

عنوان مقاله:

Modeling of Oxygen Transfer during Aerobic Biodegradation of Pnitrophenol in a Slurry Bubble Column by Acclimated Waste Activated Sludge

محل انتشار:

اولین همایش ملی پژوهش های کاربردی نوین در علوم پایه (سال: 1396)

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نویسندگان:

Esmail Jafari - *Department of Petroleum Engineering, Omidyeh Branch, Islamic Azad University, Omidyeh, Iran*

Ghazaleh Shakeri - *Department of Chemical Engineering, Gachsaran Branch, Islamic Azad University, Gachsaran, Iran*

خلاصه مقاله:

An aerobic biodegradation of p-nitrophenol (PNP) by acclimated waste activated sludge in a bubble column was examined at varying initial PNP concentrations, activated sludge concentrations, and aeration rates. The time course of the biodegradation of PNP in a batch slurry bubble column could be divided into three phases, i.e., lag phase, exponential degradation phase, and ultimate deceleration phase. For the aerobic biodegradation of p-nitrophenol by acclimated waste activated sludge, the dynamic models for the dissolved oxygen mass balance and PNP degradation kinetics with the proposed correlations for volumetric oxygen transfer coefficient and oxygen uptake rate could successfully simulate the concentration profiles of dissolved oxygen and PNP during the time course of anaerobic biodegradation of PNP. In this research, determine a mathematical model for oxygen transfer in a bubble column bioreactor. The results of this study showed that the standard deviation of the proposed model for oxygen transfer is equal to 11.8%.

کلمات کلیدی:

Aerobic biodegradation, Dynamic models, Oxygen uptake rate, P-Nitrophenol, Volumetric oxygen transfer coefficient

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