
Basic Experiment on the Destruction of Polychlorinated Biphenyls (PCBs) by Persulfate

Hiroshi HATA, Atsunori NEGISHI

Basic experiments were conducted in the liquid phase system on the destruction of polychlorinated biphenyls (PCBs) by persulfate (PS). In a study of the activation method of PS, the initial pH was set to 7.0 and the addition of iron salt (Fe^{2+}) was set to PS: Fe^{2+} = 10:1 (molar ratio). PS was added at 0.5% and 1.0% concentration to distilled water to prepare the PCB reagent (chlorine number 1 to 7) at 0.5 mg/L, and the PCB concentration change over time was measured. The PCB decomposition rate tended to be higher for higher PS concentrations and for PCB with lower chlorine numbers. 2-chlorobiphenyl disappeared after 8 hours at a PS concentration of 0.5%, whereas the decomposition rate of 2,2, 3,4,4', 5',6 - heptachlorobiphenyl was only 20% after 11 days at a PS concentration of 1.0%.