



OZONE INDIA TECHNOLOGY

(OZONE INDIA HEALTHY INDIA)



COOLING TOWER

OZONE INDIA TECHNOLOGY designed develop ozonation system for cooling tower water treatment.ozonation system means chemical free solutionand cost reduction in processure.when use of ozonation system as a maintenance treatment for cooling towerhas good potential for operation and maintence saving.

Ozone (O_3) can fulfil the role of most of the treatment chemicals. It is a gas with a strong oxidizing power produced from oxygen (O_2).an oxidizing biocide, ozone kills all microbes, such as bacteria, viruses, spores, and algae through cell lysis, rather than through poisoning like conventional biocides.

Principle of Operation

Ozone is injected into the water flow created by a separate circulation pump. This pump pulls the water from the tower's sump or basin and sends it to the ozone injector, contact tank and scale removal/filtration system. Lastly, the treated water returns back to the sump or basin. The principle is to treat the water and eliminate/reduce the following

During cooling tower water treatment, three main factors must be controlled

- 1-Corrosion of pipes and heat exchanger units**
- 2-Scaling in pipes and (mainly) in heat exchangers**
- 3-Microbial growth (bacteria, algae)**

The use ozonation system-Associated saving

- Reduction of water consumption.
- Reduction of anti scaling and anti corrosion agents.
- Remove the cost of chemical biocides storage and transport.
- Reduction of energy consumption due to the increased efficiency of the cooling operation.

Benefits-

- Disinfectant with a high efficiency level
- ozone requires no additional disinfections,micro-organisms can not get resistant to ozone after prolonged use of ozone.
- Destroys all type of micro-organisms instantly
- Very effective in removing biofilms.
- Very effective against Legionella,due to good biofilm removal capacities.
- ozone is 3125 times more germicidal then chlorine.
- Eliminates the use of chemicals(except for PH balancing).ozone does not change the PH.
- Effective for mused growth.
- Minimizes condenser fouling.

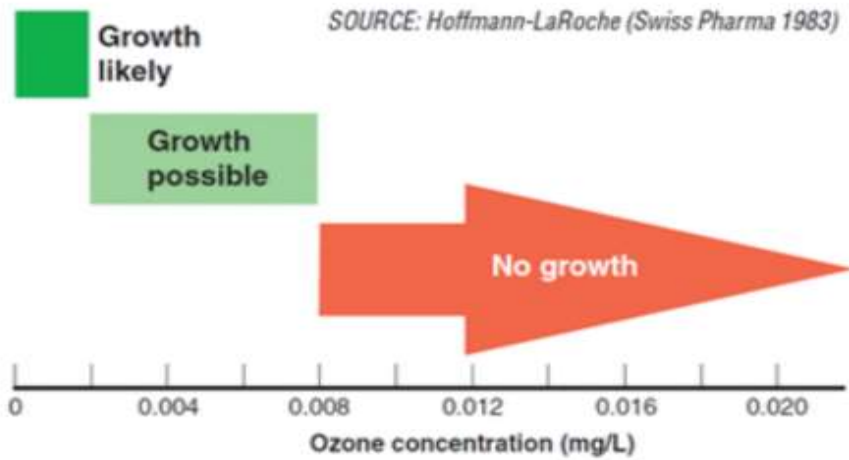
Legionella Microbes and Bio flim in coolings-

In the prevention and control of Legionella causing microbes, ozone has taken an eminent roll. The specific characteristics of the Ozone disinfectant make sure it gets the job done where others fail. Bio-film in the piping can protect legionella from most of the disinfectants. An environmentally friendly solution for this problem is the use of ozone disinfection for new and existing cooling towers.



A bio-film is a layer of microorganisms contained in a matrix (slime layer), which forms on surfaces in contact with water. Incorporation of pathogens in bio-films can protect the pathogens from concentrations of biocides that would otherwise kill or inhibit those organisms freely suspended in water

Bio-films provide a safe haven for organisms like listeria, E. coli and legionella where they can reproduce to levels where contamination of products passing through that water becomes inevitable.



The oxidative effects of ozone have been shown to neutralize bacterial growth in water — and specifically to neutralize *Legionella pneumophila*. A small dose of ozone can go a long way: A dissolved concentration as small as 0.008 mg/L of ozone serves to limit growth of bacteria in water.

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