

## Effect of initial pH and hydrogen peroxide for phenol degradation with ZVI

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Zero-valent iron (ZVI) was known for an inexpensive and moderately strong reducing agent. ZVI with the reducing power has been widely applied to the reductive transformation of many inorganic and organic contaminants. ZVI can be also utilized to drive oxidative reactions in the presence of hydrogen peroxide that generates OH radical through Fenton reaction. Recently, it has been demonstrated that the reduction of oxygen occurring on ZVI surface leads to OH radical in the absence of hydrogen peroxide. In this study, the effect of hydrogen peroxide concentration, initial pH, dosage of ZVI and dissolved oxygen on the degradation of phenol was investigated. The results showed that the degradation rate decreased with the increase of initial pH value. The degradation rate of phenol increased with the increase of hydrogen peroxide concentration. This results indicated that phenol degradation was occurred in the absence of hydrogen peroxide, however, adding hydrogen peroxide to the ZVI significantly accelerated the degradation of phenol.