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ELECTROCOAGULATION PROCESS FOR SHORT TREATMENT PERIOD OF ARSENIC CONTAMINATED WATER

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Abstract

The effective arsenic removal rate was achieved by present electrocoagulation (EC) method. The aim is to research the arsenic removal by EC method for short period and to investigate the effects of current density, pH, salt addition, and conductivity on the removal rate and energy consumption. The EC experiments started in batch mode in 10 L plexiglass reactor with five aluminum electrodes. The electrocoagulation was started with the initial arsenic (As) concentration of 1.00 mg/L. Current intensity and voltage values were ranged between 1-2 A and 2-15 V, respectively for the process time of 10 min. The highest As removal rate (99%) was found for 5 V and 1 A current application. 1.29 mA/cm^2 current density provided the optimum energy consumption (0.60 Wh) for 99% As removal. Increased removal was noticed above pH 8. Current density, pH, and conductivity were found effective factors on the As removal.

Key words: arsenic, contamination, current density, electrocoagulation

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