

OXINE® is a superior Sanitizer for many types of industries and applications, including biofilm removal from cooling towers, car wash recycling systems, and for other pathogen control programs.

OXINE®



BENEFITS

Ideal for Application in Water Treatment and Water Storage Systems to control odor and slime forming microorganisms.

- Ultra high antimicrobial activity
- Low corrosion potential at recommended concentrations
- Does not chlorinate (no THM formation)
- Effective over a broad pH range (1-10)
- Uniquely effective against biofilm
- Resists neutralization due to organic load
- Very soluble in water
- Disinfectant (activated)
- Bacteriostat (unactivated)
- Excellent deodorant



OVERVIEW

Oxine® is a highly refined blend of oxychloro species containing purified sodium chlorite. When activated, chlorine dioxide is produced, greatly enhancing Oxine's antimicrobial potential. With several applications in the water treatment industry, Oxine® displays broad-spectrum antimicrobial capacity, proven effective against *E. coli* O157:H7, *Salmonella*, *Aspergillus*, *Listeria*, *Staphylococcus* and *Pseudomonas*, among others. This product is especially suited for the removal and subsequent control of biofilm. Oxine® has a myriad of EPA, FDA and USDA approvals, Kosher certification, and organic certification in Washington state.



CONCENTRATE PROPERTIES

Concentration	. . . . .	2.00 - 2.10% available chlorine dioxide
Appearance	. . . . .	Colorless liquid
Odor	. . . . .	Very faint chlorinous odor
pH	. . . . .	Concentrate: of 8.2-8.5
Boiling point	. . . . .	213°F (100.5°C)
Melting point	. . . . .	N/A
Freezing point	. . . . .	28.9 °F (-1.72°C)
Vapor Pressure	. . . . .	23.7 mm Hg (25°C)
Vapor Density	. . . . .	0.02 kg/m3
Specific Gravity	. . . . .	1.03 g/ml (20°C)
Volatiles (by volume)	. . . . .	97% (Water)
Solubility in water	. . . . .	Complete
Evaporation rate	. . . . .	Comparable to water
Very low acute toxicity	. . . . .	(EPA Cat. III)
Stable Solution	. . . . .	non-flammable, non-explosive
NFPA Rating	. . . . .	Fire: 0, Health: 1, Reactivity: 1, Special: None

See more information on reverse side. Sales sheet also available.

Call: 210-930-4353 to order





Fig 1: AANE Automated Activation unit

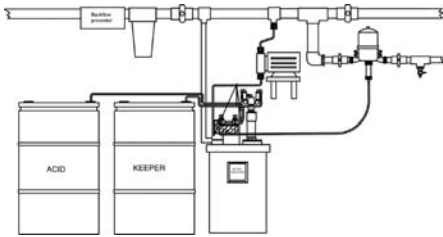


Fig 2. - Typical system setup

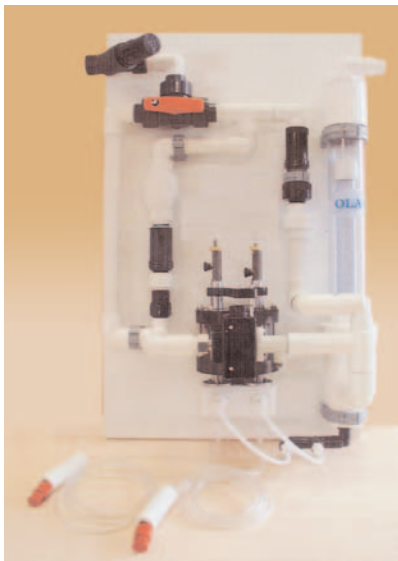


Fig 3- OLAS Online Activation unit



APPLICATION IN WATER TREATMENT & STORAGE

- Control of odor and slime forming microorganisms in residential, commercial and industrial water treatment systems such as: sand, mixed media, zeolite, and carbon filters; softeners, demineralizers, iron filters, and removable media filters
- * In distribution and recirculation plumbing and piping for process or potable water, to significantly remove odor and slime causing microorganisms
- To disinfect mobile or temporary water storage systems aboard aircraft, boats, ships, recreation vehicles, trailers, and off-shore oil rigs
- In fixed water storage systems for commercial and industrial buildings, homes and outbuildings
- in stored potable water, to control buildup of slime and odor causing bacteria
- In private and municipal well water, to improve taste and odors
- In enclosed and recirculating cooling water systems, for microbial control

Oxine has numerous other registered applications for the the HVAC, food, and beverage industries.



