

INDUSTRIAL WATER DISINFECTION

HVAC - COOLING TOWERS - AIR CONDITIONING - HOT WATER SYSTEMS



Having cost effective, low maintenance, energy efficient and compliant HVAC systems is the ultimate goal for facility management. Biofouling on heat exchangers and in the pipework may drastically impact their performance and even their integrity.

BlueSense™ developed specific solutions to limit the proliferation of micro-organisms in HVAC systems. An exclusive technology, based on electrolysis, uses the chlorides naturally present in the inlet and in the recirculating water to convert them, into a powerful oxidizing biocide, the hypochlorous acid.

A 20 ppm chlorides concentration in the water to be treated is enough to generate up to 2 ppm of free chlorine in the system.

Depending on the quantity of disinfectant required, and on the chlorides concentration in the water to be treated, this conversion can take place in-line, on the raw water stream, or in recirculation directly on the cooling or heating loops.

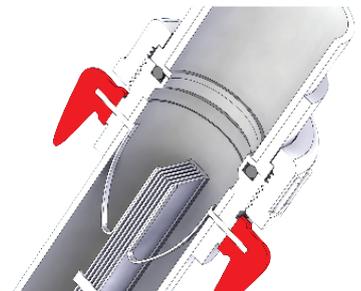
Applications of BlueSense™ technology are numerous:

- Hot Water Systems, for institutional and medical care buildings
- Cooling towers, scrubbers, evapocondensers
- Air conditioning water circuits, as for office buildings or shopping malls
- District cooling, to facilitate cold water storage for use during warm season

BlueSense™ technology has proven track record in the prevention of microbial growth and in particular of legionella pneumophila for more than 15 years.

Managing the biofouling in HVAC systems leads to an improved exchange for the production of heat or cold, reduces the scale formation by limiting the crystal nucleation sites but also lowers the corrosion rates (decreasing the risk of Microbial Induced Corrosion and the deposits).

As the disinfectant is produced on-site and on-demand, less routine maintenance is required, and there is no need to handle or transport hazardous chemicals. The intuitive Human Machine Interface (HMI) of the OXAQUA and OXAQUA RW also eases the control of the proper sanitation of the system, which can lower the total cost of ownership and operation.



BlueSense™ patented Electrode

CASE STUDY

VREUGDENHIL DAIRY FOODS factory in Joure (The Netherlands):



Vreugdenhil dairy foods is present on the dairy market since 1954 and is the largest producer of whole cream milk powder in Europe.

Three factories in the Netherlands are collecting and processing the milk of more than 900 farms to produce powder milk for the food industry and for millions of consumers worldwide.

For their factory in Joure (NL), we installed **OXAQUA RW** system to treat water flows varying from 1m³/hour up to 25m³/hour on a recirculating loop.



Vreugdenhil factory in Joure

This treated, and therefore sterilized water, is being used for the cooling water in the heat exchangers and thus keeping the cooling water (for the injection mold machine where the plastic milk bottles are being produced) free from any bacterial contamination.

The same factory uses BlueSense's in-line **OXAQUA** system to sanitize the water, used to prevent dust explosions in the dry milk powder towers.

Vreugdenhil's case study: detailed here by Sybren Abma Technical Dept. Manager

- Cooling water treatment
- Hydrofores
- Make up water quality :
 - Ph : 7.7
 - Cl⁻ : 34mg/l
 - Temperature : 11°C



Machine room

The laboratories are sampling the water of the factory every week on Thursday, testing for bacteria, and reporting on Monday. Levels have to be below 100 cfu per ml. (drinking water standards) with all water treated by our equipment. Free chlorine residual has to be in a range between 0.4 and 0.6 ppm.

In order to keep the free chlorine levels in the piping, where water is not flowing continuously, Vreugdenhil uses fully automatic open (electric) valves, 4 times a day, to get chlorinated water to the end of the tap. The water network is made of Stainless Steel 316. The flushing lasts for 5 minutes.

The temperature of the water in the cooling system can easily reach 40°C, creating the ideal conditions for bacterial blooming. Therefore, a regular flushing of the system is done.

The fresh water is passing through the OXAQUA system in order to avoid any risk of external contamination.

As a result, the bacterial count in our process systems is less than 1CFU, which is compliant to our manufacturing standards.



Oxaqua RW CL

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