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Abstracts

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Fluorene Removal from Aqueous Solution with Nanoscale Zero-valent Iron

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Abstract

This paper has studied the adsorption effect of laboratory-prepared nanoscale iron at different conditions on dosage, initial concentration, pH and temperature. Besides the adsorption effect, the adsorption isotherm and adsorption kinetics are discussed in this paper as well. Experimental results indicate that the removal efficiency of fluorene increases with the increase of the iron dosage, but decreases caused by the increase of the initial fluorine concentration and pH values. One the other hand, our experimental results also demonstrates that increasing initial fluorine concentration leads to a growth of the equilibrium adsorption quantity. Slightly increase of the equilibrium adsorption capacity is also observed when the temperature grows. As a result, as the experiments indicts the practical result achieving a consistency of theory in the following areas. All of the aforementioned adsorption data fit well to the Langmuir equation and the Freundlich equation, meanwhile the fluorene adsorption follows the pseudo second order equation, whereas the adsorption rate decreases and the equilibrium adsorption capacity increases with the increasing of initial concentration. Moreover, this paper has also study the preliminary mechanisms of the reduction.