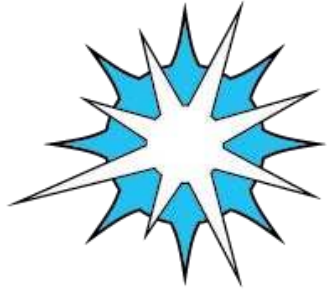


Introduction to: Fresh Start



microbe free S O L U T I O N S



www.microbefreesolutions.com

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Fresh Start

Certified Clean Interiors

100% biodegradable surfactant
HEAVY DUTY ODOR ELIMINATOR

KILLS HARMFUL BACTERIA • MOLD & MILDEW REMOVER
Powerful Mold & Mildew on Hard Surfaces & Fabric
99.99% SANITIZATION OF FOOD CONTACT SURFACES

FRESH START KILLS:
MRSA (Methicillin-resistant Staphylococcus aureus), Pseudomonas aeruginosa, Escherichia coli, Salmonella enterica, Staphylococcus aureus, Legionella pneumophila, Aspergillus niger, Norovirus (Feline Calicivirus as surrogate), Human Immunodeficiency virus type 1 (HIV-1), Enterobacteriaceae, Listeria monocytogenes, Acinetobacter baumannii, Rotavirus, Respiratory Syncytial Virus, Influenza A (H1N1), normally called Swine Flu), Influenza B Virus, Hepatitis A, Hepatitis B, Hepatitis C, Klebsiella pneumoniae (NDM-1)

**DISINFECTS AS IT CLEANS
Sanitizes Carpet & Upholstery**

Fresh Start provides hospital disinfection, sanitization of food contact surfaces, mold and mildew prevention, and heavy odor elimination. Removes allergens including cockroach, dust mite matter and pet dander.

**APPROVED FOR USE AGAINST SARS-CoV-2,
THE VIRUS THAT CAUSES COVID-19**

DIRECTIONS FOR USE: It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. Shake well before using. Test fabric for color fastness. Contains a diluted oxidizing agent. Do not mix with vinegar or acidic cleaners.

PRE-CLEANING INSTRUCTIONS: Remove gross filth and heavy soil by cleaning. Spray product straight onto soils, scrub and wipe clean with a dry paper towel or cloth. For cleaning floors add one cup product per gallon of water in bucket and clean with sponge, mop, or pad. For spot cleaning non-porous surfaces, spray and wipe clean with damp sponge - or - mop or cloth. To Spot Clean Carpet: Spray on soiled area until wet. Gently blot area with a clean, damp, color safe cloth. Repeat as needed for stubborn stains. Let air dry.

TO DISINFECT HARD AND POROUS SURFACES: Apply full strength to pre-cleaned hard and porous surfaces, wetting thoroughly with spray, sponge, or a mop. Allow surfaces to remain wet for 5 minutes for virus inactivation; 10 minutes for bacteria disinfection. For immersion, replace solution daily, or more frequently if it becomes significantly soiled or diluted.

TO SANITIZE FOOD CONTACT SURFACES: Staphylococcus aureus (ATCC 6538) and Escherichia coli (ATCC 12229) 99.999% sanitization of food contact surfaces. Mix 1 part product to 9 parts tap water. For glassware, utensils, cookware, and dishware, scrape and pre-wash, then wash with a good detergent. Rinse with potable water, then sanitize by immersion in product for 1 minute. Place on a rack or drain board to air dry. Do not rinse or wipe. For Food Contact Immobile Surfaces, remove all gross food particles and soil by cleaning and rinse with potable water. Apply product by wetting thoroughly and let stand for 1 minute. Do not rinse or wipe.

FIRST AID - IF IN EYES: Hold eye open and rinse slowly with water 15-20 minutes. Remove contact lenses after first 5 minutes and continue rinsing. Call a Poison Control Center or doctor for treatment advice. Have product container or label with you when calling a Poison Control Center or doctor, or when going for treatment.

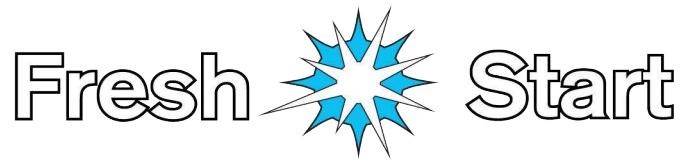
ACTIVE INGREDIENTS:
Chlorine Dioxide.....0.200%
Alkyl (60% C14, 30% C16, 5% C12, 5% C18) dimethyl benzyl ammonium chloride.....0.125%
Alkyl (68% C12, 32% C14) dimethyl ethylbenzyl ammonium chloride.....0.125%
OTHER INGREDIENTS.....99.550%
Total.....100.000%



63056 Lower Meadow Dr., Ste 100
Bend, OR 97701
Customer Service: 714-710-3375

CBI: EPA Reg. No. 82972-1-93819
Fresh Start
CBI: EPA Est. No. 93819-OR-01






8 Solutions in 1 Product



1. E.P.A Registered Hospital Disinfection
2. N.S.F Registered (D-2) “No rinse required on food contact surfaces”
3. Eliminates Odor
4. Kills Mold and Mildew
5. Eliminates Allergens
6. Kills and Prevents Biofilm
7. Carpet Sanitizer
8. HVAC

