Case Study
Cooling Tower Water Treatment at Manufacturing Facility

Substitution of Conventional Biocide Treatment with MIOX Mixed Oxidant Solution

The substitution of conventional biocide treatments with MIOX Mixed Oxidant Solution (MOS) has resulted in a biocidal cooling tower water treatment process that costs less and is more effective than isothiazoline and bromine biocides.

LOCATION
Leading Consumer Goods Manufacturer in France

NEW DISINFECTION
Three (3) MIOX RIO Zuni on-site chemical generators producing Mixed Oxidant Solution (MOS) chemistry.

PREVIOUS DISINFECTION

- Isothiazoline
- Bromine

PROBLEM
In June 2013, a leading consumer goods manufacturer in France wanted to improve facility safety for staff, which included in the removal of handling and storage of hazardous chemicals on-site, while reducing the cost of the treatment.

The treatment for the facilities cooling tower water disinfection before June 2013 was as follows:

1. Two (2) shock treatments with organic biocide compound (Isothiazoline) via automatic injection
2. One (1) shock treatment with chlorine biocide activator (Bromine) via manual injection

The manual biocide injection accounted for 4,400-5,500 lb/year (2,000-2,500 kg/yr) in chemical handling.

MIOX SOLUTION
The installation of MIOX biocide solution has been shown to be as effective as utilizing isothiazoline

compounds and organic biocides while significantly reducing operation costs. Water analysis and a real-time ATP (adenosine triphosphate) test showed positive impact to the cooling water when the biocical treatment was changed to MIOX Mixed Oxidant Solution (MOS). Also the facility observed low ATP rates with a decreasing trend since the installation of the RIO Zuni systems.

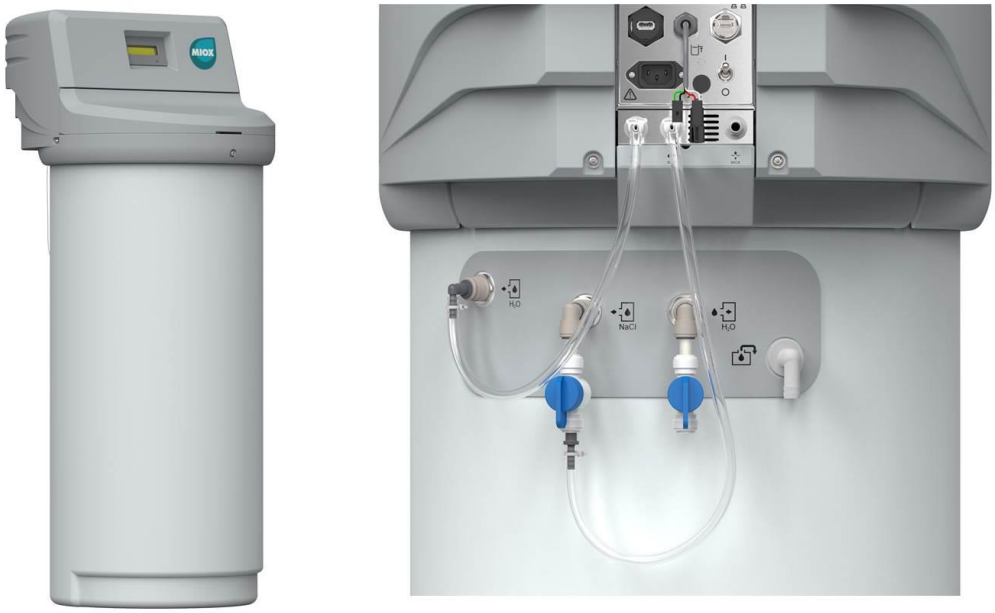
RESULTS

MIOX technology helped the facility meet its objectives of:

1. **Microbiological Control**
   The new treatment process utilizing MOS is as effective as the previous treatment process (isothiazoline & bromine) at controlling bacterial growth.
2. **Safety & Simplicity**
   On-site chemical generation eliminated the manipulation of up to 5,500 lb/year biocidal products from filling meters and/or manual injection. Furthermore, the facility was able to completely eliminate the transportation, storage and handling of delivered chemicals and their containers.
3. **Economic Benefits**
   Lower operating costs from removing the purchase of delivered biocidal products and switching to on-site generation which utilizes only salt, water and electricity.

Water Analysis

Positive water analysis of the cooling tower water during normal operation for three months before and after the installation of MIOX Mixed Oxidant Solution (MOS). Key operating parameters were maintained at similar levels. Corrosion rates stayed at an industry acceptable level. Water clarity remained clear with lower ATP counts measured.



The **MIOX RIO Zuni** on-site chemical generator utilizes salt, water and electricity to produce an extremely effective and environmentally-benign water disinfectant.