ACTIVATED CONCENTRATE PROPERTIES

AppearanceGreen-Yellow Liquid
 OdorChlorine-like (acred)
 Oxichloro Speciesincluding ClO₂



ACTIVATION

Pro-Oxine activation may be accomplished in one of three (3) ways:

1. Manually: for mixing small batch applications without equipment.
2. Automatically, for mixing and storing continuous supply using the AANE (Automated Activation Non Electric) unit, shown in photo, fig 1, and with an auxiliary injection pump, as shown in drawing, (fig 2).
3. Automatically, for both mixing and injecting using the OLAS (On line Activation System) shown in photo, fig 3.

Fig 2 shows a typical AANE installation with 55 gal acid activator and product drums. The unit requires only a 1/2" water supply line with at least 25 PSI of water pressure to mix the correct ratio of acid to Oxine, dilute to stock solution concentration and serve as a reservoir for application to process waters. A simple dosing or water driven proportioning pump is then installed to transfer the activated Oxine solution to make up water lines or directly into process waters. Pumps used to dose concentrated activated product should be compatible with acid, and be chlorine resistant. The most serviceable pump materials are listed below:

Pump Body:
 Stainless Steel, Polypropylene, ABS
Elastomers:
 Teflon, Afas, Kelrez, Chemrez, Durachlor, Viton, PVC (flexible tubing)
Wetted Parts:
 Teflon, PVDF, CPVC, PVC, Kynar

TESTING: Concentration of Oxine in process waters can be conveniently monitored using Oxine's Test Kit. This simple titration test is available through your Oxine distributor.

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Summary of Antimicrobial Efficacy

The following results were obtained using Oxine® - a proprietary formula of Bio-Cide International, Inc. These results should not be extrapolated for other chlorine dioxide based products that may take much higher concentrations to achieve similar biocidal activities.

TEST ORGANISM	CONTACT TIME	CONCENTRATION	RESULT
Alicyclobacillus acidoterrestris	10 min	30 ppm	99.998% kill
Aspergillus fumigatus spores	60 sec	100 ppm	99.9999% kill
Bacillus cereus spores	5 min	200 ppm	99.999% kill
Campylobacter jejuni	30 sec	30 ppm	99.9% kill
Candida albicans	60 sec	100 ppm	99.99999% kill
Canine Parvovirus	10 min	500 ppm	100% virucidal
Cladosporium	30 sec	500 ppm	99.999% kill
Coxsackie Virus	5 min	550 ppm	99.9% kill
Erwinia carotovora carotovara	60 sec	50 ppm	99.999% kill
Escherichia coli O157:H7	60 sec	3 ppm	99.999 % kill
Herpes Simplex Virus Type 1	5 min	550 ppm	99.9% kill
Lactobacillus sp.	60 sec	20 ppm	99.999% kill
Legionella pneumophila	60 sec	25 ppm	99.999% kill
Listeria monocytogenes	60 sec	25 ppm	99.9999% kill
Mycobacterium bovis (tuberculosis)	10 min	500 ppm	99.9999% kill
Newcastle Disease virus	10 min	500 ppm	100% kill
Pediococcus sp.	60 sec	20 ppm	99.999% kill
Polio Virus Type 2	5 min	550 ppm	99.9% kill
Proteus mirabilis	60 sec	100 ppm	99.999999% kill
PRRS virus	60 sec	312 ppm	100% virucidal
Pseudomonas aeruginosa	60 sec	5 ppm	99.9999% kill
Pseudorabies virus	10 min	500 ppm	100% virucidal
Rhino Virus	5 min	550 ppm	99.9% kill
Saccharomyces cerevisiae	60 sec	30 ppm	99.999% kill
Salmonella choleraesuis	10 min	500 ppm	100% kill
Salmonella typhimurium	60 sec	100 ppm	99.999% kill
Stachybotrys chartarum	60 sec	100 ppm	99.997% kill
Staphylococcus aureus	60 sec	30 ppm	99.999% kill
Streptococcus faecalis	60 sec	100 ppm	99.99999% kill
Streptococcus faecium	60 sec	100 ppm	99.9999% kill
Trichophyton mentagrophytes	5 min	500 ppm	100% kill