

## **ELECTROCHEMICAL TREATMENT OF AGROCHEMICAL MANUFACTURING INDUSTRY WASTEWATER AND LANDFILL LEACHATE**

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This investigation dealt with treatment of wastewater from the agrochemical/pesticide production industry and of landfill leachate, that are characterized by toxic compounds, high chemical oxygen demand (2000-7000 mg/L) but different electric conductivities (1.8 and 33.8 mS/cm, respectively). An undivided plate-and-frame cell was employed, equipped with a boron-doped diamond anode and a carbon-PTFE gas diffusion electrode as cathode, in batch recirculation mode. The experimental design and optimization of the electrochemical process was carried out using the Response Surface Methodology. Three independent parameters were considered, namely the current density, the air flow rate and the wastewater feed flow rate; the desired responses included maximization of COD removal and current efficiency and minimization of energy consumption. Under near optimum operating conditions, the removal of COD and TOC for the two types of wastewater matrices was greater than 90% and 70%, respectively, whereas energy consumption was significantly greater in the case of pesticide wastewater due to the higher ohmic resistance in the cell. In view of the encouraging results obtained and the potential practical applications, work is in progress toward further development of this process.