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Electrochemical Oxidation of Three Obsolete Organophosphorous Pesticides Stocks

Apostolos Vlyssides¹⁾, Dimitris Arapoglou²⁾, Cleanthes Israilides²⁾ and Panagiotis Karlis¹⁾

1) Department of Chemical Engineering, National Technical University of Athens

2) Institute of Technology of Agricultural Product, National Agricultural Research Foundation

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Abstract:

Organophosphorous pesticides are widely used for crop production, but their disposal causes serious environmental problems. Three commercial organophosphorous pesticides (phosalone, azinphos-methyl and methidathion) were treated by an electrolysis system using Ti/Pt as the anode and stainless steel 304 as the cathode. A number of experiments were run on a laboratory scale and the results are reported here. With the use of the above method, the achieved COD reduction was over 65%. The main energy consumption was about 5 kWh·kg⁻¹ COD reduction and the COD/BOD₅ ratio was improved considerably after electrolysis. In conclusion, electrochemical oxidation could be used as a pretreatment method of the pesticides' detoxification.

Keywords:

electrochemical oxidation, phosalone, azinphos-methyl, methidathion, obsolete pesticides

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