



TREATING WATER. BETTER.™

Silver Bullet Water Treatment AOP Sustainability Benefits for Data Centers

Silver Bullet Water Treatment is at the forefront of delivering integrated advisory and treatment technology solutions to global industrial clients. Our Advanced Oxidation Process (SBWT AOP) treatment technologies, coupled with real-time monitoring capabilities, provides a unique combination of green chemistry and digital connectivity to support corporate sustainability strategies. Mitigating the use of chemicals for water treatment offers tangible value in vastly reducing operating costs, water and energy use, and associated carbon emissions.

The need to scale cost-effective, connected, and sustainable water treatment solutions to industrial clients has never been more critical. Corporate sustainability commitments to reduce the use of chemicals, water, energy, and carbon emissions are now mainstream. These corporate commitments, coupled with the water sector's digital transformation requirements, puts Silver Bullet's treatment solutions in a unique position to deliver immediate value to our industrial clients across various sectors. The impact of the pandemic has also accelerated the adoption of real-time digital monitoring solutions. This nexus of lower operational costs, resource use, digital connectivity, and sustainability advisory services are central to the Silver Bullet sustainability value proposition. Silver Bullet's sustainability performance data directly supports corporate environmental, social, and governance (ESG) reporting programs such as the CDP Water and Climate Change and The Global Reporting Initiative (GRI).

Non-Chemical Data Center Cooling Tower Solutions

Silver Bullet Water Treatment's AOP system is unique in that it uses ambient air as a seedstock to create a mixed oxidant gas directly onsite. The ambient air flows through our proprietary reactor. The reactor converts the free oxygen into a highly reactive mixed oxidant gas. This mixed oxidant gas is then injected into the open-loop evaporative cooling system water. The mixed oxidant gas quickly reacts with the common biological contaminants (bacteria, fungus, algae, etc.), including Legionella. Once oxidant gas is injected into the water, it has an immediate disinfection impact and a sanitizing effect. This is accomplished by the rapid formation of hydroxyl radicals in the water along with other species of highly reactive oxidants. This mixture of oxidant species attacks and mitigates microbial outbreaks more effectively than liquid chemicals.

Carbon Footprint

An analysis was conducted of the four most common data center/commercial cooling water treatment systems: the Silver Bullet Water Treatment Advanced Oxidation Process system, a "traditional" chemical dosing system using sodium hypochlorite (NaClO), a "traditional" chemical dosing system using chlorine dioxide (ClO₂), and a corona discharge ozone system. Ultimately the totals for each system were as follows:

- 14,950 lbs. CO₂/year for SBWT AOP;
- 29,150 lbs. CO₂/year for NaClO;
- 59,280 lbs. CO₂/year for ClO₂; and
- 20,360 lbs. CO₂/year for the corona discharge system.

The research concludes that due to the smallest overall carbon footprint, the SBWT AOP water treatment system is the most sustainable of the four common water treatment systems.



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Water Savings

Beyond water management, water savings can also be made by carefully examining the overall sustainability of common water treatment systems. Chemical dosing systems and corona discharge systems typically require a corrosion inhibitor to ensure proper increase Cycles of Concentration (CoC) and proper cooling tower operation. However, SBWT AOP solutions may not require corrosion inhibitors to reach high CoC levels, thus saving water without contributing to the carbon footprint of the production and transportation of an additional chemical or the corona discharge's overall carbon footprint system.