

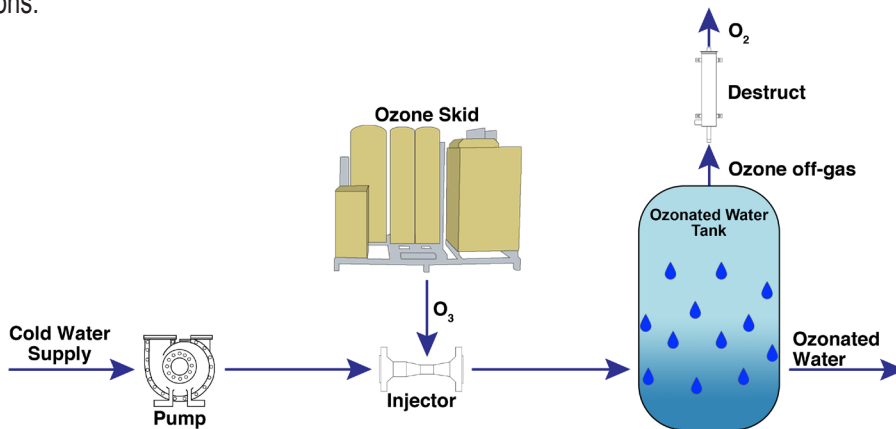


Clean In Place (CIP)

Clean In Place (CIP) is commonly used for cleaning bioreactors, fermenters, mix vessels, and other equipment used in biotech, pharmaceutical and food and beverage manufacturing. CIP is used to remove in-process residues, control bioburden, and reduce endotoxin levels within processing equipment and systems. Historically the most common sanitizer used in CIP systems has been chlorine. While chlorine is a very effective disinfectant it has the potential to leave residuals and create potentially harmful by-products. Chemicals, caustics, and acids used in these CIP processes have challenges with storage, handling, and transportation. Health and environmental concerns with chemical use, along with rising costs, have broadened the use of ozone in many applications.

Ozone is an extremely effective, environmentally friendly sanitizing agent that leaves no residual or by-products after the disinfecting process. Ozone's reactive properties allow it to quickly kill bacteria. In fact, in this application, ozone is at least six times stronger than chlorine as a disinfectant. Ozone is the strongest oxidant on the market. Other chemical solutions just can't compare.

The use of ozone in CIP systems offers many advantages. Integrating ozone into CIP systems can eliminate hot water costs, lower chemical costs, and shorten overall downtime for CIP process. The rinse/cleaning cycles can be combined thus saving water and time. This may allow for more processing time due to shorter CIP cycle time. Ozone sanitation may replace hot water cycles lowering your energy costs. Water savings will translate to less wastewater, and potentially cleaner wastewater eliminating chemical by-products. There is no need for chemical storage, handling, or related safety issues. These costs savings in conjunction with chemical savings have made ozone a cost saving measure in some applications.



OWS OFFERS:

- Service
- Rental Equipment
- Monitor Calibrations
- Uniform Fire Code Compliance
- Parts Support
- Sales
- Pilot Systems
- Refurbished Equipment
- In-house Repairs
- Custom System Design
- Years of Experience

OZONE ADVANTAGES

- No residual or by-products
- Energy savings
- Lower chemical costs
- Handling/transportation savings
- Cleaner wastewater
- Shorten CIP Process
- Less downtime
- Strongest oxidant available
- No need for storage