



Sustainable Solutions for Health, Productivity and the Environment.



Ozone

The Sustainable Solution for Cooling Towers,
Process Water and Wastewater.

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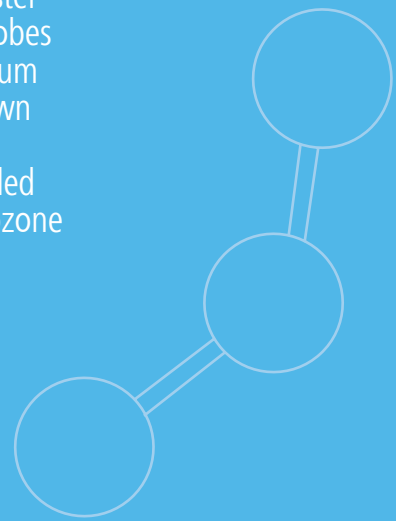
Bacteria, viruses and other pathogens thrive in the water around us. These microbes can cause illness or can negatively affect the process where the water is being utilized. Traditionally we attack these pathogens with chemical biocides. Ozone technology is an innovative alternative — safer, greener and more effective.

Truly Sustainable

Ozone is very inexpensive to produce, is sustainable and has an unlimited supply source, the oxygen found in air. Ozone is clean and environmentally-friendly; its only by-product is oxygen. And, because ozone is produced on site, you eliminate the transporting, storing and handling of hazardous materials.

Faster and more powerful than chlorine

Ozone has a killing factor against bacteria and viruses 3,100 times faster than chlorine. Ozone has the oxidizing strength to kill hardened microbes that can survive a chlorine assault. For example, *Cyptosporidium parvum* is one of the most resilient water-borne pathogens. Studies have shown that after 18 minutes, the bacteria were still alive in water containing 350,000 ppm chlorine. A residual of 700,000 ppm of chlorine is needed to kill the cysts instantly. The same study proved that only 1 ppm of ozone was effective in instantly killing the same *Cyptosporidium* cysts.



Ozone for Cooling Towers

Rochester Midland Corporation Ozone Systems will improve the treatment and safety of your cooling towers. A powerful disinfectant, ozone can be used to treat recirculating systems of all sizes. It is effective at preventing biofilm growth, corrosion and controlling scale deposits. Because ozone is a powerful biocide, it can be used to provide protection against pathogens like the Legionella Pneumophila virus that is often traced to contaminated cooling water systems.

Cooling Tower Benefits

- Eliminates most types of microorganisms
- Removes existing biofilms
- Saves energy
- Saves water – allows higher cycles of concentration
- Generated on site – no storage or handling of chemicals
- Low operational and maintenance costs
- Replaces toxic biocides

Ozone for Process Water

High Quality Products Demand High Quality Water. Beverage processing plants have a high standard on the water used in their process, mandating that the water be bacteria free (zero count). Chemical additives used to destroy bacteria must be completely removed prior to use as process water because chemical residuals such as chlorine would compromise the flavor of the beverage.

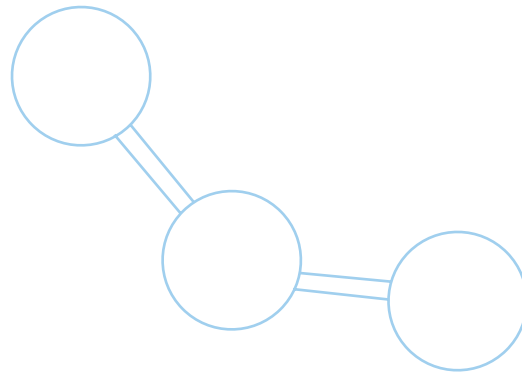
The process is "green" as only oxygen is discharged to the environment. Our Technical Specialists will work with your team to implement joint process improvements that will optimize operating efficiency, save on operating costs and have a minimal impact on the environment.

Ozone in Wastewater Applications

As the amount of chemical pollutants in our wastewater increases, facility operators are struggling to find solutions. With the recent enactment of the newest Disinfection By Product Rule (DBPR) regulations, that solution has become even more difficult. Ozone is a powerful disinfectant and Rochester Midland Corporation Ozone Systems can improve the BOD/COD discharge levels in your wastewater.

Wastewater Benefits

- Lowers BOD/COD levels prior to discharge
- No chemical residual in water
- Reduces residual odor/taste in water stream
- Precipitates suspended solids
- Generated on site – no storage or handling of chemicals
- Rapidly kills microorganisms with minimal contact times
- Exceeds EPA standards for reducing THMs (trihalomethane) and HAAs (haloaceticacid) levels
- Replaces hazardous chemicals



Top 10 Reasons You Should Use Ozone

1. Ozone is the most powerful broad-spectrum microbiological control agent available.
2. Ozone is 51% more powerful on bacteria cell walls than chlorine and kills bacteria 3100 times faster.
3. Ozone virtually eliminates all chemical usage and produces no toxic by-products.
4. Ozone is clean and environmentally friendly; its only by-product is oxygen.
5. Ozone is much safer for employees than conventional chemicals.
6. Ozone has full FDA approval for direct-food contact application.
7. Ozone is extremely effective as a disinfectant at relatively low concentrations.
8. Ozone is generated on site, eliminating the transporting, storing and handling of hazardous materials.
9. Ozone extends the shelf life of food products.
10. Ozone permits recycling of wastewater.

How It Works

Ozone produces free radicals that attack carbon-chain molecules that make up cell wall membranes and the carbon-chain bonds that make up many surfactants, emulsifiers and detergents found in wastewater. In addition, ozone is highly effective in oxidizing and destroying odors, viruses, molds and bacteria. For example; as ozone comes into contact with bacteria, the ozone molecule attacks the cell wall of the organism and breaks it down in a process known as cell lysing. Once the cell wall is penetrated, the cell's cytoplasm is released and the cell expires almost instantly. Ozone attacks the microorganism like a shotgun, bursting their membranes and spilling their contents.



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