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EFFICIENT WASTEWATER TREATMENT OF THE DAIRY INDUSTRY AND THEIR REUSE BY ELECTROCOAGULATION-FLOTATION

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Abstract

A study on wastewater treatment at a dairy production plant was conducted using an electroflotation coagulation method with optimization of parameters such as wastewater treatment time, current density at the electrodes, and pH of the medium. The cleaning efficiency was carried out on the basis of such parameters as COD, TOC, TS and the color. The current density varied from 10 to 35 mA/cm^2, the pH varied from 3 to 9 units, and water sampling was carried out after a treatment time of 10, 20, and 30 minutes.
The ionic strength of the solution was maintained using a NaCl-based electrolyte with a concentration of 3 g/L. It is shown that for a current density of 30 mA/cm^2 and a solution treatment time of 30 minutes, the chromaticity of the solution is removed by 95%, and the removal of TSS, TOC and COD reached values of 93 - 96% in the range. The influence of factors such as the pH of the solution and the presence of a supporting electrolyte on the formation of various particles involved in the coagulation and flotation process is discussed.

Key words: dairy waste water, electrocoagulation, electroflotation, wastewater treatment

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