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## Behavior analysis of a porous bed electrochemical reactor. The treatment of petrochemical industry wastewater contaminated by hydrogen sulfide (H<sub>2</sub>S)

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The concern for the removal of contaminants, such as hydrogen sulfide ( $H_2S$ ), during crude oil processing has been intensified. Sulfur compounds, such as dissociated  $H_2S$ , are detected in the effluents of process gas condensation and streams of acid water. The objective of this study is to apply electrochemical oxidation to neutralize  $H_2S$  in industrial effluents. Tests were performed in a porous bed electrochemical reactor, which was composed of reticulated vitreous carbon. The oxidation process is direct and potentiostatically controlled, and the dissociated sulfide was oxidized to sulfate and/or thiosulfate, main product of the reaction. Figures of merit were constructed to evaluate the performance of electrochemical reactor under different hydrodynamic conditions, by varying the flow rate, and overpotential, by varying the distance between the electrodes in the reactor. The figures of merit indicated that the best condition for the formation of thiosulfate occurred at the lowest flow rate used, 1.05 l/h and at a greater distance between the electrodes, 60 mm.

## **Biography**

Doctor in Materials Science and Engineering (UFSCar, 1994.). Codeposition of alloys mechanism. Coordenator of the Environmental Technology Laboratory - LTA. Research activities include: Electrochemical systems and engineering and Heavy metals electroremediation from industrial solid wastes.

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