Fresh  Start

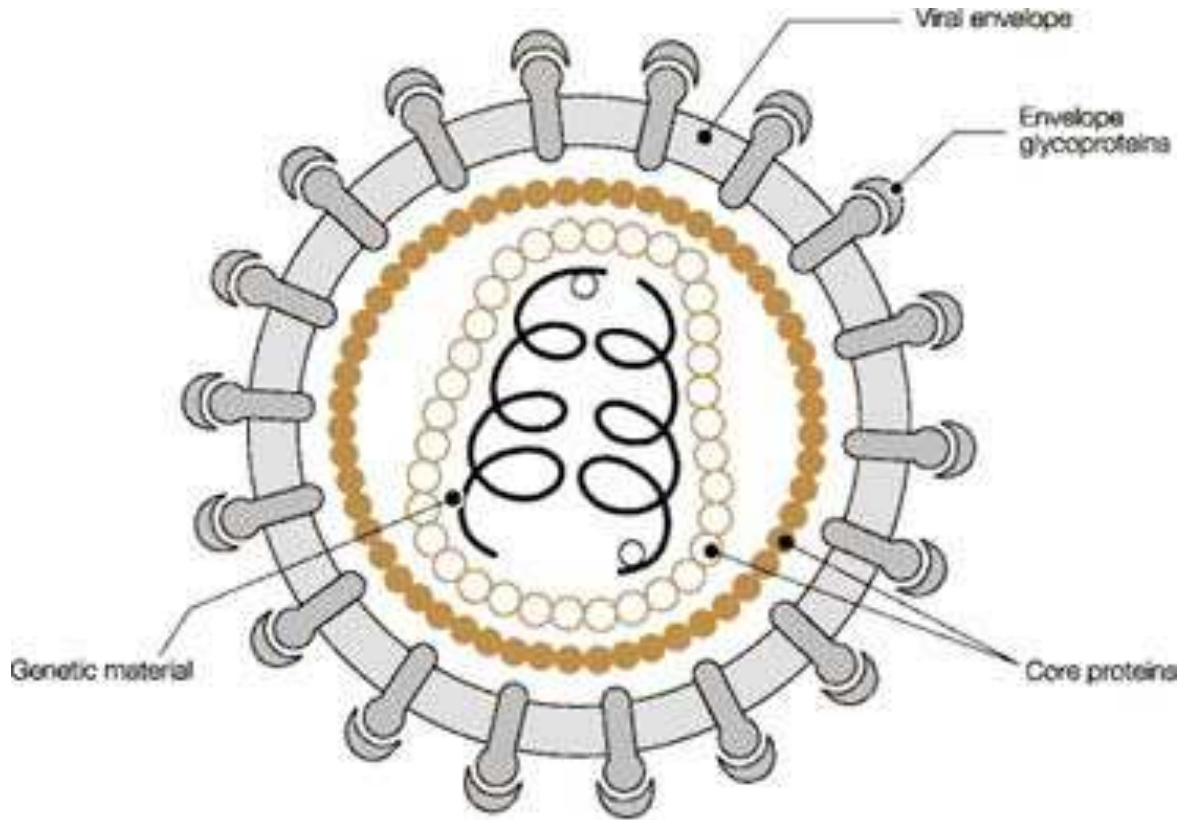
E.P.A Registered Hospital Disinfectant

As a Hospital Disinfectant Fresh Start stands out with a unique blend of efficacy and safety.



