

Metropolitan's Ozone Treatment Process MEETING STRINGENT REGULATIONS



After more than two decades of planning and construction, Metropolitan has retrofitted all five of its water treatment plants to use ozone, rather than chlorine, as the primary disinfectant. The upgrade complies with stringent regulations that limit levels of drinking water disinfection byproducts in drinking water. This systemwide achievement has driven disinfection byproduct levels in Metropolitan's system to historically low levels. Ozonation also improves drinking water aesthetics, offers protection from pathogens and reduces other potential contaminants such as cyanotoxins.

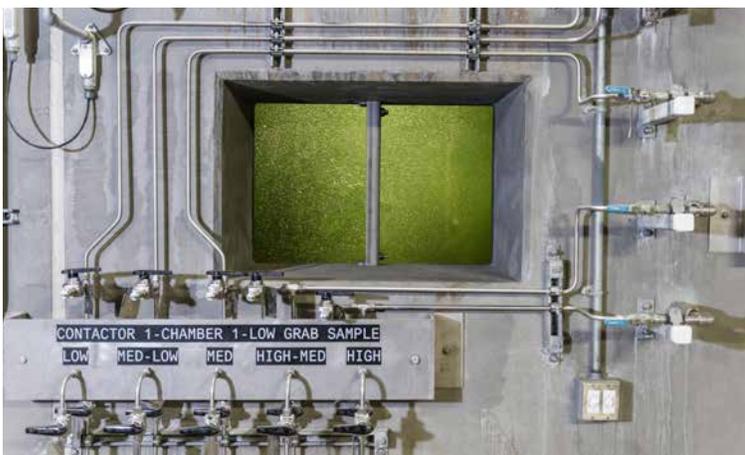
ABOUT OZONE

A form of oxygen, ozone gas is present in low concentrations throughout the earth's atmosphere. This fast-acting, powerful oxidant was first used in water treatment in the late 1880s to kill (inactivate) bacteria, viruses, and protozoan pathogens, including *Cryptosporidium* and *Giardia*.

Ozone produces fewer disinfection byproducts than chlorination. Its main disinfection byproduct, bromate, can be effectively controlled.



Liquid oxygen evaporators



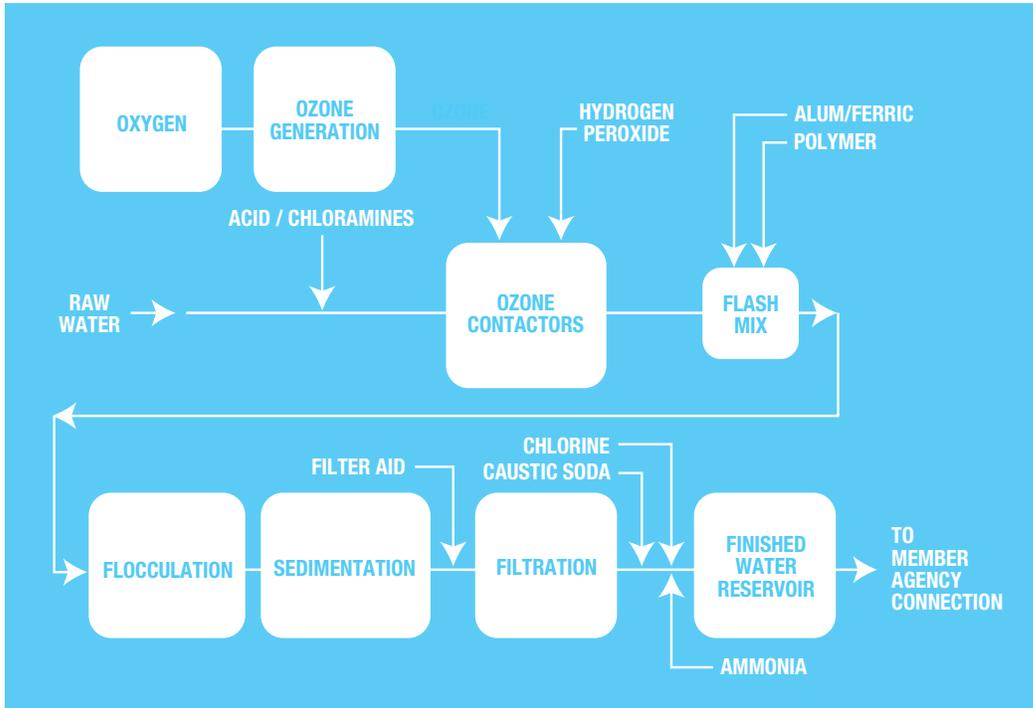
Ozone bubbles

REGULATORY BACKGROUND

Metropolitan's ozone retrofit program was a response to new U.S. Environmental Protection Agency rules calling for stringent reductions in byproducts of drinking water disinfection associated with potential health risks.

