



**"Gheorghe Asachi" Technical University of Iasi, Romania**



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## **COMBINED OXIDATION AND ULTRAFILTRATION PROCESSES FOR THE REMOVAL OF PRIORITY ORGANIC POLLUTANTS FROM WASTEWATERS**

**Daniela Arsene, Corina Petronela Musteret, Cezar Catrinescu, Petru Apopei, George Barjoveanu, Carmen Teodosiu\***

*"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, Department of Environmental Engineering and Management, 73 Prof. Dr. Docent Dimitrie Mangeron Street, 700050 Iasi, Romania*

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### **Abstract**

This paper presents a study on the integration of two advanced treatment processes for the removal of priority organic processes from wastewaters: catalytic oxidation (Fenton homogenous process) followed by ultrafiltration. The aim of this study was to assess the removal efficiency for 4-chlorophenol (used as model pollutant), as well as the decrease in effluent toxicity in various processes conditions. The experiments have mainly focused on studying the effect of the oxidant dose of the catalytic oxidation process on the performance of the ultrafiltration process and on the toxicity of the final effluents. Furthermore, the mechanisms of the Fenton homogenous oxidation processes and the removal of heavy molecular weight compounds in ultrafiltration were studied. The results have shown that the toxicity of the effluents decreases significantly through catalytic oxidation, while the ultrafiltration process mainly contributes in removing the oxidation intermediates, especially the high molecular weight compounds.

*Key words:* advanced wastewater treatment, Fenton catalytic oxidation, 4-chlorophenol, ultrafiltration, toxicity tests

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\*Author to whom all correspondence should be addressed: e-mail: [cte0@ch.tuiasi.ro](mailto:cte0@ch.tuiasi.ro); Phone/fax: +40232 237594