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Treatment of Water Loaded With Orthophosphate by Electrocoagulation

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ABSTRACT:

In this study, the effective performance of electrocoagulation process in the treatment of water solution that is loaded with orthophosphate was investigated using sacrificial iron electrodes. Various operating parameters (e.g., pH, current intensity and supporting electrolyte concentration) were studied in an attempt to achieve a higher removal capacity. Results obtained with synthetic wastewater revealed that the most effective removal of orthophosphate could be achieved when the pH was kept between 5 and 8. The optimum concentration of supporting electrolyte was found to be 2g/L, which was adjusted using proper amount of NaCl with the orthophosphate concentration of 10 mg/L. In addition, the increase of current intensity, in the range 0.6-2.0 A, enhanced the treatment rate without affecting the energy consumption. The method was found to be highly efficient and relatively fast compared to conventional existing techniques.