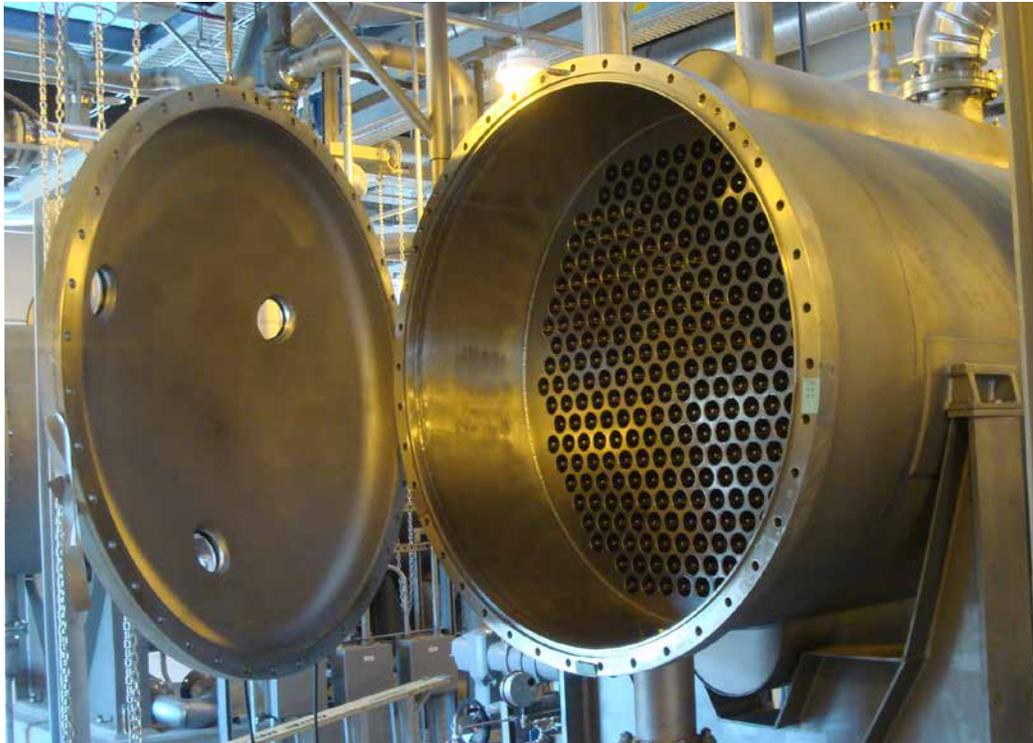
Trihalomethanes and haloacetic acids, also known as THMs and HAAs, respectively, are formed when water high in natural organic materials (dissolved vegetation) is treated with chlorine or chloramines. Metropolitan's ozonation process treats up to 2 billion gallons of water per day for nearly 19 million people in Southern California.

PROCESS FLOW DIAGRAM



METROPOLITAN'S OZONE TREATMENT PROCESS

Ozone is formed when oxygen gas is passed through an electrical field in an ozone generator. At the start of the treatment process, the ozone gas is injected into an ozone contactor through diffusers which create small ozone bubbles to mix the ozone with water. Bromate, an ozonation byproduct, is controlled by adjusting pH, or by adding chloramine (a combination of ammonia and chlorine) prior to the water reaching the ozone contactors.



Ozone generator

WHO IS METROPOLITAN

The Metropolitan Water District of Southern California is a state-established cooperative that, along with its 26 member agencies and retail suppliers, provides water for nearly 19 million people in six counties. Metropolitan imports water from the Colorado River and Northern California to supplement local supplies and helps its members develop increased water conservation, recycling, storage and other resource management programs.

OUR MISSION

The mission of the Metropolitan Water District of Southern California is to provide its service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

The Metropolitan Water District of Southern California

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