



Post-testing form

EXECUTIVE SUMMARY

LEGIO.tools developed the product LEGIO.logic which is an online monitoring system for drinking water, able to detect bacteria, microorganisms and other particles using microscopic images and object-recognition software in real time. Additionally, the product LEGIO.sampler was developed. This is an automatic water sampling system, which fills a sterile container with up to 1 L water, either by manual start or after a predefined trigger sent by the LEGIO.logic.

Motivation for the product is a widespread occurrence of bacteria in drinking water pipes of installations for instance in hospitals, other public institutions and private buildings. Water sampling and testing in these buildings normally takes place only once per year or even only every three years, is unfortunately not very precise and examination takes quite a long time (e.g. more than one week). Often, concentrations of these bacteria in water pipes exceed limit values and require emergency actions like closures of sport centres or the use of bacterial filters until disinfection has taken place.

LEGIO.logic is able to detect changes in bacterial concentrations in real time, linked to triggering an alarm. After detection of a certain alarm concentration, automatic sampling by the LEGIO.sampler followed by conventional testing is still planned to guarantee exact definition of the bacterial load. The drinking water is continuously checked to detect changes and peaks of bacterial concentrations and thus detects bacterial concentrations before they exceed the limit values and therefore could produce a health risk. In this way, appropriate countermeasures can be taken in a timely manner.

BASIC INFORMATION ABOUT YOUR COMPANY

The LEGIO GROUP, comprising LEGIO.tools GmbH and LEGIO-WATER GmbH, has been active in the field of water treatment via microfiltration and ultrafiltration for water disinfection since 1999. LEGIO.tools GmbH produces and sells point-of-use bacteria filters (microfiltration) for washbasins and shower heads. LEGIO-WATER GmbH produces water purification systems (ultrafiltration), which are permanently installed in the house entry point. With LEGIO.logic the LEGIO GROUP has developed an innovative product for continuous online drinking water analysis.

BRIEF INFORMATION ABOUT THE ACTIVITIES CONDUCTED WITHIN WTN

Validation tests for the LEGIO.logic and the LEGIO.sampler have been performed within the WTN. The aim of this test series was to validate the functionality and find the detection limits of the products. Tests with laboratory prepared bacteria solution demonstrated that the LEGIO.logic can detect changes in bacteria concentration and follows both the increase and decrease of the bacterial load of the water. A detection limit of 10^3 /ml was found, mostly due to the presence of other particles and bacteria in the water, which form a background noise. Above 10^3 /ml the detection was found to be linear. It was proven that distinction between particles and sediments can be achieved. Further, validation tests of the LEGIO.sampler showed that the automatic sampling procedure does not introduce significant contamination to the sampled water and that it can be used to take samples for laboratory analysis of water.



THE EUROPEAN TEST FACILITY NETWORK FOR WATER INNOVATION

WHAT IS THE ADDED VALUE OF WTN AND WHY WOULD YOU RECOMMEND WTN TO OTHER SMES?

The WTN allowed us to independently test our products, evaluate the technology and compare the results with standard laboratory methods. Without the WTN, these comparative methods would not have been available to us. It allows us to provide future customers with verified validation of the quality of our technology and tested products. The testing at WTN was performed very professionally and we are very satisfied with the collaboration. We strongly recommend other SMEs to test their technologies within the WTN.

WHAT ABOUT THE WTN COULD BE IMPROVED UPON AND HOW?

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Everything ran very smoothly and the communication with the testing facility was excellent.

LINK TO YOUR WEBSITE AND SOCIAL MEDIA ACCOUNTS

Website: <https://legio.com/produkte/logic/>

Email address: info@legio.com

PICTURES OF YOUR TEST/INNOVATION

