

CASE STUDY: CONTROL YOUR UV PROCESSES IN REAL TIME

www.bnovate.com
info@bnovate.com

CHALLENGE

One of the leading Swiss water utilities sought to test the effectiveness of their UV-light disinfection process after replacing their active carbon filtration media. Replacing the active carbon media is a delicate task, as it requires time for the new media to develop a proper microbial flora. During this transition period, microbial contamination often arises, which led the utility to question whether the UV disinfection process would remain effective throughout the running-in period of the filter. They looked for a solution that could reliably and continuously monitor the water quality following UV disinfection.

SOLUTION

The BactoSense CORE, equipped with Active Cells – UV cartridge, proved to be an ideal solution for the utility. By performing differential measurements after the active carbon filtration, both before and following the UV light treatment, they demonstrated that although bacterial counts increased after replacing the carbon filtration media, the UV light effectively reduced these counts back to the normal levels observed before the media change (Figure 1). The innovative Active Cells – UV cartridge paired with BactoSense offers the perfect balance of usability and the ability to continuously monitor bacterial fluctuations immediately after UV treatment. This enabled precise control over microbial growth during the UV disinfection process. Furthermore, the treatment barrier effectiveness during and after special operations, such as filter media change, could be proven.

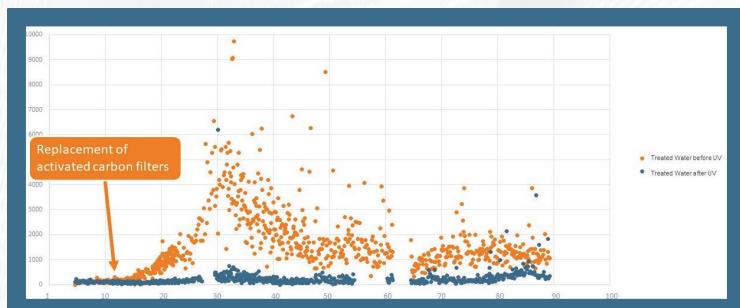


Figure 1 Active Cells – UV cartridge Results. It is visible that after the replacement of the activated carbon filters the active cell counts rise. After UV treatment, the cell counts revert back to the baseline of before the treatment and before replacement of the filter.



AT A GLANCE

CHALLENGES

- Continuous verification of the efficacy of a UV light disinfection system
- Ensuring the performance of the treatment barrier during special operations, such as filter exchanges
- Automating workflows for efficiency and reliability

BENEFITS

- Immediate detection of treatment barrier insufficiency or failure thanks to continuous online monitoring
- Confidently maintain assets or change operational parameters with full visibility of disinfection performance

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SIMPLE RESULTS

The simple graphical user interface (GUI) makes it easy to interpret the results. The specific parameter, highly active cell count (HACC) reflects the number of viable and metabolically active bacteria, thus enabling inactivation to be monitored. Thanks to the automated continuous measurement, fluctuations of the HACC can be directly detected, giving unique insights into the process. With BactoSense, it is also possible to set warning values which correspond to the microbial risk.

BENEFITS

Reliably detect treatment barrier insufficiencies

The proprietary BactoSense system includes the use of a fluorescent marker to measure the residual activity of bacteria after UV light treatment. The cartridge system is hermetically sealed, and contains all the necessary reagents, making it accessible to anyone, not just specialised laboratory personnel.

Confidently maintain assets with full visibility of the disinfection performance

The combination of BactoSense and the Active Cells – UV cartridge allows you to exceed the standards set by local regulators by providing complete visibility into your UV disinfection process. This enables you to optimise dosing, timing and the overall efficiency of your UV light columns.

Optimise the UV treatment process with microbial inactivation data

With BactoSense, you can automate your response to abnormal changes in water quality. By integrating the system with your SCADA or PLC system, you can automatically close valves, add chlorine, or increase UV light dosing, ensuring immediate action to maintain water safety.

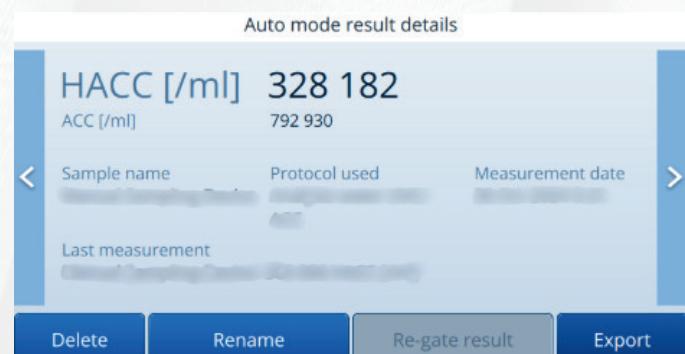


Figure 2 Screenshots of the GUI of BactoSense with an Active Cells – UV cartridge. The simple interface enables an easy understanding of the displayed parameters.



Figure 3 A UV disinfection water treatment system