

### 微波法不同影响因素对土壤中氯丹降解的影响

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#### Effects of Factors on Degradation of Chlordane Contaminated Soil by Microwave

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摘要

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**摘要** 以农药生产企业搬迁遗留场地土壤为研究对象,研究了微波修复土壤技术的各影响因素对氯丹降解的影响。结果表明:在土壤含水率20%、pH值8.5、活性炭投加量 $50 \text{ g}\cdot\text{kg}^{-1}$ 、微波功率600 W和辐照时间20 min条件下,微波法对氯丹去除率达到89%;若土壤中氯丹去除温度保持在 $300 \text{ }^\circ\text{C}$ 以上,可使氯丹大幅度去除。各因素对微波法去除氯丹的影响由大到小依次为微波功率、辐照时间、活性炭投加量和含水率;修复过程中氯丹降解的中间产物有六氯、七氯和九氯等,推测其降解过程存在加氯和脱氯反应。

**关键词:** 氯丹 微波 修复 土壤

**Abstract:** A batch experiment was carried out on remediation of chlordane contaminated soil by microwave, and factors affecting the remediation were studied. It was found that when the soil was 20% in moisture content, 8.5 in pH, and  $50 \text{ g}\cdot\text{kg}^{-1}$  in activated carbon amended, and 20 minutes of irradiation with 600 W microwave, the removal rate of the chlordane in the soil reached to 89%, and the effect could be significantly increased if the soil temperature was maintained above  $300 \text{ }^\circ\text{C}$  during the process. The experiment proved that the factors affecting chlordane removal rate followed the order of microwave power > irradiation time > activated carbon amendment rate > moisture content. Analysis of the soil solution shows that the degradation had some intermediates, such as chlordene, heptachlor and nonachlor, which suggests that there existed chlorination and dechlorination reactions in the process.

**Keywords:** chlordane microwave remediation soil

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