Electrocoagulation and electro-oxidation treatment for the leachate of oil-drilling mud

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\textbf{ABSTRACT}

The pollution caused by discharges of oil drilling is now a source of environmental degradation and raises currently a particular interest. We propose in this work the application of electrocoagulation (EC) and electro-oxidation (EO) treatment for the leachate of these drilling muds. The effect of pH, current density, the electrolysis time, and the amount electrolytic added were studied, and the effectiveness of the processes is evaluated by measuring the chemical oxygen demand (COD). The dissolution is the best way to mobilize pollutants from drilling mud so we conducted leaching before starting the electrochemical treatment. The processes were carried out in batch mode using a stainless steel anode and ruthenium cathode for the EO and aluminum electrodes materials for the EC. The preliminary results clearly demonstrate the compatibility of the two techniques used with the type of pollution studied. In fact, the EC allowed the COD removal of about 95% and a rebate rates above 78% for EO.

\textit{Keywords:} Oil drilling fluid; Leaching; Electrocoagulation; Electro-oxidation

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