields:

- Capacity increase
- Adaptation to new products or new running conditions
- Implementation of additional heat-treatment
- Improvement of hygienic standards and food safety
- Energy and/or water consumption optimization
- Effluent emission optimization
- Automation





### Capacity increase

Capacity increase and debottle-neck of an existing process line is often requested. It can increase significantly the amount of final product manufactured and can have an attractive pay-back period.

### Adaptation to new products or new running conditions

A dairy evaporator designed originally for a given working condition may cause problems when utilized with a new product without attention to details, fouling being the main problem. A design review of the plant combined with the expected production rates, end-up in an accurate identification of the required modifications insuring future safe production conditions. Such a review is also advised when combining an existing plant with a reverse osmosis pre-concentrator for example because the product concentration profile is changed.

### Implementation of additional heat treatment

Integrated evaporator heat-treatment is used to achieve a certain bacteriological flora reduction but can also affect the final product properties that limit the final product quality (solubility index, WPNI, etc). Replacement or modification of the existing integrated heat-treatment can extend the range of final product properties.

### Improvement of hygienic standards

Hygienic standards, design rules, as well as the available components are improving all the time. Evaporators' components can be changed to new items in order to improve the product quality and safety. Often, by a simplification of the corresponding components and the circuits, maintenance is improved. A HACCP review of the plant can also be part of the approach.

### Energy and / or water consumption optimization

In the actual context, energy and water consumption are becoming an universal concern both in relation to cost reduction requirements and environmental issues. Alternative energy sources can be considered and optimization of the water utilization can be achieved with a logical direct consequence of reducing the water effluent at the same time.

### Effluent emission optimization

Effluent emission is an increasing concern and milk processors will need to consider how to control, reduce and optimize this.

Surface condensers, reduction of the potable and industrial water consumption, optimization of the CIP procedure partly re-utilizing condensate, are among the possibilities.

### Automation

Automation offers a series of attractive advantages, facilitating and systemizing operations, improving time management, problem diagnostic, process optimization, maintenance and product quality support tracability...

This list is not to be considered as exhaustive and other modifications can also be covered on a case to case approach. For additional information, please contact us or visit our website [www.gea-pe.fr](http://www.gea-pe.fr)

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