Recovery of detergents in food industry: an industrial approach

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\begin{abstract}
A Nanofiltration pilot plant (300 Da cut-off and 50 m\textsuperscript{2} membrane surface) has been used \textit{in situ} to recover a spent single-phase detergent (DEPTAL EVP\textsuperscript{®}) in a yogurt industrial factory. The plant worked during 60 h at constant operation conditions previously selected in experiments at laboratory and pilot-plant scales. Membranes retained around 90\% of the chemical oxygen demand and permeates were reused in the “cleaning in place” plant. Savings of detergents in the yogurt plant were estimated in 15–20\%. The data obtained during the tests were used to do an economic evaluation of the feasibility of the plant under several hypotheses of volume concentration rates. Payback was estimated in 2.6 years.

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