Experimental study on contaminated groundwater

ABSTRACT

The efficiency of electro kinetic remediation of Cu contaminated groundwater was researched by means of experiments for the complicated remediation of groundwater contaminated by typical heavy metal in this paper, and migration and variation characteristics of Cu was analyzed too. The experimental results indicated that the pH value varied obviously during the electrokinetic remediation because of the oxidation and reduction near the electrodes, and the pH value near the positive electrode changed from 7.2 in initial stage to 6.9 at later stage, and the pH value was on the contrary near the negative electrode, namely, changed from 7.0 in the beginning to 9.3 in the last, which made known that the condition of acidity and alkalinity in soil varied clearly. In addition, the temperature nearby electrodes changed during the process of the electrokinetic remediation. The variation of Cu concentration made known that the migration of heavy metal was weak in the aquifer and the removal efficiency of Cu near the positive electrode was only 9.6% in the condition of natural permeation, but the concentration of heavy metal varied obviously in groundwater under the electric field, and the heavy metal pollutant could be enriched and removed in the vicinity of electrode. The removal efficiency of Cu in the groundwater near the positive electrode was 68.7% when the experimental voltage was 0.5V/cm, which indicated that the effect of electro kinetic remediation of groundwater was evident.