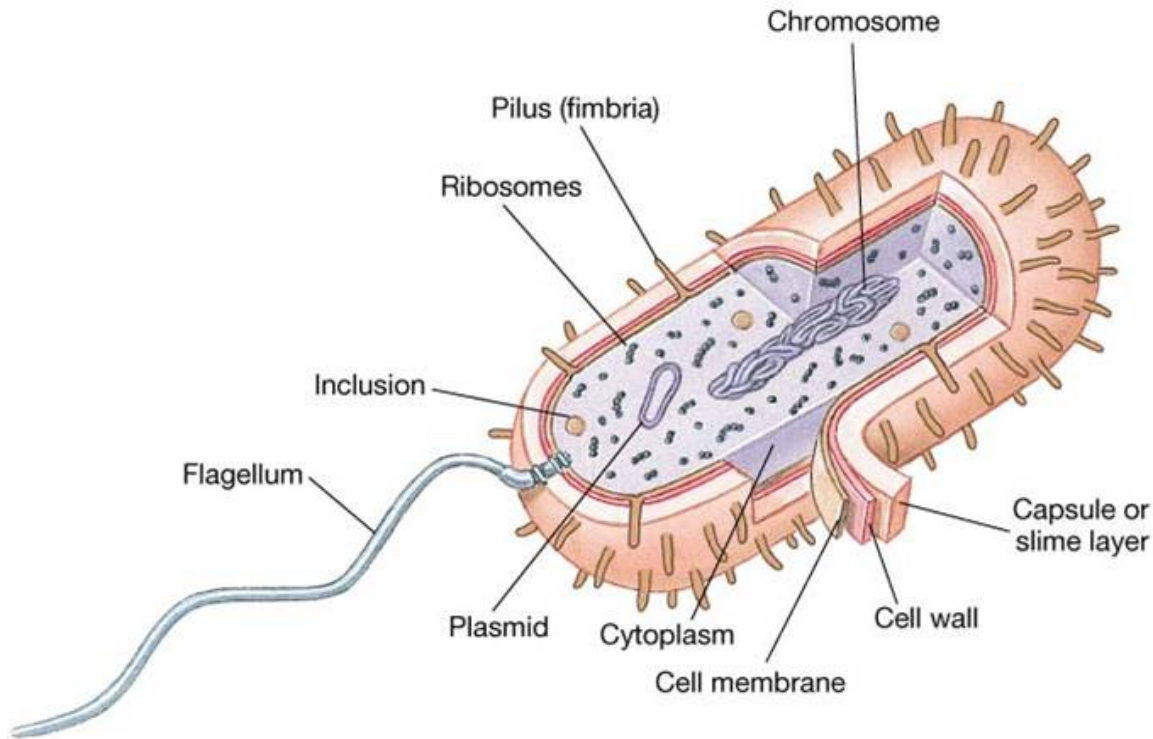
1. Fresh Start is effective against a wide range of virus and bacteria (see appendix for full list) yet no personal protection equipment is needed during use.
2. In clinical trials Fresh Start provided a decrease of 95% *Acinetobacter* HAI rate. (see appendix for Nashville General Study)
3. Equally important - Fresh Start will not promote the growth of drug resistant super bugs.
4. Safe for use on treated articles, carpeting, fabrics, flooring, and frequently touched surfaces - no need to rinse or wipe off.
5. Effective at removing blood stains and other body fluids.

Viruses

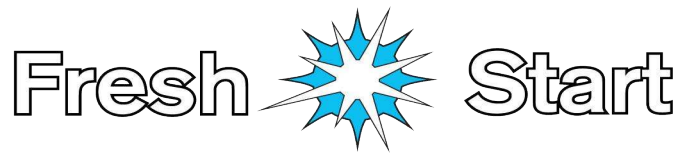


Viruses are eliminated through selective oxidation . First attacking the viral envelope then the core protein preventing the production of protein and destroying the virus.

Bacteria




Bacteria are also eliminated through selective oxidation. Fresh Start attacks the proteins in the cell wall then disrupting protein synthesis effectually killing the bacteria. Fresh Start is effective on both gram positive and gram negative bacteria.



N.S.F Registered No Rinse Require on **Food contact surfaces**

Fresh Start has received a class D-2 rate from N.S.F. No rinse required on Food Contact Surfaces. This rating category is rarely seen in a hospital strength disinfectant, making Fresh Start the ideal choice for both restaurant and health care facilities that provide food services.

1. Can be diluted 9 parts water to 1 part Fresh Start for economic sanitization.
2. Will not alter the taste of the food prepared on sanitized surfaces.
3. Apply to table top without leaving a lingering offensive odor.
4. Control odors from stale cooking, seafood or spoiled goods.
5. Can be used in bathrooms for disinfection/sanitization and odor control.
6. Fast contact kill time under 30 seconds for sanitization, killing 99.999% of Bacteria

Fresh  Start




Odor Eliminator

- Unpleasant odors have been recognized as a warning sign of potential risks to human health. Odors are not only warning signs but also maybe the direct cause of some symptoms.
- Fresh Start contains no masking agents or fragrances to cover offensive odor.

A Few of the Odors Fresh Start eliminates:

1. Stale cooking odors
2. Tobacco smoke odors and smoke odors caused by fire damage
3. Musty mold and mildew odor
4. Urine odors and fecal matter odors
5. Septic, waste water treatment and lift station odor
6. Garbage and dumpster odors

