

THE FOULING AND CLEANING OF HEAT EXCHANGER SURFACES – COMPARISON BETWEEN FRESH AND RECONSTITUTED SKIM MILK

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ABSTRACT

The fouling and cleaning process of heat exchange surfaces relevant to dairy plants are influenced by the type and characteristics of the processed solutions. In this study, the fouling and cleaning characteristics of heat exchangers used for processing fresh and reconstituted milk solutions have been investigated.

Fouling layers were produced by recirculation of 10wt % of fresh and reconstituted skim milk through the experimental rig. Cleaning was done by recirculation of aqueous sodium hydroxide (0.5wt %) in the rig and the cleaning efficiency was monitored using the record of heat transfer coefficient. The results show that reconstituted skim milk gave much less fouling than that for fresh skim milk and the fouling layer generated from reconstituted skim milk was removed more quickly. The results match the expectation that the greater amount of heat treatment that the milk has had, the smaller extent of fouling due to the availability of 'fresh' whey proteins.