

## CASE STUDY

### *Sierra Nevada Brewery proves success using Ozone Technology in place of chemicals to sanitize plant equipment*

*ClearWater Tech sterile-rinse ozone system reduces huge costs and environmental footprint.*



Dissatisfied with the by-products of chemical use, Sierra Nevada Brewing Co. was looking for a solution to reduce wear on its expensive stainless steel fermentation tanks. Chemicals used in the sterilization process are not only damaging to the tanks themselves, but are also harmful to the environment (and can change product flavor). As Sierra Nevada is an environmentally conscious company, the brewery was looking for an innovative solution that provided excellent sterilization and reduced application of chemicals.

The long road to this conclusion was found after initial attempts to achieve desired results proved unsuccessful.

Use of chlorine dioxide pitted the stainless steel fermentation tanks and imparted a change in product flavor.

There were also safety issues associated with chemical handling. Use of paracetic acid for sterilization did not provide consistent sanitation results. This was caused by off gassing of H<sub>2</sub>O<sub>2</sub> in the Paracetic Acid compound when the lines are depressurized. In addition, the H<sub>2</sub>O<sub>2</sub> significantly reduced the shelf life of the product.

Iodophore, which uses an iodine compound for sanitizing, reacted with other cleaning agents resulting in pitting of the fermentation tanks and degrading of the soft rubber materials. Additionally, Iodophore can impart a change in product flavor.

Looking for a better solution, Sierra Nevada Brewing Co. turned to ClearWater Tech for the answer. ClearWater Tech installed its CD4000HO to serve the brewery's plant-wide sterile rinse system.

The CD4000HO has been tested and certified by the Water Quality Association according to NSF/ANSI 50. It sterilizes using a four-part system, which includes: the air preparation system, ozone generator, ozone injection/contacting, and ozone destruct. In this unit, all ozone is generated on site requiring no transportation or storage. And it maintains a consistent 1.0 ppm dissolved ozone in the storage tank and  $\geq 3$  log reduction in mold, yeast and bacteria counts. Another benefit is that ozone leaves no telltale taste or odor.

Use of the CD4000HO has eliminated wear on the fermentation tanks and other stainless steel parts. It has imparted no change on product flavor and reduced costs by minimizing manpower and chemical costs. Through all of the brewery's efforts, including reducing water treatment charges, Sierra Nevada Brewing Co. saved an estimated \$1.5 million during 2005.

Installing the CD4000HO on the brewery's floor is just one of the ways that Sierra Nevada Brewing Co. is reducing its environmental footprint and saving money at the same time. For six consecutive years, Sierra Nevada has been an award recipient of the Waste Reduction Awards Program (WRAP). This is supported by the fact that the CD4000HO was installed in 1999 and is still the method of choice by Sierra Nevada Brewing Co.

For more information about this case study and other ClearWater Tech products please contact 800-262-0203 or visit our web site at [www.cwtozone.com](http://www.cwtozone.com).



#### **ClearWater Tech, LLC**

Ozone Systems for Water & Air Purification

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