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能源和环境工程

2，4-二氯苯氧乙酸臭氧化过程中过氧化氢的生成

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摘要

关键词

除草剂 2,4-二氯苯氧乙酸 臭氧化 过氧化氢

分类号

Formation of hydrogen peroxide during ozonation of 2，4-dichlorophenoxyacetic acid in aqueous solution

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Abstract

The method of degradation of 2，4-dichlorophenoxyacetic acid by ozonation in a cylindrical bubbling tower reactor was proposed.It was revealed that hydrogen peroxide was detected during the ozonation of 2，4-dichlorophenoxyaceticacid.Hydrogen peroxide is useful to decompose ozone in aqueous solution to form hydroxyl radicals.Therefore，hydrogen peroxide has an effect on the 2，4-dichlorophenoxyacetic acid degradation.In order to understand the formation of hydrogen peroxide during ozonation of 2，4-dichlorophenoxyacetic acid，the effect of various experimental parameters on the concentration of hydrogen peroxide was investigated.The experimental results showed that the formation of hydrogen peroxide depended on 2，4-dichlorophenoxyacetic acid in aqueous solution.The yield of hydrogen peroxide produced by ozone decomposition was relatively small and could be neglected.The reaction of H_2O_2 decay simultaneously took place in reaction solution with the reaction of H_2O_2 formation.The change of concentration of hydrogen peroxide in aqueous solution indicated an accumulation phase and a consumption phase.As the pH level decreased，the formation rate of hydrogen peroxide also decreased.On the other hand，with the increase of pH level，the decay rate of hydrogen peroxide increased.It is shown that hydrogen peroxide was mainly formed by the direct oxidation of ozone molecule with 2，4-dichlorophenoxyacetic acid.The decay of hydrogen peroxide was induced by the excess hydroxyl radical in aqueous solution.

Key words

herbicides 2,4-dichlorophenoxyacetic acid ozonation hydrogen peroxide

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