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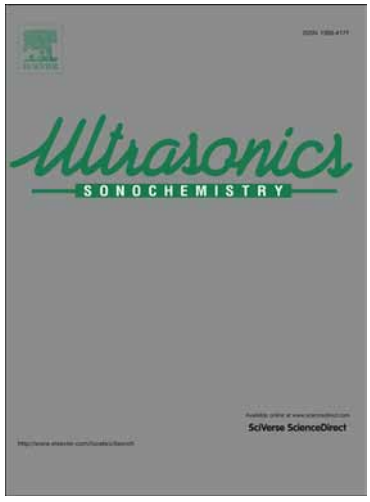


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E.V. dos Santos, C. Sáez, P. Cañizares, C.A. Martínez-Huitle, M.A. Rodrigo

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# Treating soil-washing fluids polluted with oxyfluorfen by sono-electrolysis with diamond anodes

E. V. dos Santos[1], C. Sáez[3], P. Cañizares[3], C. A.Martínez-Huitle[2], M.A. Rodrigo [3,*]

[1] School of Science and Technology, Federal University of Rio Grande do Norte, 59078-970 Natal, Brazil

[2]Institute of Chemistry, Federal University of Rio Grande do Norte, 59078-970 Natal, Brazil

[3]Department of Chemical Engineering. Enrique Costa Building. Campus Universitario s/n. 13071 Ciudad Real. Spain

## Abstract

This works is focused on the treatment by sono-electrolysis of the liquid effluents produced during the Surfactant-Aided Soil-Washing (SASW) of soils spiked with herbicide oxyfluorfen. Results show that this combined technology is very efficient and attains the complete mineralization of the waste, regardless of the surfactant/soil radio applied in the SASW process (which is the main parameter of the soil remediation process and leads to very different wastes). Both the surfactant and the herbicide are completely degraded, even when single electrolysis is used; and only two intermediates are detected by HPLC in very low concentrations. Conversely, the efficiency of single sonolysis approach, for the oxidation of pollutant, is very low and just small changes in the herbicides and surfactant concentrations are observed during the tests carried out. Sono-electrolysis with diamond electrodes achieved higher degradation rates than those obtained by single sonolysis and/or single electrolysis with diamond anodes. A key role of sulfate is developed, when it is released after the electrochemical degradation of surfactant. The efficient catalytic effect observed which can be explained by the anodic formation of persulfate and the later, a sono-activation is attained to produce highly efficient sulfate radicals. The effect of irradiating US is more importantly observed in the pesticide than in the surfactant, in agreement with the well-known behaviour of