

Sarayut Lappoonphol 2006: Chromium Removal by Electro Chemical and Electro Flotation Process. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering.
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The purpose of this research is to study the efficiency of chromium in the synthetic wastewater from Potassium Dichromate. The concentration of 20 mg/l at pH 4 and conductivity 1,300-1,400 μ s were studied. The removal of chromium by using electro-chemical and electro-flotation process, ECF. This electric currents were studied at 1, 3, 5 and 7 A and the distance between anode and cathode at 1, 1.5 and 2 cm. respectively (surface area 722, 541.5 and 361 sq.cm). The flow rates were studied 21.11, 31.67 and 63.33 ml/min respectively (at contact time 45, 30 and 15 min). The remain concentration in the effluent was above 0.75 mg/l to compare which was the standard for effluent standard set by the department of Industry works (DIW). This experiment was to study the ratio bulking sludge /sludge and the rate of hydrogen gas.

The experiment results were found that the maximum efficiency at sample point the lower of reactor remain chromium value in the range ND-0.656 mg/l, at the upper reactor, ND-0.235 mg/l. The results of ratio bulking sludge/sludge 0.24-1.59 and rate of hydrogen gas 16.9-74.9 ml/min. The experiment results in the ECF Process at 5 A with distance between cathode and anode at 1 cm (722 sq.cm), 21.11 ml/min (45 min). At the sample point of lower reactor was found chromium in value ND and upper in value 0.007 mg/l, which the energy for chromium removal was 1 kg to used 2,961.17 kw-hr. The most suitable energy 80.20 kw-hr/kg for chromium in the effluent standard was at 1 A which between cathode and anode at 1 cm (722 sq.cm), the flow rate 63.77 ml/min (15 min).

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