Editorial

Monitoring and Process Control of Anaerobic Digestion Plants

Dear Readers,

The biogas sector is – especially in Germany – in a phase of uncertainty due to the lack of commitment from the authorities to a clear definition of the future conditions for the technology. Moreover, an increasing number of requirements resulting from changes in legislation with regard to safety and protection of the environment lead to an increasing demand of monitoring and control. Potential future perspectives are seen in a higher flexibility of the plants – on the front end of the plant regarding the substrate to be used and on the back end in terms of the time-dependent course of a demand-oriented energy output. Plant operators struggle with the lack of perspective and the resulting lack of interest to invest in the technology as well as with increasing requirements from authorities. For many of them, the increasing effort to operate the plant might result in the decision to stop operation.

Biogas technology was a fast-growing sector between 2004 and 2014, and the technology changed considerably with the increasing experience of plant designers and construction companies. Technically, the components available and the technology as a whole are able to deliver what the market and authorities request. However, the implementation of additional components for operation, monitoring, and control of biogas facilities are a matter of costs.

Operation becomes a more and more complex system which requires a sophisticated combination of information from several sensors to optimize and control future plant operation. The challenge for the operators will be to find intelligent solutions to meet the required standards with the available budget. The task of the science community is to support this process and provide reliable and functional tools for process and monitoring control. In order to bring industry and science together, the stated topics were addressed at the 4th International Conference on Monitoring & Process Control of Anaerobic Digestion Plants (IV. CMP 2019), which was funded by the German Federal Ministry for Economic Affairs and Energy within the 7th Energy Research Programme under funding section “Biomass Energy Use”.

This issue of Chemical Engineering & Technology presents twelve selected contributions from the conference held in Leipzig, Germany, in March 2019. They span a variety of issues from statistical challenges of evaluating lab simulations, optimization of gas upgrading, emissions from pressure relief valves or control systems to optimize the operation. Hopefully, you will be inspired for your further activities and enjoy reading those articles.

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