

Treatment of Acetone and MEK in Biofilters: Effect of Operation Conditions on Biofiltration Performance

이 반, 김병우*, 안진영, 정동혁, 조홍관
성균관대학교
(bwkim@skku.edu*)

In this study, removal performance of the biofilter system for the removal of acetone and methyl ethyl ketone (MEK) was evaluated to optimize operation conditions. A biofilter system used in this study was packed with glass-type media with 5L of bed volume and inoculated with mixed microorganisms obtained from a sewage treatment plant. The biofilter systems were operated at an empty bed retention time (EBRT) of 15~30s under nitrogen deficient condition where nutrient solution was supplied only 1L every 2 weeks. During more than 2 months operation, maximal, biofilters show that the removal efficiencies were more than 97% at inlet acetone concentration of 110 ~ 720 ppmv and 90% at inlet MEK concentration of 91 ~ 591 ppmv, which corresponded to elimination capacity of 31~93 g /m³ h for acetone and 16 ~ 85 g/m³ h, respectively. GC/MS analysis for the detection of byproducts indicated that methanol was detected from outlet stream of biofilter for acetone removal and methanol and acetone were detected from that for MEK removal.