

Method for the determination of product losses in dairy processes

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Abstract

The chemical oxygen demand (COD) in the wastewater of the dairy industry is high. A high COD demand has two problems: First, it could lead to problems with the sewage treatment plant; second, it means a loss of product. It is well-known that approximately 90 % of the COD load is milk components, but it is difficult to specify how much effluents occur from the different processes. Thus, it is necessary to develop a method to determine product losses. This paper shows a possibility of determining product losses and provides information on where, why and how many COD-loaded wastewaters occur. Here, the first rinse water of the cleaning process in a dairy is collected and the COD is analysed. In relation to the COD of the pure product, one can determine the product loss. The presented method was reproducible with a variation coefficient of < 3.6 %, except for cream, which had a variation coefficient of approximately 6.5 %. This method allows for the optimization of processes and the reduction of the COD load of wastewater.

Keywords: Product loss, rinse milk, rinse water, wastewater, COD, chemical oxygen demand, dairy