

Free chlorine measurement for monitoring water disinfection

Trusted analysis panels for drinking water



The Syndicat des Eaux de Basse-Vigneulles et Faulquemont, based in Moselle, has 30 staff members ensuring the continuous distribution of potable water to the entire inter-municipal area. The potable water comes from seven deep-source boreholes in Créhange, Basse-Vigneulles and Haute-Vigneulles. After treatment, the water from the different sources is mixed in the Tritteling-Redlach reservoir, then piped to consumer's homes.

"After several years of operation, we are very pleased with the Endress+Hauser analysis panels which measure the free chlorine and enable us to monitor the disinfection of the potable water in real time".

Thierry Illy
Water treatment units manager
Qualitätsmanager und Prozessingenieur
Moselle
France



Thierry Illy, water treatment units manager



Analysis panel for measuring free chlorine at the end of the potable water treatment process



Each year, the Basse-Vigneulles plant produces more than 2.3 million m³ of drinking water. The water is taken from the ground water and undergoes the conventional treatment stages: removal of carbon and iron, filtration and disinfection. At the end of the process, the water is disinfected by injecting gaseous chlorine. This step is crucial for the elimination of bacteria, living germs and organic matter. The residual effect of the free chlorine works along the entire distribution circuit, preventing any bacteria in the water from growing. To ensure safety and efficiency, the chlorine must be dosed precisely, with no over- or underdosage.

Challenge

The production of drinking water comprises several treatment steps and plays a crucial role in safeguarding the health of consumers.

These treatment steps are the key

to ensuring the water distributed for consumption is safe and clean. Each year, the Basse-Vigneulles plant ensures a continuous flow of drinking water for consumers in 70 communes. A total of 40,000 inhabitants are able to enjoy around-the-clock access to drinking water. Amongst these treatment steps, disinfection plays a crucial role in the continuous distribution of drinking water. Correctly dosing the chlorine is a vital parameter in providing high quality water.

Our solution

To monitor the dosing of the chlorine precisely, the water authority has installed several drinking water analysis panels equipped with Memosens CCS51D sensors for measuring free chlorine.

These sensors continuously monitor the proportion of chlorine present in the water using the amperometric measurement principle.

A measurement is taken when the water leaves the production plant, just after the gaseous chlorine is injected, and additional measurements are taken at the Redlach drinking water reservoir and the distribution network, thereby ensuring that the residual effect of the disinfectant continues. The free chlorine sensor is fitted in a flow-through chamber, which also contains a Memosens CPS31D pH sensor for compensation of the measurement and expression of the result as free chlorine. This is all integrated into an analysis panel installed in a bypass with a minimum required flow rate of 30 liters/h. The flow rate indicator, integrated into the flow-through chamber, is able to generate alarms should any malfunctions occur, which enables the injection of chlorine upstream to be made safe to prevent the water stagnating in the chamber which could cause errors with the measurements. By fitting sensors to the analysis panels, the operators at the plant are able to monitor and optimize the production of drinking water at any time, and in complete safety.

Advantages

Endress+Hauser provides suitable panels for the application which are delivered ready to use as the sensors are pre-installed and pre-cabled. They simply need to be connected to the water inlet.

Furthermore, it is possible to customize each analysis panel by adding other sensors as required. It is a modular measurement system which

enables the customer to connect up to 8 analysis sensors to a single transmitter, the Liquiline CM44x. The water authority has taken advantage of this flexibility to complete its free chlorine measurements with other essential parameters, such as turbidity and conductivity. These parameters are also representative of the drinking water quality and are subject to strict regulations. The panels are complete measurement systems which are in constant communication with the remote management for continuous access to the measurement data and optimized management of the entire site.

Our expertise

Endress+Hauser possesses extensive expertise in the analysis of drinking water. The analysis panels offer a simple solution for monitoring the drinking water quality parameters which is both compact and comprehensive. The panels also offer significant time savings during set-up.



Redlach potable water reservoir (900m³)

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