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“CLEANER PRODUCTION INITIATIVES AND CHALLENGES FOR A SUSTAINABLE WORLD”

Study of Degradation of the complex EDTA-Cu (II) by Electrochemical Methods

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Abstract

In mixed wastewater, the presence of metal ions can reduce the rate of organic contaminant removal and decrease the efficiency of metal recovery. The study of ethylenediamine tetraacetic acid (EDTA) degradation in natural environments has demonstrated its poor biodegradability and indicates that EDTA behaves as a persistent pollutant in the environment. Additionally, the contribution of EDTA to toxic metal bioavailability and remobilization processes in the environment is a major concern. In the present study, the electrochemical degradation of the complex EDTA-Cu(II) was performed at different currents (10 - 120 mA cm⁻²), and different concentrations of the EDTA-Cu(II) complex (0,10, 0,15 and 0,20 mmol dm⁻³), using a Ti/Ru_{0.3}Ti_{0.7}O₂ type electrode. The results show that the electrochemical degradation was efficient in oxidation of solutions, achieving a significant performance, about 85% removal of the complex.

Keywords: *Ethylenediaminetetra-acetic acid (EDTA); electrochemical degradation; copper.*

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