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Swiss ActiWa® Technology

CASE: Aarhus University Hospital, Risskov

Bacteria-free water – without the use of toxic chemicals

Aarhus University Hospital fought against Legionella bacteria – and won

Legionella bacteria thrives in all hot-water supplies and Aarhus University Hospital, Risskov felt the problem firsthand. With the ECA generator from Danish Clean Water A/S they managed to significantly reduce the bacteria and thereby minimizing risks concerning Legionella.

Virtually all hospitals, nursing homes, schools, sporting facilities, housing associations and even hotels have the occurrence of Legionella - many of them without knowing - as Legionella normally will show no sign of its presence and do no harm towards humans with reasonably good health.
The Legionella bacteria are lead in through the water supplies for potable drinking water, which is natural. The real problem however, arises when it gets into the hot-water supplies where temperatures between 25 - 45° C is just the right breeding ground for the bacteria to massively propagate, involving a major risk for different cases of illness.
NEUTHOX® is highly efficient for fighting Legionella in hot-water supplies, confirmed by several successfully, already existing installations of the ECA generator from DCW. Furthermore it can present great cost savings seeing as you will often be able to lower the hot-water temperature.
Danish Clean Water A/S is a manufacturer of ECA generators and has marketed the generator for more than 5 years, has sold to more than 20 countries through local partnerships and has thereby gained significant market power.

DCW
Danish Clean Water

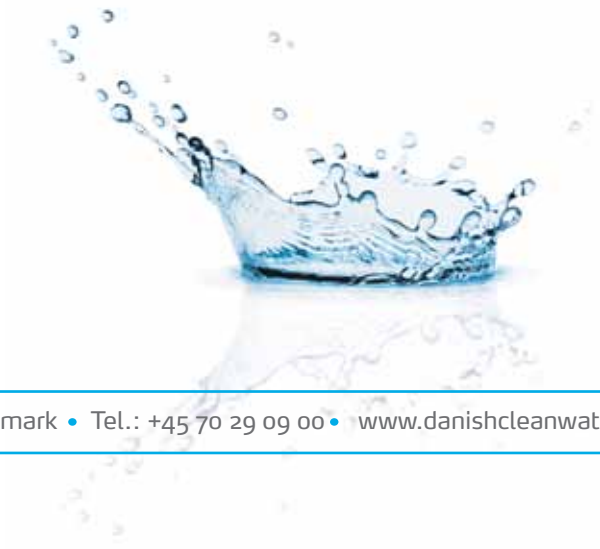
Jørn Nielsen

DCW's ECA generator supersedes expensive renovation of piping

In the summer of 2011 Jørn Nielsen, sectional manager at Aarhus University Hospital, Risskov was contacted by Hjortkær Maskinfabrik and introduced to a new and innovative system for fighting Legionella and removing biofilm from hot-water supplies.

After careful consideration Jørn Nielsen chose to try out this new technique at the hospital, seeing that Aarhus University Hospital had shown elevated readings of Legionella in the hot domestic water. The ECA generator was installed the following December.
It was decided to start out with a high dosage of NEUTHOX® to get a rapid effect. A high dosage can result in more acute cleaning tasks in the system, which also was the case here.

After a few weeks of treatment, the first sampling was conducted the same 4 places that were tested before the launch of NEUTHOX®. These samples clearly showed signs of the Legionella dropping and the biofilm was on its way being fully removed. The dosage now was adjusted to a "normal level", as Hjortkær notoriously knew this would keep pipes and tanks free of Legionella and biofilm.



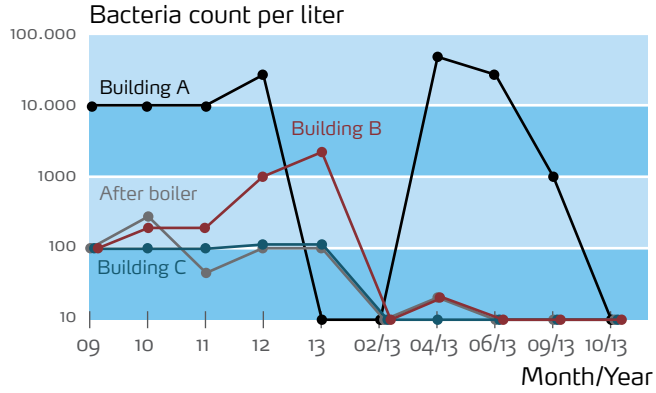
"Every building, wanting to secure their installation against Legionella and biofilm should consider investing in an ECA generator from DCW"

Improper piping disrupted sampling

Next sampling, carried out app. 2 months after reducing the NEUTHOX® dosage, the samples suddenly showed that Legionella had blossomed yet again – this time in a remote department of the building. The situation was looked into, and it was determined that the ECA generator had been running without any interruptions throughout the last period. Instead, it was caused by improper piping in this particular department that led to very poor/no circulation of the hot-water circuit.