Fresh  Start

Kill Mold and Mildew

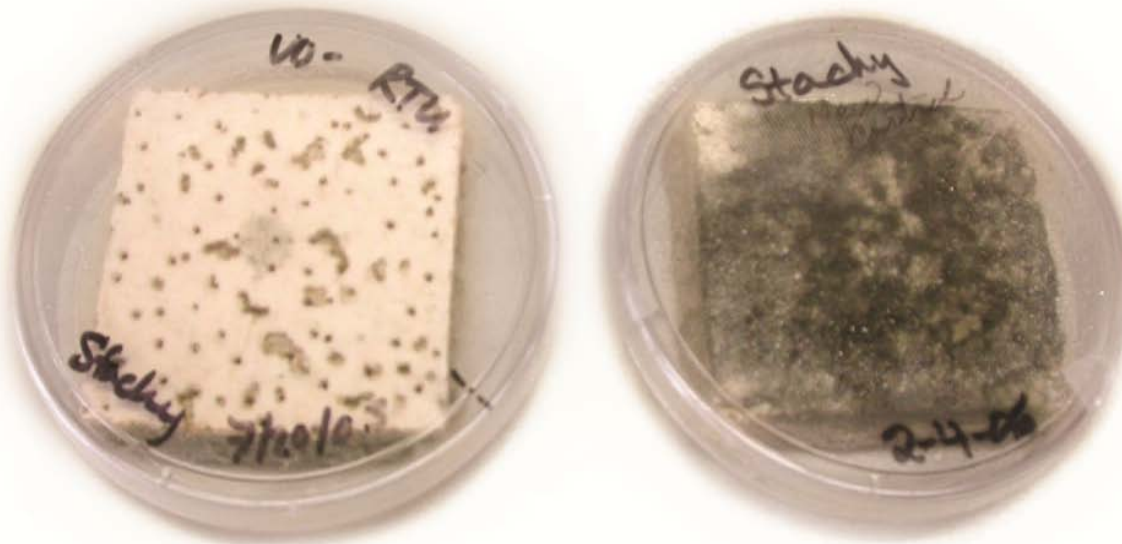
Mold and mildew are fungi that can be found both indoors and outdoors. Molds grow best in warm, damp, and humid conditions, spreading and reproducing by making spores. Mildew requires moisture. The optimal growth range for mildew is 70 to 93 percent relative humidity. Many mold spores can survive in harsh conditions, such as dry conditions, that do not support mold growth.



1. Proven Mold and Mildew killer with up to seven months of residual effects.
2. Safe to use on surfaces traditional molds and mildew killer would damage like marble and carpeting.
3. Can penetrate deep into semi-porous surfaces like concrete to kill the root of the problem.
4. Will not harm plants or damage the exterior of your home.
5. Doesn't contain any VOC's (volatile organic compounds).

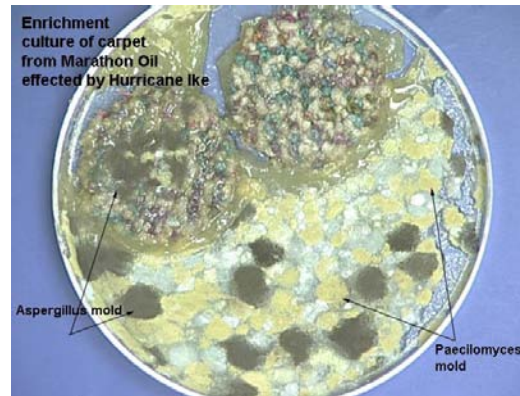
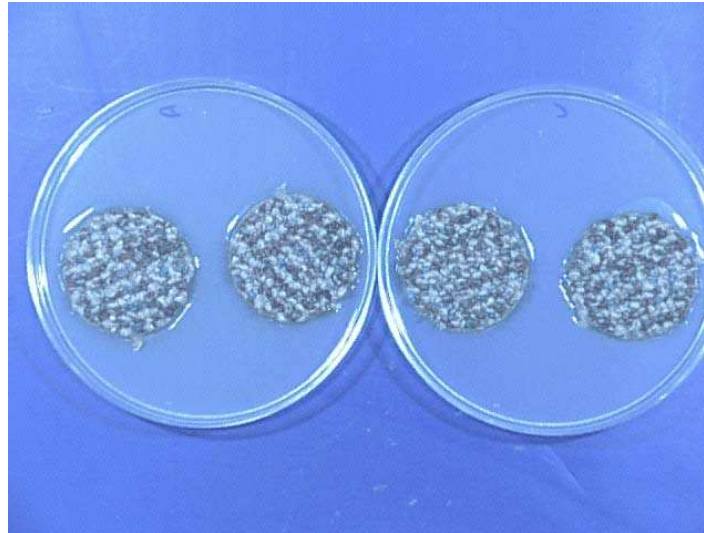
Fresh Start residual effects

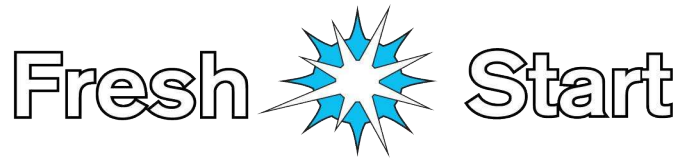
- Fresh Start has been shown to prevent mold spore germination up to seven months on soft composite materials.



Fresh Start

- Carpet Coupons
Enrichment culture of carpet from Marathon Oil building affected by Hurricane Ike (Not Treated with Fresh Start)

