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KAEWTA KITTIKANOKRAT : DECHLORINATION OF CHLORINATED HYDROCARBONS FROM LABORATORY WASTEWATER BY ZERO-VALENT IRON. THESIS ADVISOR : ASSOC. PROF AMORN PETSOM, Ph. D. , 119 pp. ISBN 974-334-077-7.

The optimum condition for removal of chlorinated hydrocarbons from laboratory wastewater by zero-valent iron were studied. The effects of various pH conditions, contact times and iron particle sizes. All chlorinated hydrocarbons were tested by batch procedure in which 1 g of iron and 10 mL of chlorinated hydrocarbons were added to 20 mL serum vials. Chlorinated hydrocarbons concentrations were monitored at certain time intervals by gas chromatography (GC) analysis of the headspace. It was found that methylene chloride, chloroform, carbon tetrachloride and chlorobenzene in artificial wastewater could be removed by zero-valent iron at pH 4, in 15 days and using 10 μm iron particle. The efficiency for removal of chlorinated hydrocarbons increased when pH and iron particle size decreased while contact time was increased. The efficiency for removal of methylene chloride, chloroform, carbon tetrachloride and chlorobenzene in artificial wastewater are 63.20%, 88.00%, 100% and 42.58% respectively. While efficiency for removal of methylene chloride, chloroform and carbon tetrachloride in laboratory wastewater are 42.58%, 75.06% and 100% respectively.

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