



Study of the distribution of 204 organic contaminants between the aqueous phase and the suspended particulate matter in treated wastewater for proper environmental control

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Received 24 September 2012; Accepted 23 December 2012

ABSTRACT

A distribution study of 204 organic contaminants, including polar and nonpolar pesticides, polycyclic aromatic hydrocarbons (PAHs), and phenolic compounds, between the two phases composing municipal wastewater (WW) from a small community (aqueous phase and suspended particulate matter (SPM)) has been performed to establish whether the compounds can be more prone to be in the aqueous or in the solid phase, depending on their hydrophobicity. Therefore, a general procedure is proposed to evaluate this issue. This study shows that nonpolar pesticides and PAHs are distributed between the aqueous phase and the SPM (e.g. pyrethroids are mainly found in the SPM), whereas polar pesticides and phenolic compounds are mainly present in the aqueous phase. This fact made clear the relevance of the analysis of both phases in WW samples, bearing in mind that if SPM is discarded, an important fraction of some contaminants is not determined and therefore, it does not assess the total load of pollutants discharged, underestimating the real impact on the environment.

Keywords: Wastewater; Organic contaminants; Aqueous phase; Suspended particulate matter; Distribution

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