

WASTEWATER TREATMENT BY ELECTROCOAGULATION



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ABSTRACT

The Applied Electrochemical and Electrocatalysis Group (LEQA) at the University of Alicante has a high experience and know-how to develop and carry out the removal of pollutants in wastewaters by electrocoagulation (EC).

A pilot plant fully equipped with the necessary infrastructure and with ability to treat 100L/h of wastes is available in order to develop the pre-industrial phase and scaling-up of these processes.

This technology could be of interest to several industries: chemical, tannery, textile, etc.

TECHNOLOGY ADVANTAGES AND INNOVATIVE ASPECTS

ADVANTATGES

1. EC requires simple equipment and is easy to operate.
2. Sludge formed by EC is easy to dewater. Also, EC produces low quantity of sludges.
3. Flocs formed by EC are similar to chemical floc, except that EC flocs contain less water, are and more stable, and therefore, can be separated faster by filtration.
4. The EC process has the advantage of removing the smallest colloidal particles, because the applied electric field sets them in faster motion, thereby facilitating the coagulation.
5. The gas bubbles produced during electrolysis can carry the pollutant to the top of the solution where it can be more easily removed.

INNOVATIVE ASPECTS OF THE TECHNOLOGY

- The EC cell is controlled electrically and has no moving parts, thus requires less maintenance
- The EC process avoids uses of chemicals and so there is no problem of neutralizing excess chemicals.
- EC produces effluent with less total dissolved solids (TDS) content as compared with chemical treatments.

MARKET APPLICATIONS

EC could be of interest to industries that generate wastewater containing oil wastes, dyes, suspended particles, chemical and mechanical polishing waste, organic matter from landfill leachates, defluorination of water, synthetic detergent effluents, mine wastes and heavy metal containing solution.

COLLABORATION SIGHT

The Applied Electrochemical and Electrocatalysis Group is seeking for:

- Partners willing to introduce the electrocoagulation system in its facilities.
 - R&D departments of any company interested in carrying out feasibility studies on the use, industrial or not, of this technology.
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