



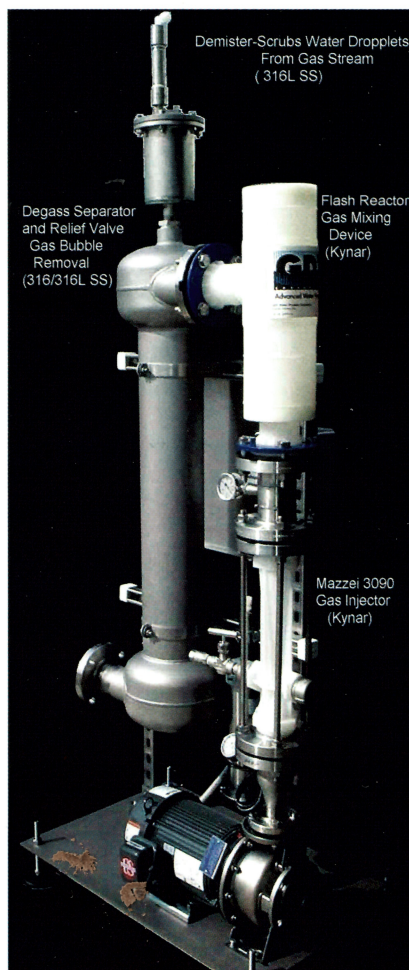
Material selection critical to ozone water treatment cooling towers

Ozone is an allotropic form of oxygen, and an unstable gas with a pungent odor. It is the strongest oxidant and disinfectant in commercial use by thousands of municipal plants worldwide, and is probably the primary oxidant of choice in many water and wastewater municipal and industrial applications. A recent lecture by Jim Jackson of Mazzei Injector Corporation described an interesting cooling tower retrofit at a liquid food plant in Arizona that resulted in substantial cost reduction through the installation of an ozone treatment system.

I took the liberty of calling Mr. Jackson and asking him for a rundown on the materials of construction used to inject and distribute the corrosive ozone gas in the system. Thanks to his patience and cooperation, it is my pleasure to share this information with you.

The basic cooling system at this plant consisted of a 4,400 ton fiberglass, induced draft cooling tower supported by a concrete sump containing 51,000 gallons of evaporative cooling water. The ozone injection system was designed to address concern regarding the possible exposure of the plant personnel to ozone off gas and the potential for ozone gas to cause corrosion of metal support structures and the delaminating of the tower's fiberglass structures.

The answer was found with a pre-basin pressurized mass transfer and degas system utilizing the GDT process that includes a Mazzei 3090 KYNAR® PVDF Injector, a pressurized 316 stainless steel reaction vessel and PVC piping. Although the injector was available in polypropylene, the fluoropolymer



Mazzei ozone PVDF Injector, stainless steel demister and stainless steel separator in cooling tower ozone system that has helped to reduce water treatment costs \$70,000 per year.

construction was chosen because it offered higher strength, superior chemical and abrasion resistance, and comes with a 5-year rather than the standard 1-year warranty. Independent tests show that ozone gas injected into water streams through these fluoropolymer injectors produce a significantly higher transfer of ozone into the water.

Following the success of this initial ozone cooling tower system, two additional ozone systems were planned. After two years of operation, this facility has saved over \$70,000 per year in water treatment costs.

For additional information on water quality improvement and cost reduction available through the use of ozone cooling towers, and the importance of proper material selection for key components, contact James R. Jackson at 661-363-6500 or you can email him at jim@mazzei.net.

For information on KYNAR® PVDF resins and their application, contact Gary Dennis 215-419-7535 or Richard Perrinaud 215-419-7408 or Arkema Inc.

