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INVESTIGATION OF TREATMENT KINETICS ON THE LEACHATE TREATMENT BY ELECTROOXIDATION METHOD

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Abstract

This study investigated the effects of wastewater pH and current intensity on the electrooxidation treatment of leachate from a solid waste landfill site commissioned in Iğdır Province, Turkey, in 2013. The study aimed to determine how the removal rate changes over different time intervals and the pH range in which this rate is maximum. Removal exceeding 90% was achieved at all pH values studied. The pH at which the removal rate is maximum covers the period when the wastewater pH is between 8 and 10. Regardless of the initial pH value, first-order reaction rate constants were found to be low in the first 120 minutes and high between 120 and 360 minutes. Experiments conducted at various current intensities indicated that 95% COD removal was achieved at a current of 10 A. Applying a current intensity above this level would not significantly alter efficiency but would significantly increase energy consumption. Increasing current intensity shortened treatment time but increased costs.

Key words: current intensity, electrochemical treatment, electrooxidation, leachate

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