Abstract:
The electrocoagulation of a synthetic wastewater has been studied in this work. The electrochemical process was carried out in a batch electrochemical cell equipped with iron electrodes without agitation. Bentonite suspensions were used as a model of wastes polluted with colloids, as clays behave as hydrophobic colloids in water. The results obtained were useful to clarify the mechanisms that are involved in the electrocoagulation of this kind of waste and also to study the influence of pH in the process. Two primary coagulation mechanisms can explain the experimental behavior of the system: at acid pH the neutralization of the superficial charges of the clays and at alkaline pH the enmeshment of the kaolin particles into a sweep floc. At neutral pH, the formed cations (Fe²⁺ and Fe³⁺) neutralize colloidal particles and conduct to the hydroxides (Fe(OH)₂(s) and Fe(OH)₃(s)) which adsorbate colloids and enhance sweep flocculation.

Keywords Bentonite, electrochemical precipitation, electrocoagulation