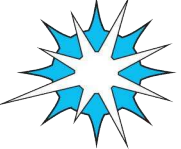




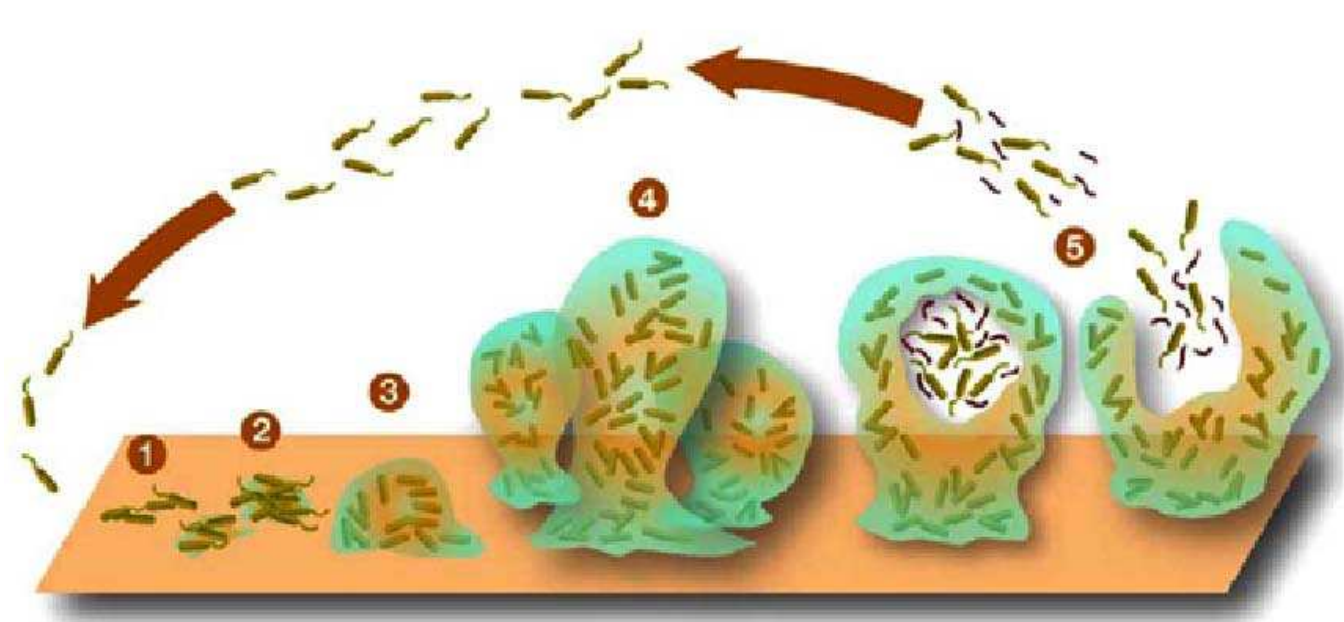
Eliminates Allergens

Allergens effect over 50 Million Americas of those 50 million Approximately 10 Million people are allergic to cat dander, the most common pet allergy. The most common indoor/outdoor allergy triggers are: tree, grass and weed pollen; mold spores; dust mite and cockroach allergen; and, cat, dog and rodent dander.

1. Fresh Start is Hypoallergenic and is not a allergen trigger.
2. Proven effective against cat, dog, rodent dander, dust mite and cockroach allergen.
3. Has been in use for over ten years in the most sensitive part of the population with no side effects.
4. Is not a skin sensitizer and will not further aggravate allergy symptoms.
5. Can be applied directly to pets and their bedding/sleeping areas.

Fresh  Start

Kills and Prevents Biofilm




Biofilm bacteria excrete extracellular polymeric substances, or sticky polymers, which hold the biofilm together and cement it to the pipe wall. In addition, these polymer strands trap scarce nutrients and protect bacteria from most biocides. According to Mittleman (1985), the development of a mature biofilm may take several hours or several weeks, depending on the water delivery system. *Pseudomonas aeruginosa* is a common pioneer bacterium and is used in a biofilm research. In one experiment (Vanhaecke 1990) researchers found that *Pseudomonas* cells adhere to stainless steel, even to electropolished surfaces, within **30 seconds of exposure**.

Kills and Prevents Biofilm

Under certain conditions biofilms may develop from bacteria, molds and yeast. These biofilms can be invisible on surfaces. Biofilms present challenges to the food service industry due to their inherent characteristic of protecting inner organisms from contact with disinfectants. The Health Care industry estimates biofilm to cause 1 million HAI infection each year, *Pseudomonas Aeruginosa* and *Legionella Pneumophila* are common bacteria found in biofilms. In the dairy and agricultural industries biofilm effects the quality of goods by accumulating in water systems.

1. Can penetrate the protective outer film and breakdown hard/soft slim.
2. No need to mechanically remove.
3. Effectively prevent biofilm at very low concentrations.

Fresh  Start

HVAC Application




Fresh Start is approved by the U.S. EPA. To have application for antimicrobial control in HVAC systems and air ducts Eliminate odor causing bacteria, mold, mildew and other fungi.

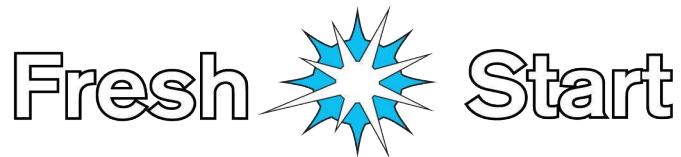
Providing complete disinfection and bacteria inactivation, Fresh Start allows for better air quality in offices, apartments, buildings, gyms, schools, hospitals and at home.

