

CROSSFLOW FILTRATION AND BALANCING OF ALKALINE BOTTLE WASHING BATHS IN BREWERIES

J.-P. Estievenart^a, P. Stachura^b, N. Velings^c

^aCERISIC, Mons, Belgium, ^bSOPURA, Courcelles, Belgium, ^cHELHA, Mons, Belgium
(nicolas.velings@helha.be)

ABSTRACT

The manufacturing processes of beers, juices and other beverages as well as their packaging (bottles, barrels,...) require a lot of water (G. Simate, 2011). Cost related to the supply and discharge of water is an economic factor that is becoming increasingly important for breweries. This paper is focusing on brewery bottle washing alkaline baths treatments by ultra- or microfiltration in order to reuse them. Ceramic membranes with different cut-offs (15 kD, 300 kD and 0.2 μ m) are compared. The steady state permeabilities of the membranes as well as the analyzes of the filtrates parameters (COD, surface tension, alkalinity, ...) showed that the membrane with 0.2 μ m cut-off gave the biggest solution permeability and a similar quality of permeate to membranes with a lower cut-off. The cross-flow filtration dramatically reduced the concentration of surfactants. An important part of the COD removal comes from the surfactant retention on the membrane. A method for measuring the dynamic surface tension on line is proposed. Finally, a bath balanced by adding surfactants after filtration is compared with an unbalanced bath.