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PARTITIONING DYNAMICS AND FATE OF METALS IN AN URBAN WASTEWATER TREATMENT PLANT

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Abstract

This study focused on the fate of the most representative metals in urban wastewater treatment by the conventional activated sludge process. The research analyzed: distribution between soluble and particulate fraction in the different treatment stages, removal efficiencies as related to partitioning, and metal behavior during rainfall events. A mass balance approach allowed evaluating the behavior of the metals, migration between phases and final fate, in order to investigate metal dynamics during the treatment cycle. Metal distribution between phases in outflow fluxes (treated effluent and sludge) resulted consistent with their partitioning between soluble and particulate fraction in the influent and significant migration between phases was not observed. Arsenic was found to be the most critical element for sludge reuse, despite being mostly partitioned into the soluble fraction.

Key words: activated sludge, arsenic, metals, sludge reuse, wastewater treatment

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