

## Monitoring of the wastewater profiles in industrial anaerobic wastewater treatment plants using multivariate analysis of spectrochemical measurements

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In recent years, the importance of advanced process monitoring has been emphasized owing to growing computer technologies and attention about process safety. However, in order to facilitate an implementation of successful monitoring system, certain process parameters which can indicate current process states have to be measured with appropriate precisions. Such situation is much more pronounced in the biological processes such as anaerobic digesters, because direct measurements of microbial activities are difficult task. In this study, a soft-sensor based on the spectrochemical analysis was developed for the monitoring of wastewater profiles in industrial anaerobic wastewater treatment plants. With UV/VIS/NIR spectrometer, concentrations of the industrial wastewaters, including terephthalic acid, benzoic acid, acetic acid and p-toluic acid, could be successfully quantified using chemometric calibration models and this soft-sensor are validated with lab-scale reactors to confirm its stabilities and accuracies.