

عنوان مقاله:

Petrochemical wastewater treatment using Electro-Fenton process by CFD study

محل انتشار:

چهارمین کنفرانس بین المللی نوآوری های اخیر در شیمی و مهندسی شیمی (سال: 1396)

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خلاصه مقاله:

The important parameters in mineralization treatment of Petrochemical wastewater by electro-Fenton process were successfully simulated by Computational Fluid Dynamics (CFD). The effects of H₂O₂/ Petrochemical wastewater (PW) (mL/L), H₂O₂/Fe²⁺ molar ratio, current density, pH and reaction time were numerically investigated. Material distribution in the electrochemical cell was studied. Furthermore, the results were compared with the experimental data. The simulated data showed that maximum COD removal was around 67.55% at H₂O₂/PW (mL/L) of 1.23, H₂O₂/Fe²⁺ molar ratio of 3.65, pH of 2.67, current density of 59.7 mA/cm² and reaction time of 73.19 min while the experimental data obtained from the literature showed a maximum COD removal 66.85% for the same operating conditions. The simulated data showed very good agreement with the experimental data.

کلمات کلیدی:

Petrochemical wastewater, Advanced oxidation, CFD, COD

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