

Reference

Energy-efficient control of a deacidification, WW Uevekoven

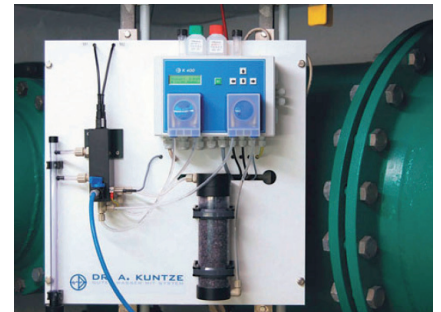
The company

Based in Heinsberg, the company Kreiswasserwerk Heinsberg GmbH is the drinking water supplier for the approx. 12600 citizens of Erkelenz, Hückelhoven, Wegberg, and Wassenberg. Via approx. 880 km of pipes and more than 34000 house connection lines, drinking water is distributed from water works in Uevekoven, Matzerath, Beeck, Arsbeck, Wassenberg, and Holzweiler.



The challenge

In Uevekoven, the drinking water treatment contains a deacidification step with three separate aeration columns. Physical deacidification is realised in a downward flow of the water over packed columns with a counterflow of air, supplied by an external blower. The amount of removed carbon dioxide can be adjusted via the amount of air supplied by the blower. Frequent changes both in composition and quantity make an automated control system desirable.



The measurement problem

To ensure an energy-efficient control of the deacidification, it is vital to measure the lime aggressivity of the water coming out of the aerator columns. A high precision measurement is required for this type of control.



Our solution

The measuring and control system BalanceCon by Dr. A. Kuntze GmbH is excellently suited for the task. It measures the pH of the water, while an integrated pump feeds part of the water via a marble filter to a second pH measurement. The stepmotor-controlled pump ensures a defined and constant contact time within the marble filter, so that the water for the second pH measurement is definitely in a state of calcite equilibrium. Via the difference between the two pH measurements the deacidification process can be controlled with a very high precision. Changes between the two pH sensors are periodically determined by an automated zero-calibration of the difference measurement. With this measuring system a control accuracy of < 0.02 pH is feasible.

Customer feedback

To enhance the energy-efficiency, the blowers were equipped with an electronic rotation speed control. The air flap can now remain fully open, while the measuring and control system BalanceCon controls the deacidification efficiency. The high accuracy of the measurement allows an optimal blower adjustment to all water changes, resulting in energy savings of more than 75%. We are entirely satisfied both with the measuring and control system BalanceCon® as with the service of Dr. A. Kuntze GmbH.

Werner Zohren, Divisional director,

