

BEHLOUL, M., GRIB, H., DROUCHE, N., ABDI, N., LOUNICI, H., MAMERI, N.

**Removal of Malathion Pesticide from Polluted Solutions by Electrocoagulation:
Modeling of Experimental Results using Response Surface Methodology**

(2013) Separation Science and Technology (Philadelphia) 48 (4) PP. 664 - 672

doi: [10.1080/01496395.2012.707734](https://doi.org/10.1080/01496395.2012.707734)

ABSTRACT:

The main purpose of this work was to assess the removal of the pesticide malathion from aqueous solution in batch mode using the electrocoagulation process. The effects of operational parameters such as initial pH, initial pesticide concentration, current density, salt concentration, and distance between electrodes on the malathion removal efficiency have been investigated in a laboratory scale study. The effects of current density and the supporting electrolyte on electrical energy consumption were also investigated. A phenomenological model was proposed using the response surface methodology method. The model indicated that the studied parameters have no effect on the experiment's design which had been established to give the final result. The other operating factors had both positive and negative effects. With an initial pH of 6, an initial pesticide concentration of 40 mg/L, current density of 10 mA/cm², salt concentration of 2500 mg/L, temperature of 27°C, and distance between electrodes of 2 cm, over 90% of the malathion was removed after 10 min of electrolysis.