Chlorine dioxide compared **to chlorine bleach**

When hearing the word chlorine dioxide you probably think of chlorine, a harsh chemical used in the backyard pool. The two are oxidizing agents but have little else in common. Chlorine dioxide is a friendly compound in common use today for treatment of municipal water supplies, the disinfection of meat, seafood, fruit and surfaces, whitening teeth, eliminating odors, and experimentally to treat wounds and infections. Numerous studies have shown that chlorine dioxide, at appropriate concentrations, has no adverse health effects, either by skin contact or ingestion. It does not irritate or leave toxic residues, as does chlorine bleach nor inhibit wound healing.

Fresh  Start

APPENDIX



Fresh Start Environmental Health and Safety Overview

Environmental Protection Agency Toxicity Categories

Toxicity Study	Category I High Toxicity	Category II Moderate Toxicity	Category III Low Toxicity	Category IV Very Low Toxicity	EPA Toxicity Rating
Acute Oral	Up to and including 50 mg/kg	>50 thru 500 mg/kg	>500 thru 5000 mg/kg	>5000 mg/kg	Category IV Very Low Toxicity
Acute Dermal	Up to and including 200 mg/kg	>200 thru 2000 mg/kg	>2000 thru 5000 mg/kg	>5000 mg/kg	Category IV Very Low Toxicity
Acute Inhalation	Up to and including 0.05 mg/liter	>0.05 thru 0.5 mg/liter	>0.5 thru 2.0 mg/liter	>2mg/liter	Category IV Very Low Toxicity
Eye Irritation	Corrosive (Irreversible destruction of ocular tissue) or corneal involvement or irritation persisting for more than 21 days	Corneal involvement or irritation clearing in 8-21 days.	Corneal involvement or irritation clearing in 7 days or less	Minimal effects clearing in less than 24 hours	Category IV Low Toxicity
Skin irritation	Corrosive (Tissue destruction into the dermis and/or scarring)	Severe irritation at 72 hours (Severe erythema or edema)	Moderate irritation at 72 hours (Moderate erythema)	Mild or slight irritation (No irritation or slight erythema)	Category IV Very Low Toxicity

Fresh Start



An Intervention to Reduce the Rate of Hospital-Acquired Acinetobacter Infections in an Urban Community Teaching Hospital

Robert B. Hulette, Infection Control and Patient Safety Officer, Nashville General Hospital at Meharry
Adjunct Assistant Professor, Family and Community Medicine, Meharry Medical College



BACKGROUND

Incidence of Acinetobacter infection in hospitals has dramatically increased in recent years becoming a significant global problem. (1,2)



These infections are often very difficult and costly to treat and have a mortality rate that approaches 75% in some settings (1, 2, 3). Moreover, Acinetobacter presents significant Infection Control challenges since it may colonize both environmental surfaces as well as skin surviving for many months, may readily cause Hospital-Acquired Infections (HAI), is often resistant to multiple antibiotics, and often infects critically ill patients. (2,4,5,6). Accordingly, hospitals are often forced to take extensive and costly steps to prevent its spread that may be impractical in resource-limited settings. We present an easy to implement program for the reduction of Acinetobacter HAI rates in hospitals.

METHODS

For this project we initiated a program in a 100-bed urban community teaching hospital in the U.S. whereby the Hospital Environmental Services Staff was notified immediately and automatically if any culture of any specimen taken from a hospital inpatient was found to be positive for Acinetobacter. Upon receiving this notification, the EVS staff would augment their standard terminal cleaning procedures by fogging the patient room with a chlorine dioxide solution (Figure 1) at the time of patient discharge in addition to their standard cleaning practices (Figure 2). We then reviewed the rates of infections meeting CDC NHSN definitions for HAI resulting from these pathogens for the 12 month period before and after the initiation of the intervention through active and passive surveillance of laboratory and other clinical records, coding data, and syndromic surveillance as well as the rate of community acquired laboratory-confirmed community acquired infections over this same time frame

INTERVENTION PROCESS



Figure 1 Intervention Process



Figure 2 Chlorine Dioxide Solution and fogger

RESULTS

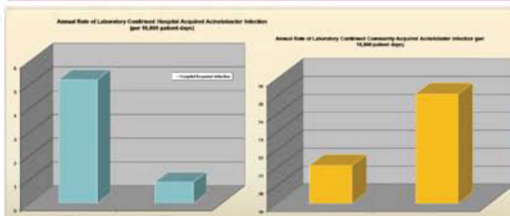


Figure 3. Charts of Results

RESULTS CONT'D

In the 12 month period prior to the intervention, 13 Acinetobacter HAI were identified out of 25089 patient days for an aggregate rate of 5.2/10000 patient days (95% CI 3.0-8.9). For the period of the intervention only 2 Acinetobacter HAI were identified out of 22704 patient days for an aggregate rate of 0.88/10,000 patient days (95% CI 0.2-3.2) a decrease in Acinetobacter HAI Rate of 4.3/10000 (95% CI 1.1-8.0) Over the study period, the incidence of laboratory-confirmed community acquired Acinetobacter infection increased slightly from 4.42/month to 4.75/month.

