

Phosgene-free photocatalytic Degradation of TCE and PCE Vapors with Au/TiO₂

이영경, 이상준¹, Le Ngoc Thuan², Sonia Devi Henam²,
Zhang Qi², 이동근*
경상대학교 화학공학과; ¹BK21 핵심환경기술사업팀;
²경상대학교 환경보전학과
(d-blee@gnu.ac.kr*)

Although halogenated organic compounds were widely used in industry, they are considered to be very dangerous environmental pollutants. Trichloroethylene (TCE) have been widely used in dry cleaning, metal degreasing and as chemical intermediates, therefore they are easily found in environment. Due to its high toxicity and volatility, TCE may be removed by activated carbon and air stripping, which do not degrade them but relocate it in another environment. In recent years, photocatalytic oxidation with TiO₂ powder to destroy organic pollutants form contaminated water has received considerable attention and extensively been studied. TiO₂ powder has, however, some detrimental shortcomings for practical application. TiO₂ powder in not only difficult to be separated from water after being used, but also reduces photocatalytic efficiency due to light scattering. In this study TiO₂ was coated mainly at the interior surface of glass reactor and this TiO₂-coated glass reactor was employed for the photocatalytic decomposition of TCE and PCE.