RECP Best Practice Catalogue

Optimisation of the Aseptic Intermediate Cleaning frequency

Developed within the framework of MED TEST II

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

switchmed

The SwitchMed Programme is funded by the European Union

Best Practice - Optimisation of the Aseptic Intermediate Cleaning frequency

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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Description of the problem (Base scenario):	Currently, aseptic intermediate cleanings (AIC) are triggered at the sterilisers every 90 m^3 of treated product. Each AIC requires a stop in production, and thus a decrease of productivity, causes losses of milk during dispensing, of water and chemical products, as well as a consumption of electrical and thermal energy. The AIC actions also create an increase in pollution flow from wastewater.
Description of the Solution	The improvement measure consists in reducing this frequency according to the nature of the products treated, the quality of the raw materials used and the clogging of the exchangers while maintaining the quality objectives. Functionally, this measure translates into eliminating one out of the 4 currently carried out between 2 full CIPs.

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Economic Benefits	Reduction of the time required for an AIC is a gain in steriliser operating time of 90 minutes every 40 hours which corresponds to a productivity increase of 3.75%. Annual milk powder savings are 89,107 €; water savings are 3,873 €; NaOH is 11,621 €; HNO_3 is 11,507 €; A thermal energy savings at 140 °C (n.d.) Electrical energy savings from water pumping and cleaning solutions through sterilisation modules (n.d.) Total savings = 116,108 €/year
Environmental Benefits	Reduced milk powder losses of 43,103.9 kg/year in whitewater, which corresponds to a reduction in pollution flow of wastewater, expressed in COD, of 86,998 kg O_2/year. Annual water savings of 5,273 m^3; NaOH savings of 45%, or 35,947.2 L; and HNO_3 savings of 60%, or 23,964.8 L. Thermal energy and electrical savings as well as reduction in GHG emissions (n.d.)
Health and safety impact	Positive impact because of less use of chemicals

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Capital investments & financial indicators	No investments, but there are operating costs, due to additional laboratory tests and controls Return on investment: not applicable
Suppliers	No suppliers
Other aspects	Instability of raw material quality and the high number of products requiring a large number of tests.
Implementation	

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