
Study of the Applicability of Chemical Decomposition Methods to Volatile Organic Compounds (VOCs) including Vinyl Chloride and 1,4-dioxane

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As a study of the applicability of chemical decomposition methods to volatile organic compounds (VOCs) including vinyl chloride and 1,4-dioxane, the decomposition rates of the compounds using Fenton's reagent, persulfate and the Fe method were investigated. All the methods showed decomposition rates of over 90% for the chloroethylene group, such as perchloroethylene. Benzene was decomposed over 99% by both Fenton's reagent and persulfate. As for the chloroethane group such as 1,1,1-trichloroethane, the rates were varied among the methods applied. The highest decomposition rate of dichloromethane was 85% under the condition of 1% of Fenton's reagent. Fenton's reagent and the Fe method decomposed over 90% of vinyl chloride, while the rate was 89% by persulfate. The decomposition rates of 1,4-dioxane were less than 90% by Fenton's reagent and persulfate.