

## OZONE PATHOGEN EFFECTIVENESS

### Bacteria

Pathogen	Dosage
Bacillus Bacteria	Destroyed by 0.2 m/l within 30 seconds
Bacillus Anthracis	Ozone susceptible
Bacillus Cereus	99% destruction after 5-min at 0.12 mg/l in water
Bacillus Subtilis	90% reduction at 0.10-PPM for 33 minutes
Candida Bacteria	Ozone susceptible
Clostridium Bacteria	Ozone susceptible
Diphtheria Pathogen	Destroyed by 1.5 to 2 mg/l
Eberth Bacillus Typhus Abdomanalis)	Destroyed by 1.5 to 2 mg/l
Escherichia Coli Bacteria (from feces)	Destroyed by 0.2 mg/l within 30 seconds in air
E-coli (in clean water)	99.99% destruction at 0.25 mg/l for 1.6 minutes
Endamoebic Cysts Bacteria	Ozone susceptible
Klebs-Loffler Bacillus	Destroyed by 1.5 to 2 mg/l
Legionella Pneumophila	99.99% destruction at 0.32 mg/l for 20 minutes in distilled water
Mycobacterium Avium	99.9 with a CT value of 0.17 in water
Mycobacterium Foruitum	90% destruction at 0.25 mg/l for 1.6 minutes in water
Penicillium Bacteria	Ozone susceptible
Proteus Bacteria	Very susceptible
Pseudomonas Bacteria	Very susceptible
Salmonella Bacteria	Very susceptible
Salmonella Typhimurium	99.99% destruction at 0.25 mg/l for 1.67 minutes in water
Schistosoma Bacteria	Very susceptible
Staph Epidermidis	90% reduction at 0.1-PPM for 1.7 minutes
Staphylococci	Destroyed by 1.5 to 2.0 mg/l
Streptococcus Bacteria	Destroyed by 0.2 mg/l within 30 seconds
Virbrio Cholera Bacteria	Very susceptible

## Viruses

Pathogen	Dosage
Bacteriophage F2	99.99% destruction at 0.41 mg/l for 10-seconds in water
Coxsackie Virus A9	95% destruction at 0.035 mg/l for 10-seconds in water
Coxsackie Virus B5	99.99% destruction at 4.1 mg/l for 2.5-minutes in sludge effluent
Echo Virus 29	The virus most sensitive to ozone After a contact time of 1 minute at 1 mg/l of ozone, 99.999% killed
Enteric Virus	95% destruction at 4.1 mg/l for 29 minutes in raw wastewater
Encephalomyocarditis	Virus Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Enterovirus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
GDVII Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Hepatitis A Virus	99.5% reduction at 0.25 mg/l for 2-seconds in a phosphate buffer
Herpes Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Influenza Virus	0.4 to 0.5 mg/l threshold value
Polioyelitis Virus	99.99% kill with 0.3 to 0.4 mg/l in 3-4 minutes
Poliovirus Type 1	99.5% destruction at 0.25 mg/l for 1.6 minutes in water
Rhabdovirus Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Stomatitis Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Vesicular Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l

## Mold

Pathogen	Dosage
Aspergillus Niger (Black Mount)	Destroyed by 1.5 to 2 mg/l
B. Cereus (Spores)	99% destruction after 5-min at 2.3 mg/l in water
Botrytis Cinerea	3.8 mg/l for 2 minutes
Clavibacter Michiganense	99.99% destruction at 1.1 mg/l for 5 minutes
Cladosporium	90% reduction at 0.10-PPM for 12.1 minutes
Clostridium Botulinum (Spores)	0.4 to 0.5 mg/l threshold value
Fusarium Oxysporium S Sp. Lycopersici	1.1 mg/l for 10 minutes
Fusarium Oxysporium F Sp. Melonogea	99.99% destruction at 1.1 mg/l for 20 minutes
Luminescent Basidiomycetes	Destroyed in 10 minutes at 100-PPM
Mucor Piriformis	3.8 mg/l for 2 minutes
Phytophthora Parasitica	3.8 mg/l for 2 minutes
Verticillium Dahliae	99.99% destruction at 1.1 mg/l for 20 minutes
Vicia Faba Progeny	Ozone causes chromosome aberration and its effect is twice that observed by the action of X-rays