Harmful bacteria can be removed from water sources through the addition of copper and silver ions. The SILCO project has developed an innovative monitoring device that senses the elimination process of complex bacterial communities known as biofilm and unsafe bacteria from drinking water systems.

‘We set out to develop a sensor which quickly and cheaply measures the content of copper and silver, and other metals in water,’ says Peter van der Linde, managing director of Holland Watertechnology (HWT), the SME responsible for developing the sensor during the SILCO project’s lifetime and its current supplier.

‘Soil contamination was a serious issue in The Netherlands during the 1980s, and that’s when we started developing innovative techniques,’ he explains. ‘It’s the knowledge that we accumulated over the years which eventually led us to the research and development of our BIFIPRO® technology that uses copper and silver ionisation to eradicate biofilm and legionella from water systems.’ ‘We started this project in 2009 together with our SME partners in The Netherlands, Greece and Slovakia, and with universities from Italy and Germany, to develop the Silco-sensor,’ states Mr van der Linde. ‘After a period of extensive testing in our labs, the first prototype sensor was eventually installed in a Slovakian spa in July 2011.’

The BIFIPRO® system releases copper and silver ions into the water to eliminate biofilm, a breeding ground for harmful bacteria like legionella. It is equipped with a sensor that accurately monitors the concentration levels of copper and silver ions in water sources and facilities, which is a determining factor in the removal of biofilm and legionella.

Mr van der Linde explains that the copper and silver amounts are monitored in real time in The Netherlands. The quantities released into the water are immediately known, while the dosage can be adjusted remotely if need be. Before the development of the SILCO® sensor, water samples needed to be taken and analysed over a number of days, thus making the entire process considerably more
complex and expensive.

Mr van der Linde stresses the environmental benefits of the BIFIPRO® system: ‘There’s a strong case to be made for terminating the use of chemicals to control the growth of bacteria and switching to a more environmentally-friendly technology with copper-silver ionisation.’

HWT boasts more than 180 customers ranging from the healthcare and elderly care domains, to hotels, penal institutes, swimming pools, spas and cooling towers. Mr van der Linde adds that the project has received numerous enquiries from interested parties worldwide, in spite of the current economic climate. HWT projects the market value for the system to be between EUR 10-15 million for the period 2013-2017. ‘We’re hopeful that the creation of the limited company and the recent allocation of new manpower will fuel the commercialisation of our product.’

‘The ongoing development of the BIFIPRO® system has strengthened our market leadership in The Netherlands, as well as opening up new opportunities,’ emphasises Mr van der Linde. The EU-funded project may have finished over a year ago, but HWT is busy bundling related technologies with the SILCO product in an effort to advance the sensor and validate its performance in harsh working environments. ‘New partnerships are being established and a separate limited company is being set up which includes SME partners. This company will be responsible for new developments and the commercial exploitation of the sensor technology,’ claims Mr van der Linde. Placing the sensor into a handheld device is in HWT’s future plans, and he sees numerous application possibilities in the process industry.

‘For us, the SILCO project has been a great success,’ says Mr van der Linde. ‘It’s been our experience that most of the practical input has come from the SMEs.’ He continues: ‘As Holland Watertechnology, we do see a lot of potential in our own applications and industries, but we also see abundant interest from other industries.’

In early 2013, the Dutch government, after a successful two-year testing period, purchased the BIFIPRO® system for use in two cooling towers at the Forensic Institute in The Hague. The management of the Mirabilandia aquafun park close to Ravenna, Italy also decided to install the system on the basis of its proven effectiveness in excluding any risks of legionella for visitors and staff.

See also:
CORDIS [2]
Project:
Innovative electrodes to control trace metal ionization used to treat Legionella and other pathogens in water distribution systems
Project Acronym:
SILCO


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