

# Full-scale modelling of food industry WWTP: Model evaluation and reuse

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## Abstract

This study aimed at testing a mathematical model for an industrial WWTP. This model was developed in a previous study. The characterisation of the influent wastewater was repeated and results revealed that the composition of the wastewater was somewhat changed compared to the previous study. In order to account for varying wastewater composition in the future, the influence of this composition on the effluent concentration was calculated based on relative sensitivity functions. This calculation revealed that the effluent COD concentration is most affected by the inert COD fraction in the influent and that the effluent ammonium concentration is most affected by the biodegradable COD fraction in the influent. As such experimental efforts can be conducted towards determination of the fraction that is most influential on the required result. The model was further evaluated with new data. It could be shown that agreement between simulated and measured data was very good and that no model recalibration or extension will be necessary. As such the industrial WWTP model passed the model evaluation test. In the future this model will be used for potential further upgrades.

**Keywords:** food industry WWTP, ASM, model evaluation and reuse, optimisation