CONCLUSIONS

The fogging of patient rooms of Acinetobacter infected patients with chlorine dioxide at discharge implemented at our hospital led to significant reductions in Acinetobacter HAI rates without the need for intrusive and costly additional interventions.

ACKNOWLEDGEMENTS

The Author wishes to thank the following:

Mr. Dean Miller and the NGH EVS Team
The Meharry Acinetobacter Study Team (MAST)
Mr. James Burnett

Acinetobacter image courtesy of Case Western Reserve University
<http://www.case.edu/think/breakingnews/Bacteria.html>

Funding for this project was provided solely by Nashville General Hospital at Meharry. The author reports no conflicts of interest.

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Fresh Start

Effectiveness of Fresh Start for Controlling Fungal Contamination on Building Materials



Estelle Levetin, PhD

Faculty of Biological Science, The University of Tulsa

113

Abstract

Rationale: Mold growth on building materials can be an exposure risk for atopic individuals. The gas chlorine dioxide is an effective fungicide but is unstable. Vital Oxide (VO) is an aqueous solution containing either 0.2% or 0.5% chlorine dioxide in a stabilized form. The goal of this investigation was to determine the effects of VO on fungi commonly found growing on building materials.

Methods: Ceiling tile and sheetrock squares (36 cm²) were sterilized and then saturated with either sterile distilled water or various concentrations of VO. Saturated squares were inoculated with a spore suspension of one of the following fungi: *Alternaria alternata*, *Aspergillus fumigatus*, *Aspergillus versicolor*, *Chaetomium globosum*, *Penicillium sp.*, and *Stachybotrys chartarum*. Cultures were incubated at room temperature for up to eight weeks. Spray applications of VO were also tested on ceiling tile squares inoculated with *Asp. fumigatus* or *S. chartarum*. Spore germination of all six species was evaluated in Sabouraud's broth and without VO for 96 hrs.

Results: VO solutions containing either 0.1% or 0.2% chlorine dioxide inhibited growth of all six fungi on both ceiling tile and sheetrock squares. Spray applications were also effective for the species tested. In the germination experiments, some spore germination occurred in the medium with 0.1% chlorine dioxide ranging from <1% germination for *Alternaria* spores to 18% for *Chaetomium globosum* spores, media with higher chlorine dioxide levels prevented spore germination for all species.

Conclusions: VO inhibited growth of fungi on sheetrock and ceiling tiles and shows possible applications for control of indoor fungal contamination.

Introduction

- Water-damaged building materials, such as ceiling tiles and sheetrock, are prone to fungal contamination due to their high cellulose content. Fungal growth on these materials can be an exposure risk for mold sensitive individuals.
- The gas chlorine dioxide is an antimicrobial pesticide known for its disinfectant properties for the past century. The gas is an effective fungicide but requires special handling. It has been unstable in liquid and is often prepared on-site when liquid applications are needed.
- Vital Oxide (VO) is an aqueous solution containing either 0.2% or 0.5% chlorine dioxide in a stabilized form. The current project was undertaken to determine the effectiveness of VO for controlling fungal growth on building materials.

Methods and Materials

- Vital Oxide:** Two preparations of Vital Oxide (VO) were used in these experiments: Ready To Use (VO-RTU) with 0.2% ClO₂ and Professional Strength (VO-PS) at 0.5% ClO₂.
- Spore germination:** Spore suspensions of *Alternaria alternata*, *Aspergillus fumigatus*, *Aspergillus versicolor*, *Chaetomium globosum*, *Penicillium sp.*, and *Stachybotrys chartarum* were prepared by harvesting spores from cultures grown on malt extract agar. Spore germination of all six species was evaluated in Sabouraud's broth with and without VO.
- Building material cultures:** Ceiling tile (CTS) and sheetrock (SRS) squares (36 cm²) were sterilized by autoclaving and then saturated with either sterile distilled water or various concentrations of VO. Saturated squares were inoculated with a spore suspension of test fungi and incubated at room temperature for up to 8 weeks.
- Spray application of VO:** Sterile CTS and SRS were saturated with sterile distilled water and inoculated with test fungi. When growth was visible, half the materials were sprayed with 5 sprays (3.5 ml) VO. Incubation continued for up to 10 wks.
- Viability Tests:** Sterile SRS were saturated with sterile distilled water and inoculated with *Stachybotrys chartarum* or *Aspergillus fumigatus* and incubated 2 to 4 wks. One half of the cultures were sprayed with 7 sprays (3 ml) of VO-RTU. SRS were incubated for an additional 48 hrs. Spores were harvested with a cell lifter and placed in 10 ml of sterile water. Spores were counted with a hemacytometer and percent viability was determined by dilution plating.

