



NEUTHOX

For clean and bacteria free water

- Neuthox dosed in water ensures clean drinking water without bacteria
- Eliminates legionella bacteria in water systems
- Neuthox removes biofilm permanently from the entire piping system
- Neuthox is manufactured efficient, economically. It is environmentally friendly with no toxic or hazardous chemicals
- Neuthox helps property owners to fulfil their responsibility to provide bacteria free water.



Dosing Levels and Methods

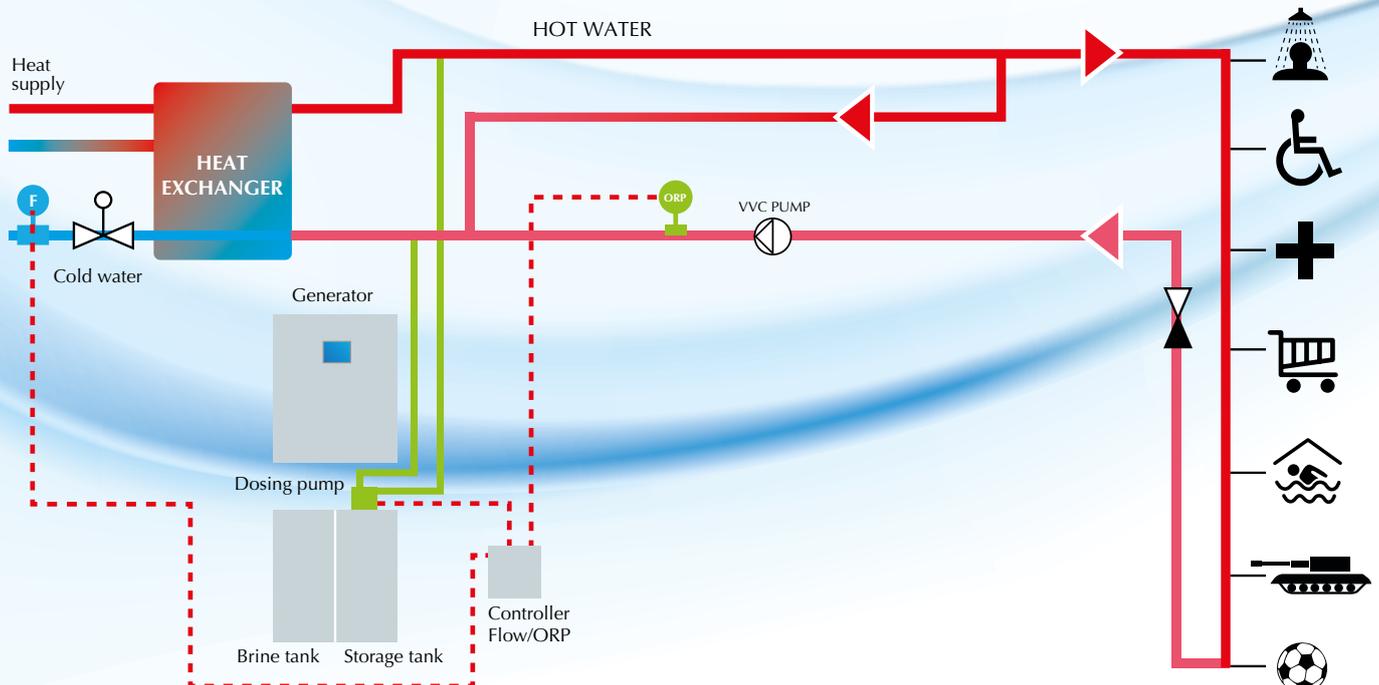
It is recommended that Neuthox is dosed proportionally to the flow, but can also be done based on a selected ORP value. If there is a lot of biofilm inside the piping, experience has shown that a dosing rate of 1 – 1.5 ppm will ensure a fast effective removal of legionella and biofilm. After biofilm is removed, a dosing rate of 0.3 – 0.5 ppm will be sufficient.



Dosing Guide

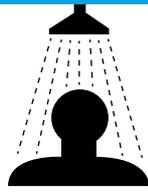
Waterflow	Neuthox added 0,5 PPM	Neuthox added 1,0 PPM	Neuthox added 1,5 PPM	Generator size
m3/day	L	L	L	
5	5	10	15	T10-15
10	10	20	30	
25	25	50	75	
50	50	100	150	
100	100	200	300	T10-50
250	250	500	750	T10-75
500	500	1000	1500	

Calculation Neuthox demand = $\frac{\text{consumption per day (litre)} \times \text{added Neuthox amount in PPM}}{\text{Generator capacity PPM}}$





Legionella



Legionella is a dangerous bacteria, which transfers through inhalation of waterborne vapours/aerosols, during showering, humidification or flushing systems. Legionella can cause lung disease and in worst-case death.

In larger buildings such as hospitals, hotels, sport facilities and housing complexes, the plumbing for hot and cold water is breeding ground for biofilm and again Legionella bacteria.

The Legionella bacteria grows fast in environments with stagnant water, biofilm and temperatures between 25 and 45 degrees.

The infection can be caused in a mild variant that provides so-called Pontiac fever or Legionnaires disease that may result in death.

