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Environmental consequences of wastewater treatment by activated sludge technology. A life cycle assessment approach.

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Abstract

Wastewater treatment is an important task that aims to reduce water pollutants, however it is important to evaluate these processes to identify the hot spots of the systems and propose strategies to reduce or minimize the environmental impacts. In this article a comparative life cycle assessment is developed in order to evaluate the use of sludge activated technology in a waste water treatment plant in Mexico City, compared with a scenario in which no treatment is performed to contaminated flow. The CML 2000 models and the TEAMTM 4.0 software are considered. The assessment shows that in the stages where electricity is used the impacts are greater. For air acidification, stratospheric ozone depletion, greenhouse effect, human toxicity and photo-oxidant formation, the real scenario of wastewater treatment has a greater impact on the environment, while for the categories of aquatic toxicity and eutrophication the no treatment scenario has the greatest impact.