VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELGAUM

A

PROJECT REPORT ON

DOMESTIC WASTEWATER TREATMENT USING Fe & Al ELECTRODES

submitted by

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ABSTRACT

Treatment of domestic wastewater by electrolysis using iron and aluminum electrodes has been studied. The wastewater characteristics such as COD, BOD_5, Nitrate, Phosphate, Electrical conductivity, TDS and pH were analyzed. The optimum contact time, voltage and operating cost of the treatment were considered. The experimental studies were carried out using the electrolysis cell of capacity 1.3 L with a working capacity of 1 L using a pair of Fe-Al electrodes. The studies were extended using 2 pairs of Fe-Al electrodes placed alternatively. The batch studies were conducted at different voltages (5, 10 & 15), the maximum current (0.7, 1.1 & 1.5) was drawn for a particular voltage from the DC power supply (0-30V, 2A). Samples were drawn at every 5 minute interval for 30 minutes. The results were reported in terms of percentage removal. From these studies, the optimum operational contact time was found to be at 30 minutes and the optimum voltage was found to be 15 V. The experimental results showed that the combination of Fe and Al electrodes are efficient in the treatment of domestic wastewater.

Keywords: Domestic wastewater, Fe-Al electrode, Operating cost, Electrolysis, Optimum contact time and voltage