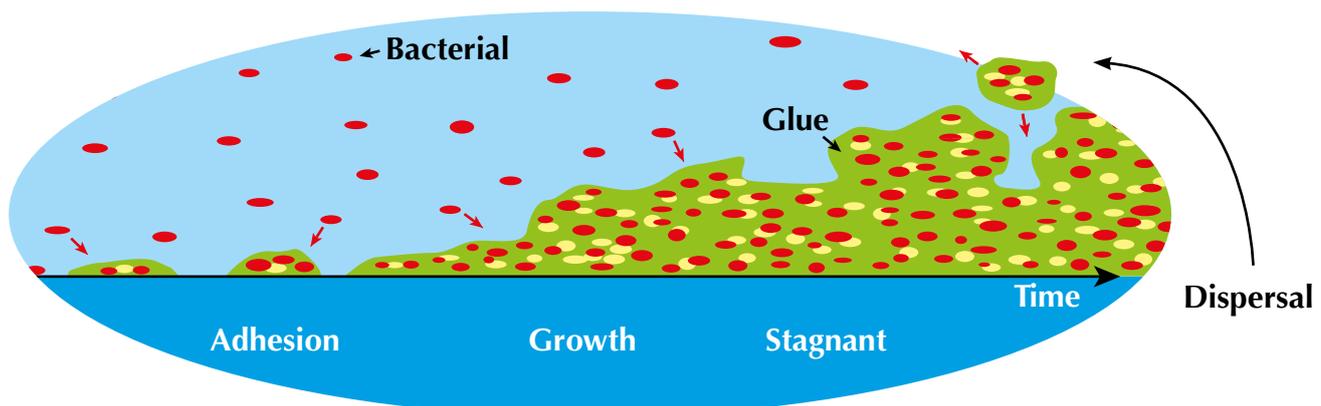
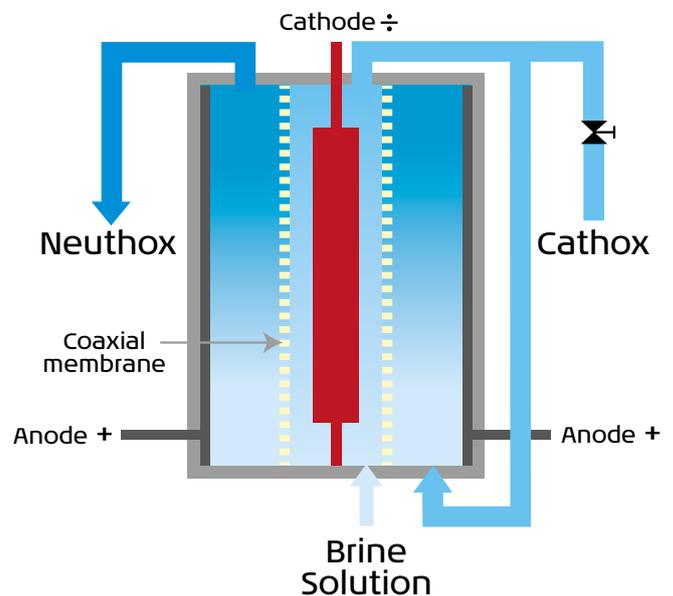
- **Neuthox kills Legionella bacteria in all piping systems and minimizes the risk of lung disease.**
- **Neuthox will remove biofilm from existing piping systems over time, thus removing the breeding ground and home of legionella.**
- **Neuthox has low running costs, typically around 0.4 € day for hospital with 400 beds**
- **No corrosion issues**
- **Non toxic, non hazardous, Eco friendly.**

The most common method today to sanitize legionella, is to flush the infected piping system with 70 degree hot water, called "scalding".

This procedure is ineffective, often very difficult to perform, and aggressive to the existing plumbing installation, causing water leakage. The biofilm, which is the breeding ground of the bacteria, will still be present and allowing new contamination to grow. High risk of accident by scalding of residents and working personal is present.

Increasing the temperature on the hot water line, can also have a negative effect on the temperature in the cold water line, which can increase and help Legionella reproduce here too.

Principle of electrolysis



Case Story



In spring 2012, Legionella bacteria were found in the shower system of the Municipal Swimming pool in Osby in Sweden. Now the shower system is completely Legionella-free. Only with the use of a harmless and biodegradable disinfection liquid, that protected all users against future outbreaks. Neuthox is an effective alternative to potentially dangerous chemicals.

“I got the solution recommended by Secon, Swedish Energy Consult, who have been our partners for 30 years. I thought immediately that it seemed like a great solution because it is safe to handle contrary, for example, to disinfect with chlorine dioxide, which can produce hazardous gases,” says Ulf Nilsson.

Until recently, the shower system did not have a routine for Legionella control. Previously they rinsed the shower system at night by flushing 70 degrees hot water through the pipes, which would kill the bacteria but the hot water did not remove the biofilm in the pipes where bacteria grows, therefore this method is not safe. In spring 2012 a control measurement showed legionella bacteria count in the 800 cfu/100ml. A measurement, which resulted in the installation of a new disinfection system.

“The alternative would be that we should completely separate the hot and cold water piping throughout the building, and it would require a major expensive renovation. We wanted to avoid this solution. Neuthox is more efficient and a much easier option, than daily to flush the pipes with hot water. The DCW solution took 6-7 men’s work a whole night “says Ulf Nilsson.

Fortunately, no one fell ill because of the Legionella outbreak in Osby. Today is the bacteria count in the pipe installation / systems below limited legislations values.

Savings potential by reducing hot water temperature

Example from a school project in Denmark show a potential saving of 25.426 kWh yearly. This will give yearly savings of 1700 €.

(Calculation by external consulting company Rambøll)

The hot water temperature was reduced from 55 degrees to 40 degrees. At the same time, it secure an optimal legionella prevention control.

Installation information's

- Hot water temperature before DCW installation 55° C
- Hot water temperature after DCW installation 40° C
- Energy prices district heating 0.06 €/kWh
- Yearly operation and maintenance cost of DCW Generator 600 €/yearly.

Danish Clean Water

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