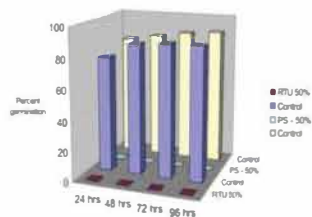
Results

- Culture medium with 50% VO-RTU was effective in inhibiting spore germination for *Alternaria*, *Stachybotrys*, and *Penicillium* spores.
- Chaetomium* spores had an 18% germination rate. The medium with 50% of VO-PS was effective in inhibiting germination for all spores.
- Pretreatment of CTS and SRS with VO-RTU was effective in preventing fungal growth. In fact, CTS were still able to inhibit fungal growth 7 months after saturation.
- Spray applications using VO-RTU on CTS and SRS with active fungal growth resulted in a resumption of fungal growth within approximately 2 wks when CTS or SRS were water saturated and not allowed to dry.
- Spray applications using VO-PS were more effective inhibiting fungal growth up to 2 months for some fungi even in water saturated conditions.
- Spray applications of VO-RTU were effective in reducing viability of *Aspergillus fumigatus* spores.

Fungus	Mean percent spore germination after 96 hours	
	Control	50% RTU
<i>Alternaria alternata</i>	>90	0
<i>Chaetomium globosum</i>	>90	18.3
<i>Stachybotrys chartarum</i>	88.3	0
<i>Penicillium sp.</i>	>90	0

Fungus	Mean percent spore germination after 96 hours	
	Control	50% PS
<i>Alternaria alternata</i>	88.3	0
<i>Aspergillus versicolor</i>	76.7	0
<i>Aspergillus fumigatus</i>	60.0	0
<i>Chaetomium globosum</i>	86.7	0
<i>Penicillium sp.</i>	>90	0
<i>Stachybotrys chartarum</i>	>90	0

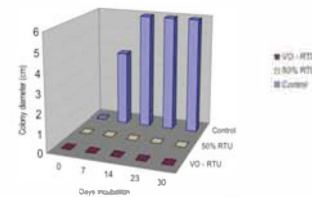
Percent germination of *Stachybotrys* spores



Fungi	Mean colony diameter (cm) of fungi after 30 days incubation on CTS saturated with VO or water		
	Control	VO - RTU	50% RTU
<i>Alternaria alternata</i>	>6.0	0	0
<i>Aspergillus fumigatus</i>	>6.0	0	0
<i>Aspergillus versicolor</i>	4.0	0	0
<i>Chaetomium globosum</i>	0.23*	0	0
<i>Penicillium sp.</i>	5.6	0	0
<i>Stachybotrys chartarum</i>	>6.0	0	0

*VO-PS at *Chaetomium* on ceiling tiles could only be detected after petriplate removal. After 8 weeks petriplates were visible over an area approximately 4 cm in diameter.

Average colony diameter of *Aspergillus fumigatus* growing on ceiling tiles saturated with VO or sterile water



Fungi	Mean colony diameter (cm) of fungi after 30 days incubation on SRS saturated with VO or sterile water		
	Control	VO - RTU	50% RTU
<i>Alternaria alternata</i>	>6.0	0	0
<i>Aspergillus fumigatus</i>	>6.0	0	0
<i>Aspergillus versicolor</i>	3.6	0	0
<i>Chaetomium globosum</i>	>6.0	0	0
<i>Penicillium sp.</i>	>6.0	0	0
<i>Stachybotrys chartarum</i>	>6.0	0	0



Pretreatment of ceiling tiles with VO-RTU inhibited growth of *Stachybotrys* after 7 months following treatment. Ceiling tiles saturated with VO-RTU in July 2005 were inoculated with *Stachybotrys* spore suspension on 4 Feb 2006. Control tile was inoculated at the same time.

Colony diameter of various fungi growing on saturated SRS. Treated squares were sprayed with VO-PS 2 to 3 weeks after inoculation. Final measurements and observations were made 5 to 7 weeks after spraying.

Fungi	Control SRS	SRS sprayed with VO-PS
<i>Alternaria alternata</i>	8.0 cm	6.0 cm – Actively growing but less dense than controls
<i>Aspergillus fumigatus</i>	4.6 cm	No measurable colonies but one culture had small areas of growth
<i>Aspergillus versicolor</i>	5.32 cm	4.50 cm – Sprayed areas appear dead
<i>Chaetomium globosum</i>	6.0 cm	1.85 cm – Sprayed areas appear dead
<i>Cladophorium cladophoroides</i>	4.5 cm	3.67 cm – Sprayed areas appear dead
<i>Penicillium sp.</i>	4.7 cm	No viable growth

Viability of *Aspergillus fumigatus* following spray application of VO-RTU

	Harvested conidia x 10 ⁶	CFU x 10 ⁶	Viability
Control 1	28.0	14.4	51.4%
Control 2	14.0	11.8	84.3%
Control 3	12.5	11.4	91.2%
VO-RTU Spray 1	27.5	0.34	1.24%
VO-RTU Spray 2	24.8	0.05	0.20%
VO-RTU Spray 3	36.3	0.21	0.58%

Conclusions

- VO inhibited spore germination of test fungi
- Pretreatment with VO inhibited the growth of fungi on sheetrock and ceiling tiles
- Spray applications of VO-PS were effective in stopping fungal growth for several weeks even in saturated conditions
- More work needs to be done to determine the most effective spray application methods for VO-RTU

Acknowledgement

- The assistance of Claudia Owens and Christen Townsend is greatly appreciated.
- Funding for this study was provided by Vital Technologies, Hobe Sound, FL.