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## Removal of Organic Matter from Paper Mill Effluent by Electrochemical Oxidation

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### ABSTRACT

The electrochemical oxidation of paper mill wastewater was studied using a dimensionally stable anode of composition Ti/RuPb(40%)Ox. The oxidation process was analyzed as a function of electrolysis time and with respect to the cell potential difference, electrolyte (NaCl) concentration, and pH of the sample. The purification of the effluent was evaluated through measurements of the removal of chemical oxygen demand (COD), color, and total polyphenols, and using UV-Vis spectroscopy. The results showed that the presence of NaCl is a determining factor in the purification process. Electrolysis of wastewater containing 5 g/L NaCl at a cell potential difference of 6 V for 120 min, removed 99% of COD and the percent removal values of color and polyphenols were 95% after 15 min of electrolysis. The UV-Vis spectrum showed evidence of the formation of hypochlorite ions (ClO<sup>-</sup>) during the electrolysis process, indicating that the electrochemical oxidation proceeds via an indirect mechanism with the participation of hypochlorite ions.

### KEYWORDS

Paper Mill Wastewater, Electrochemical Oxidation, Ti/RuPb(40%)Ox Anode

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