

The treatment of real textile wastewater using hybrid system (I)

임광희*, 이은주¹, 송혜진, 윤혜민, 전위숙, 노태훈, 김병수,
이영민

대구대학교 화학공학과; ¹경북대학교 화학공학과
(khlm@daegu.ac.kr*)

In this study, the recycling (recycle ratio=0.83) integrated process composed of fluidized biofilter and UV-photocatalytic process as advanced oxidation process (AOP) was constructed to evaluate the efficiency and the comparability to the conventional wastewater treatment, for the treatment of real textile wastewater. The return-sludge obtained from a textile wastewater treatment facility located in Daegu, was immobilized at the fluidized media in the biofilter and the photocatalytic reactor was filled with TiO₂ coated-glass bead media. The COD removal efficiency of the integrated system was maintained at 80%, composed of the one of the fluidized biofilter(72-75%) and the one of photocatalytic reactor (5-8%). The color removal efficiency of the integrated system was maintained at 55%, composed of the one of the fluidized biofilter(45%) and the one of photocatalytic reactor(10%). It is noticeable that the color removal efficiency of UV-photocatalytic process was almost twice the COD removal efficiency of the same process. The space loading of this study is calculated as 1.22 kg COD/day/m³, which is almost six times of the space loading value of conventional activated sludge reactor.