Level of Legionella after 12 months

Legionella in hot domestic water



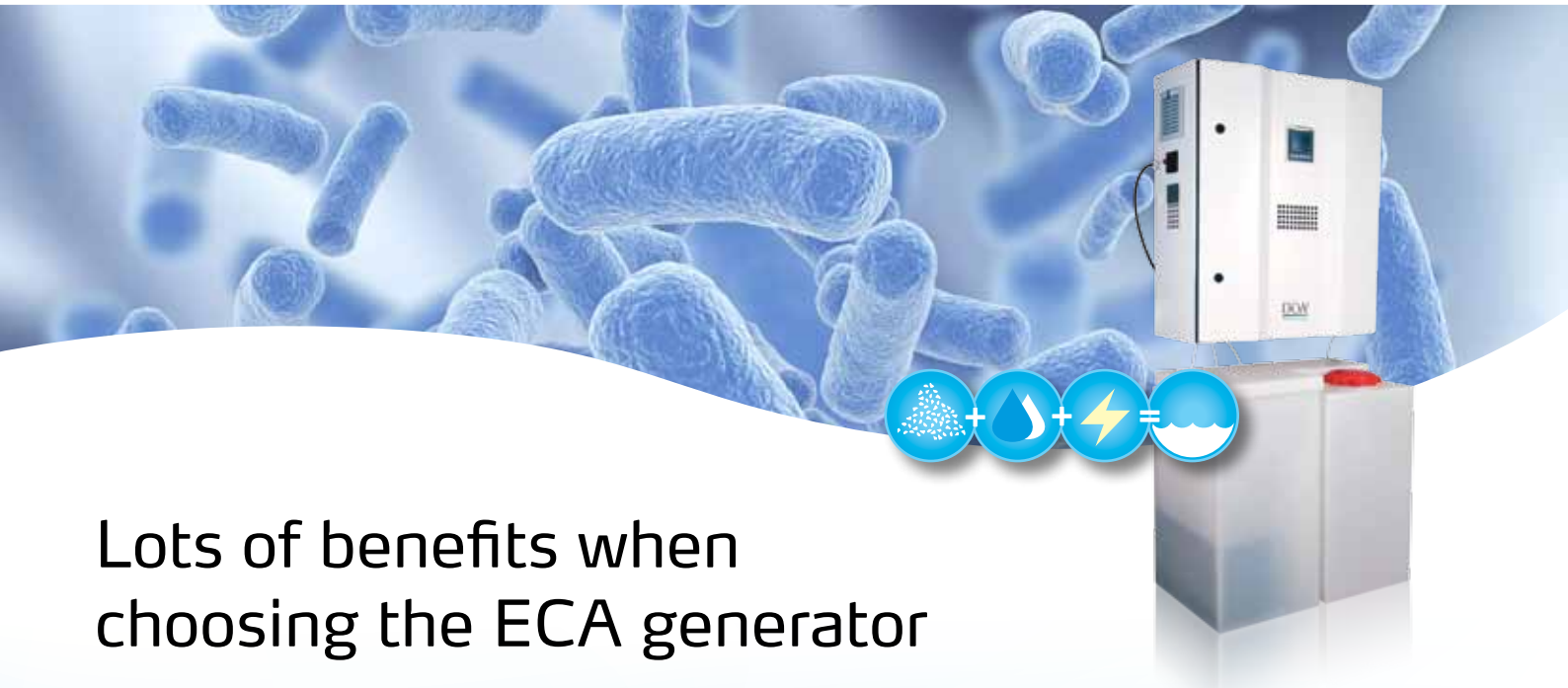
In this case, NEUTHOX® actually helped the technicians at the hospital, detecting weak points in the hot-water system that would have been almost impossible to locate without the adding of NEUTHOX®. They changed the installation and after running for a week, a new sampling was conducted. The Legionella bacteria were again reduced and after last sampling in December 2013, all 4 samples showed 10 cfu/ml which is the detection limit for Legionella.

Conclusion

Jørn Nielsen never had second thoughts about investing in the ECA generator for the hospital, as opposed to more extensive and expensive solutions to solve his quite serious problem with Legionella. His problem was now solved fast and efficient at a reasonable investment price and satisfactory operating costs.

Some sections of the piping system Aarhus University Hospital, Risskov has been operating for so many years and therefore cannot handle continuous heat gymnastics, such as raising the inlet temperature to 70° C. It would also be quite costly to replace the pipes; therefore the ECA generator from DCW makes perfect sense for the hospital.

Jørn Nielsen is so pleased with the system and the result he obtained at Aarhus University Hospital, that he often will express his opinion about his experience with NEUTHOX® and its ability to eliminate Legionella and biofilm.



Lots of benefits when choosing the ECA generator

The ECA generator only makes use of very little man-power, primarily consisting of refilling common salt tablets.
The PLC of the ECA generator takes care of full automatic control, supervision of all the internal processes and constant control of operation/product.
Twice a year, it is recommended that Hjortkær Maskinfabrik undergo maintenance of the system, changing waterfilter, air filters and calibrate the ORP sensor – for it to keep sending the right information back to the system.

NEUTHOX® - the eco-friendly problem solver

The ECA generator produces NEUTHOX® from common salt, water and electricity. The liquid, NEUTHOX®, is very eco-friendly and after oxidation there is only salt and water left, all natural parts of our environment. Apart from the liquid being eco-friendly it is the safest, least dangerous, fastest and not to mention the cheapest way to get rid of Legionella and biofilm. Biofilm in pipes, tanks and heaters are all breeding grounds for bacteria, it works as a vessel protecting the bacteria against potential heat disinfection. Even by raising the inlet temperature to 70° C, biofilm will not go away. NEUTHOX® is highly effective towards terminating all bacteria, viruses and fungus. It is known to eliminate Escherichia coli in less than <100 milliseconds.
NEUTHOX® has a price of € 0,006 per liter of concentrate, which is the exact amount it takes to treat 1 m³ hot domestic water; also here the ECA generator is "ahead of its game".

A dosage between 0.15 – 0.3 ppm free chlorine is recommended. The best way of controlling the dosage is according to ORP (The Redox potential), with a set point of 550mV the right level of free chlorine is obtained.