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TECHNOLOGY REVIEW



## rqmicro

### Revolutionising Water and Food Safety through Flow Cytometry

**r**qmicro, the pioneer in rapid and quantitative microbiology testing, is driving water and food safety to new heights. Its relentless dedication culminates in the game-changing rqmicro.COUNT platform, an ingenious analytical device leveraging flow cytometry technology that is revolutionising water microbiology monitoring. This ground-breaking solution empowers convenient on-site measurement of total bioburden and specific bacterial strains, revolutionising the field with unparalleled efficiency.

“Flow cytometry was previously limited to complex settings such as clinical diagnostics and life science research over the past five decades. We have democratised flow cytometry, rendering it accessible and suitable for our specific needs,” says Dr Hans-Anton Keserue, CEO of rqmicro.

Flow cytometry permits the analysis of single cells, including bacteria, at a very high speed. rqmicro.COUNT leverages this technology for on-site analysis, providing rapid and accurate water and food safety assessment results.

The platform consists of three key components working together seamlessly to provide an effective and user-friendly water and food safety monitoring solution.

The rqmicro.COUNT instrument, the first component, is designed to perform flow cytometry-based measurements. It is highly user-friendly, making it easy for operators to carry out the required measurements accurately and efficiently. It is complemented by the second component, the Cloud Solution, which offers secure data storage, visualisation, and collaboration capabilities. This is particularly valuable for the food and beverage industry, where tamper-proof data storage is paramount. Quality managers, process engineers, and other stakeholders can rely on this trusted platform for efficient data management. It allows for the seamless integration of new instruments and facilitates organizational continuity and collaboration. The final component comprises four specialised test kits designed for the quantitative detection of total bacteria and specifically, of Legionella and E. coli bacteria in water samples.

The analysis begins with the water sample being mixed with the appropriate reagents in convenient single-use tubes. Followed by a brief incubation period, the prepared sample is transferred to the cartridge and inserted into the rqmicro.COUNT. The instrument can handle up to eight samples concurrently, enabling efficient and time-saving analysis.

Once the samples are loaded, the instrument performs a precise bacterial count, using flow cytometry technology to distinguish between living and dead cells. Obtaining a precise



Dr. Hans-Anton Keserue, CEO

count of viable cells is critical for the effective microbiological management of water systems, particularly when ensuring water quality for reuse purposes.

rqmicro’s innovative solution revolutionises microbiological testing by replacing slow and unreliable cell cultivation methods. Traditional techniques involving bacteria growth on agar plates suffer from prolonged wait times of up to 10 days for Legionella tests, resulting in outdated and uncertain data. In contrast, rqmicro’s cutting-edge single-cell counting approach provides faster and higher-quality results, with outcomes obtained within 30 minutes to two hours, depending on the type of test, and hence significantly advances microbiology-related processes.

One notable example is a facility in Germany that employs rqmicro.COUNT to quantify total bioburden and to detect Legionella contamination in processed water used for cooling facilities. Previously, they relied on cultivation-based tests but sought to save costs on biocides while improving safety for employees, visitors, and neighbouring areas. With weekly on-site measurements on rqmicro.COUNT, they achieve better Legionella control, leading to biocide savings and increased safety. This use case is also endorsed by the German Association of Engineers. Another example is a fish farm in Switzerland which endorses instrument for the superior precision of results which enables them to better control the recirculating aquaculture systems (RAS) and improve fish welfare and yield.

rqmicro’s solution transforms microbiological testing, delivering faster results, higher data quality, cost savings, and improved efficiency across industries. Its real-world applications demonstrate its transformative impact in microbiological testing. Backed by a decade of expertise, rqmicro continues its mission to substantially advance water and food safety testing worldwide.

# rqmicro



*The annual listing of 10 companies in Europe  
that are at the forefront of tackling customer challenges*