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AN ASSESSMENT OF OPERATIONAL PARAMETERS FOR THE REMOVAL OF CHLOROPHENOLS FROM WASTEWATER

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Abstract

The occurrence of priority organic pollutants in wastewaters streams and the environment has raised intensive scientific debates about their effects and the possible abatement technologies. This paper presents some results on the performance of ultrafiltration for the removal of 4-chlorophenol and 2.4-dichlorophenol from synthetic wastewaters. A laboratory scale ultrafiltration set-up fitted with 2000 MWCO cellulose acetate membranes was used for the study of ultrafiltration parameters influence (mode of operation, pressure and cleaning conditions) on the removal efficiencies of 4-chlorophenol and 2.4-dichlorophenol present in synthetic wastewaters at different concentrations. The results show that, depending on process parameters and initial pollutant load, it is possible to achieve removal efficiencies of up to 85% for both chlorophenols. The ultrafiltration tests revealed that these pollutants are eliminated during ultrafiltration by different retention phenomena than the ones that usually occur during ultrafiltration. This was confirmed by the permeated fluxes values that remained constant during all the tests.

Key words: advanced wastewater treatment technologies, chlorophenols, priority organic pollutants, ultrafiltration

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