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Advanced Process Control optimises wastewater treatment in large Russian cheese dairy

Envirochemie integrates expert knowledge into plant control system to support operators with recommendations for optimal plant operation.

To support operating personnel in the operation of a Biomar anaerobic wastewater treatment plant, expert knowledge from Envirochemie has been integrated into the plant control system. The values measured daily by the operator in the laboratory to monitor plant performance (including COD and organic acids) are used and linked with online values to provide recommendations for action when adjustments are made to the plant. The recommendations for action take into account not only current measured values but also trends from previous measurements. The process control system calculates optimum target values for the variables, which are issued at least daily to adapt plant operation to current conditions. The intelligent Advanced Process Control system allows the plant to be operated at the optimum operating point. This increases plant efficiency, avoids operator errors and optimises cleaning performance.

The operator enters the values measured, and the recommended actions are indicated, on the wastewater treatment plant display, but this can also take place via a mobile device using the Waterexpert app from Envirochemie.

The Advanced Process Control system is already proving its worth in practice in a cheese dairy in Russia that produces hard cheese. The plant, which was planned, built and commissioned by Envirochemie, is used to purify process wastewater, over several process stages, to a quality that can be discharged directly. The centrepiece is the Biomar ASBx anaerobic reactor, which converts organic ingredients into energy-rich biogas. For optimal operation, the operating conditions should be kept as constant as possible, which can be a challenge when the feed quality and quantity change. If such changes are not responded to appropriately, the efficiency of the anaerobic degradation process can be impaired, with the consequence that significantly lower amounts of biogas are formed, the wastewater is only insufficiently purified, and subsequent treatment steps are more heavily loaded.

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