World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Treatment of Leaden Sludge of Algiers Refinery by Electrooxidation

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Abstract : Oil industries are responsible for most cases of contamination of our ecosystem by oil and heavy metals. They are toxic and considered carcinogenic and dangerous even when they exist in trace amounts. At Algiers refinery, production, transportation, and refining of crude oil generate considerable waste in storage tanks; these residues result from the gravitational settling. The composition of these residues is essentially a mixture of hydrocarbon and lead. We propose in this work the application of electrooxidation treatment for the leachate of the leaden sludge. The effect of pH, current density and the electrolysis time were studied, the effectiveness of the processes is evaluated by measuring the chemical oxygen demand (COD). The dissolution is the best way to mobilize pollutants from leaden mud, so we conducted leaching before starting the electrochemical treatment. The process was carried out in batch mode using graphite anode and a stainless steel cathode. The results clearly demonstrate the compatibility of the technique used with the type of pollution studied. In fact, it allowed COD removal about 80%.

Keywords : electrooxidation, leaching, leaden sludge, oil industry
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020