PhD Candidate Profile

Name:

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Research Group:

Electrochemical and Environmental Engineering

Research Centre:

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Funding body:

N/A

Area (field) of study:

Electrolysis of organochlorides compounds in liquid phase and adsorption in gas phase

Thesis Title:

Development of Electrochemical process for the treatment of organochlorides pollutants in liquid and gas effluents

Abstract:

Organochlorides compounds generated in the environment is a very interesting problem and it is necessary to develop novel efficient technologies. The aim of this Ph.D. is developing new technologies, based on electrochemical process for the treatment of wastewater, which should be applied to gas phase treatment throughout the combination with absorption/adsorption processes. To do this, firstly it is going to develop a new technology to concentrate and remove organochlorides pollutants solved into wastewater. Afterwards, this technology will be used with some model compounds with different characteristics in terms of polarity and volatility.

This technology should improve the efficiency of the current processes throughout the concentration of pollutants and the activation of the oxidants electrogenerated by UV irradiation or high-frequency ultrasound.

Subsequently, absorption process will be developed with high-concentrated oxidants compounds for the treatment of gas effluent and, alternatively, with adsorption systems based on granular carbon activate. This carbon activate will be further regenerated in a continuous electrochemical process.

Finally, the combination of anodic destruction processes with dehalogenation cathodic processes of the wastewater will be carried out to obtain a high removal efficiency of the pollutant effluents.

Collaborations:

N/A

Publications:

- Zidovudine insertion in tailor-made propylene and ethylene oxide copolymers. **Ana M. Borreguero, Martín Muñoz, Juan C. De Haro, Manuel Carmona, Juan F. Rodríguez**. Reactive and Functional Polyemers 101 (2016) 1-8.

Presentations:

- Development of Electrocoagulation Processes for the Removal of Pesticides. **Javier Llanos, Martín Muñoz, Salvador Cotillas, Manuel A. Rodrigo, Pablo Cañizares**.67th Annual Meeting of the International Society of Electrochemistry 21-26 August, 2016. The Hague, The Netherlands