RECP Best Practice Catalogue

Product recovery through installation of transmitters

Developed within the framework of MED TEST II

UNITED NATIONS
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switchmed

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Best Practice - Product recovery through installation of transmitters

SECTOR:	**Food & Beverage**
SUBSECTOR:	Manufacture of dairy products
PRODUCTS	UHT milk and pasteurized juices
CATEGORY	Process control or modification
APPLICABILITY	Utilities

COMPANY NAME	---
COMPANY SIZE	Medium

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Description of the problem (Base scenario):	The company has product tanks, which act as a buffer for the filling machines. Those tanks need to be emptied before starting of any Clean In Place (CIP) process, or at the end of each production batch to wash the tanks. Emptying the tanks is conducted through water push techniques, in which water pushes the product out of the tank. Pushed product is collected for reprocessing until water is detected, and then product collection stops. Manual detection is followed for determining the interface between product and water when emptying tanks. The remaining unrecovered product at the bottom of the tanks discharged to drain is about 1% from the total production in addition to another 1% loss within each CIP.
Description of the solution	Installing online transmitters that measure the TDS of the fluid exiting the tanks, to assure minimum product level inside tanks before initiating the CIP cycle will recover about 50% of the product losses.

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Economic Benefits	Product losses is about 2% from the annual production original baseline (541 ton/y) Cost of 1 ton product = 222 Euro Installing online transmitters will save about 50% of product losses (270.5 t/y). Total annual saving due to product recovery = 60,051 Euro/y. In addition to the environmental cost saving is 2,792 Euro/y due to pollution load reduction on the final end-of-pipe. Total cost saving = 62,816 Euro/y
Environmental Benefits	Installing online transmitters will recover 50% of wasted product (270.5 t/y) This measure will also reduce the pollution load within the final end-of-pipe mainly in reduced BOD and COD. Reduced BOD 5%: 6,062.75 Kg/y Reduced COD 3%: 8,506.5 Kg/y

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Capital investments & financial indicators	Total estimated cost for installing online transmitters for 5 tanks is 26,250 Euro Payback period is 0.42 years
Suppliers	
Other aspects	Saving the product losses will be reflected as increase in productivity by 1% (270.5 t/y)
Implementation	This measure is implemented by the company. However, the savings indicated are based on estimates due to unavailability of separate submeters (information system).

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Replicability sectors	**The same concept can be replicated in:** Dairy industry Soft drinks industry.
Aspects to investigate for replicability	Method of emptying the product tanks before initiating CIP process
Useful resources	