유동상호기조 및 혐기조가 결합된 반응조를 활용한 암모니아를 함유한 폐가스 처리 모델링

임광희*, 부타이지양, 이은주[1], 박중곤[1]
대구대학교 화학공학과; [1]경북대학교 화학공학과
(khlim@daegu.ac.kr*)

A comparative study was performed with the combined system composed of fluidized aerobic reactor and anaerobic reactor to treat waste air containing ammonia. From the experimental results, a high removal efficiency of ammonia of higher than 90% can be achieved at the early state of reactor-run. However, with the increase of operation time this value decreased and maintained at about 80%. In case of the theoretical model prediction, the concentrations of nitrate ion in the aerobic reactor and in the anaerobic reactor varied around 18ppm and 12ppm, respectively, which were about 31% and 8% different from those in case of the actual experiment. Regarding the concentrations of aqueous ammonia, the total aqueous ammonia and ammonium ion, the difference between theoretical prediction and actual experiment are less than 9.25% and 16.93% in aerobic and anaerobic reactors, respectively. Although there exists a slight difference between the experimental data and the predicted value, the results of this study have shown a quite relevant correlation between the theoretical model and the actual experiment. This correlation shows the superiority of the model to predict the essence of phenomenon occurring in the system.