

# RECP Best Practice Catalogue

## *Rinse factor reduction in the sterilisation module*

*Developed within the framework of MED TEST II*



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



The SwitchMed Programme is  
funded by the European Union

# Best Practice - Rinse factor reduction in the sterilisation module

SECTOR:	Food & Beverage
SUBSECTOR:	Manufacture of dairy products
PRODUCTS	UHT milk; flavoured UHT milk; Twist; Beverages
CATEGORY	Process control or modification
APPLICABILITY	Process
COMPANY SIZE	505



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# Best Practice - Rinse factor reduction in the sterilisation module

## Description of the problem (Base scenario):

In the production of UHT products, milk sterilisation modules are subject to a CIP every 6 hours of operation, on average. These frequent cleanings consume huge volumes of rinsing water which lead to high ratios for the rinsing factors. The rinsing factors (volume of rinsing water/volume of the system to be rinsed) are set by the operator between 50 and 200% according to the manufacturer's specifications. It turns out that this factor was set at 180% for a sterilisation module when it is put into service, which offers a significant reduction potential since it can be reduced and consequently reduce water consumption.

## Description of the Solution

The improvement measure is to conduct rinse factor optimisation tests to lower the current value from 180% to 100%. Lowering this factor requires increased monitoring in the laboratory to quickly detect any impact on the quality of rinsing and possibly on product quality.



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**Economic Benefits**

Reduction of osmosis water consumed used for rinsing, amounting to 3,192 m<sup>3</sup>/year, or an annual financial savings of 2,550 €  
A reduction in energy consumption (n.d.)  
Reduced rinse time which increases the productivity of the sterilisation module.

**Environmental Benefits**

Raw water savings of 3,671 m<sup>3</sup>/year.  
Reduction of waste water volumes by 3,671 m<sup>3</sup>/year ( with used rinse water and reverse osmosis effluent)  
Energy savings on creating the osmosis water and for the circulation of this water in the pipes and reduction of the corresponding GHG emissions.

**Health and safety impact**

Not relevant



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<b>Capital investments &amp; financial indicators</b>	No investment, but analysis and monitoring costs involved with the rinsing quality: 950 € Return on Investment 4.4 months
<b>Suppliers</b>	Not applicable
<b>Other aspects</b>	No particular constraints as to the implementation of the improvement. The risk of deterioration of the quality of the product is overcome by increased sampling frequency and rigorous monitoring in the laboratory.
<b>Implementation</b>	<b>The action has been implemented</b>



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