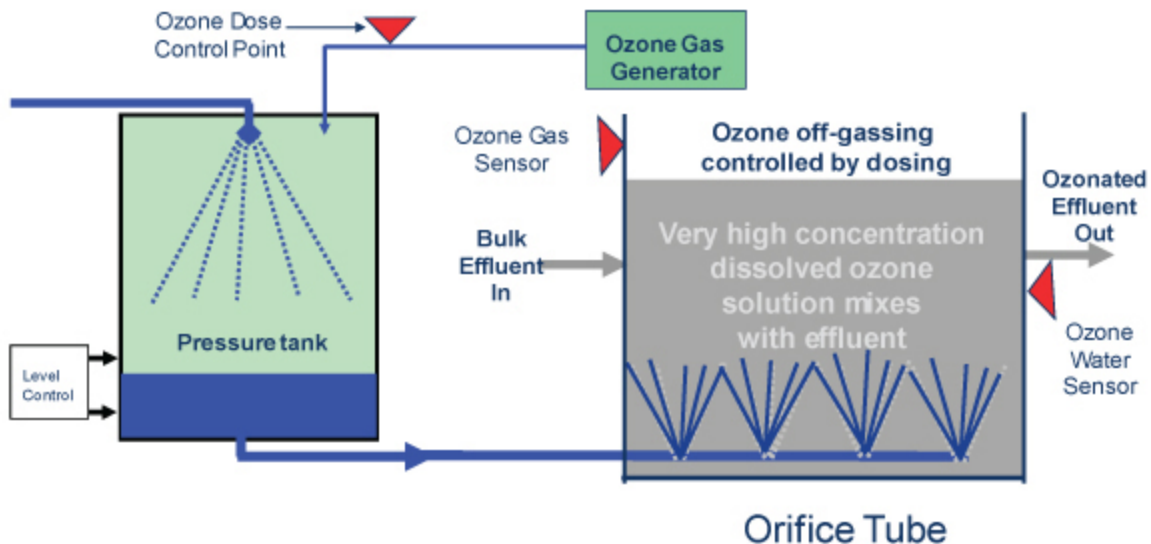


Disinfection and Decontamination Using the HyDOZ[®] System

The Hyperconcentrated Dissolved Ozone Injector (HyDOZ[®]) uses a patented and patents-pending technology for delivering dissolved ozone to treat drinking water and wastewater. The benefits of the HyDOZ over current ozone delivery technology are lower capital and operating costs; delivery of high concentrations of dissolved ozone; far greater flexibility over where and when dissolved ozone is delivered, and precise control over dissolved ozone concentration even as flow rate and ozone demand are changing. The HyDOZ provides a high concentration side-stream that is nearly instantaneously mixed with the bulk wastewater/drinking water (efficient liquid-to-liquid mixing) resulting in a dissolved ozone concentration that is below saturation, for minimal ozone off-gassing and maximum cost efficiency of dissolved ozone delivery.

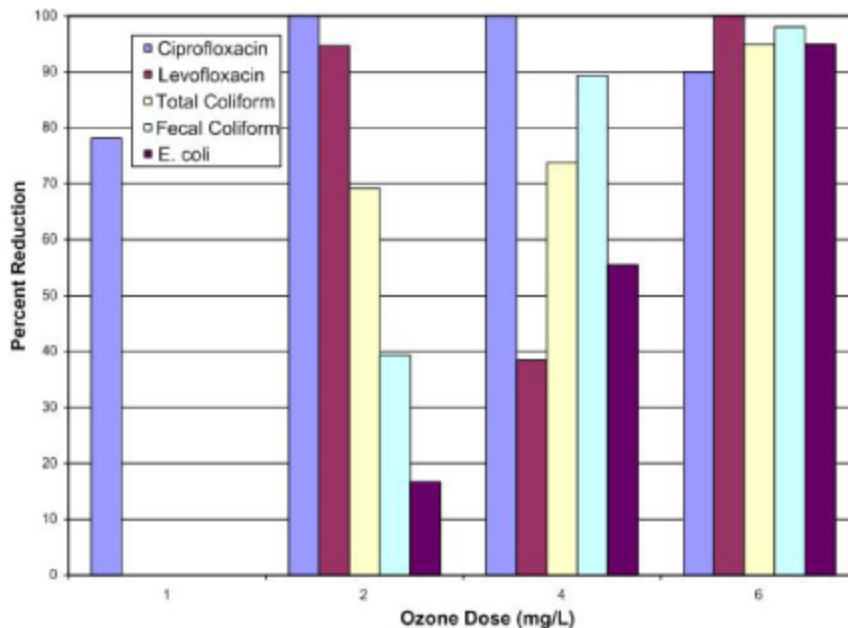


Schematic of the HyDOZ[®]. Water is sprayed into the tank to pressurize the system. The water droplets rapidly absorb the ozone gas in the headspace. A hyperconcentrated dissolved ozone/water solution collects at the bottom of the pressure tank and is released under pressure through the orifice tube to the bulk effluent. The HyDOZ solution mixes with the bulk effluent at controlled rates to provide a controlled overall dissolved ozone dose. There is minimal off-gassing of undissolved ozone. The HyDOZ system maximizes the effectiveness and efficiency of dissolved ozone delivery.

Advantages of the HyDOZ®

- ▶ Cost effective delivery of dissolved ozone
- ▶ The ozone dose can be metered in real-time in response to varying ozone demand
- ▶ Delivery of dissolved ozone in a range of concentrations up to 20 mg/L for improved disinfection/decontamination
- ▶ Destruction of stable chemical contaminants and refractory microbes
- ▶ Reduced contact times at higher ozone doses – minimizes the infrastructure required for treatment
- ▶ Ease of ozone delivery allows systems to be retrofitted into existing plants
- ▶ Minimal ozone off-gassing – reduces size and expense of ozone destruction equipment

Unlike typical dissolved ozone delivery systems that are based on bubble diffusion in which the maximum practical concentration of dissolved ozone is 2 mg/L, the HyDOZ is able to efficiently provide dissolved ozone concentrations up to 20 mg/L. These very high dissolved ozone concentrations reduce the contact times required for disinfection and allow for the destruction of stable chemical contaminants and refractory microbes.



Percent reduction of antibiotic residuals and bacteria in raw wastewater. An ozone dose of 6 mg/L removed $\geq 90\%$ of all contaminants studied. The efficiency of dissolved ozone delivery with the HyDOZ allows for treatment applications in water with a very high ozone demand (such as in raw wastewater); the device is even more effective at removal of microcontaminants when the ozone demand is lower (such as in wastewater effluent or drinking water).

BlueInGreen, LLC

www.blueingreen.com

535 W. Research Center Blvd., Suite 135 Fayetteville, AR 72701 Phone: (479) 527-6378 Fax: (479) 571-8814