عنوان مقاله:

Kinetic modeling, reactor design, and flow model for removal of pharmaceutical residuals from aqueous systems by advanced oxidation technologies

نویسندگان:

M Mehrvar - *Department of Chemical Engineering, Ryerson University, ۳۵۰ Victoria Street, Toronto, Ontario, Canada M۵B ۲K۳*

M Mohajerani - *Department of Chemical Engineering, Ryerson University, ۳۵۰ Victoria Street, Toronto, Ontario, Canada M۵B ۲K۳*

F Ein-Mozaffari - *Department of Chemical Engineering, Ryerson University, ۳۵۰ Victoria Street, Toronto, Ontario, Canada M۵B ۲K۳*

خلاصه مقاله:

A dynamic kinetic model for the removal of pharmaceutical residuals mainly through photolytic decomposition of hydrogen peroxide (UV/H2O2) in two single and multi-lamp photoreactors is developed. The UV/H2O2 process has been proven to be more effective for oxidizing toxic, bio-recalcitrant, and inhibitory contaminants. The kinetic model contains different chemical and photochemical reactions. The model validation and verification are carried out using published experimental results from the open literature. The impact of different parameters such as H2O2 and alkalinity concentrations, the photoreactor size, and the light intensity on the efficiency of UV/H2O2 is studied. Local volumetric rate of energy absorption (light intensity profile) is also developed in the photoreactors. Turbulent flow in the photoreactors is modeled by a k-

کلمات کلیدی:

Advanced Oxidation Process, CFD, Finite Element Method, Photoreactor, Turbulent Flow

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