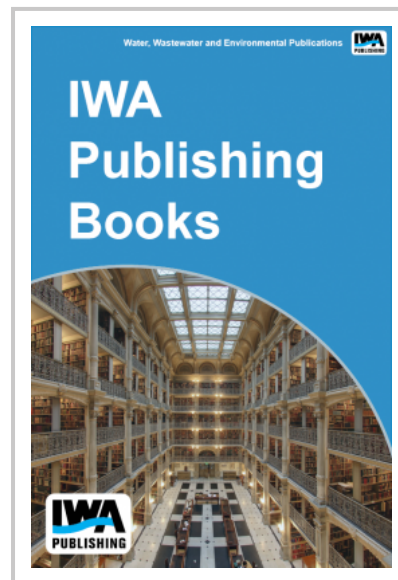


Treatment Processes for Removal of Emerging Contaminants

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This study was designed to investigate the nature of colloids associated with wastewater effluents and to evaluate the association of emerging contaminants with these wastewater colloids. Two distinct emerging contaminants were investigated to gain general insight into the potential importance of emerging contaminant interactions with wastewater colloids. The first and major component of the study was to evaluate the association of antibiotic resistance genes (ARGs) with colloids and to evaluate the removal of ARGs by membrane processes. This is designated in the report as Part I. The second aspect of the study was to obtain preliminary data on the potential association of nonylphenol with a range of colloidal size fractions and to evaluate their removal in wastewater treatment plants. This is designated Part II.



Overall, the goal was to determine the degree of association of two representative emerging contaminants, ARGs and nonylphenols, with various colloidal sizes and to determine the removal efficiency of these colloids in wastewater treatment plants. If the emerging contaminants are associated with the larger size fractions, then more conventional treatment processes can be used. If emerging contaminants are associated with the smaller size fractions, advanced processes such as nanofiltration or activated carbon may be needed.

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