

VITAL-OXIDE®

BROAD SPECTRUM DISINFECTANT CLEANER
& MOLD CONTROL



BROUGHT TO YOU BY VITAL TECHNOLOGIES

LEADING THE WAY IN GREEN CLEANING

What Makes **VITAL-OXIDE**® Different From Other Stabilized Chlorine Dioxide?

THE VITAL FACTS

- **VITAL-OXIDE** is Shelf Stable & Ready To Use. No mixing required. Spray, wipe, or fog right from the bottle.
- **VITAL-OXIDE** is stabilized to retain over 98% of its strength for over one year under normal storage conditions. At the same time the stabilization is controlled to allow a rapid equilibrium between the “stabilized” and “free” chlorine dioxide. This means that the **VITAL-OXIDE** total 2,000-ppm ClO₂ is available almost instantly as needed to destroy harmful microbial substances, and whatever is not used will be available in reserve for long-term residual activity.
- **VITAL-OXIDE** includes components that dramatically decrease the size of it's particles to nano scale. This increases the ability of the active solution to spread on and to penetrate both hard and porous surfaces. This also makes it very effective against airborne pathogens by reducing droplet size from sprayers and foggers.



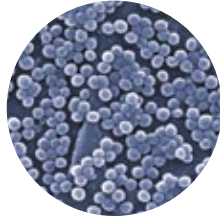
Super Effective Green Cleaner & Odor Eliminator

- **VITAL-OXIDE** produces no harmful by-products for the environment. The smart ecological choice—contains no ozone harming VOC's and is 100% biodegradable.
- **VITAL-OXIDE** stands out among antimicrobial cleaners with a combination of extremely low toxicity and long-term effectiveness. USEPA Registered (82972-1) as a “Broad Spectrum Disinfectant-Cleaner” that is non-corrosive, non-irritating to skin, and requires no special handling instructions on its label.
- **VITAL-OXIDE** formula includes components that emulsify common oily, greasy substances, readily penetrating surfaces coated with oily materials.
- **VITAL-OXIDE** is effective even diluted from its “general purpose” strength. To enhance this capability, a sequestering agent in the formulation prevents the deactivation of the surface-active agents in the formula where “hard” water is used for dilution. As little as 2 ppm will prevent bio-slime formation in drip irrigation lines.
- **VITAL-OXIDE** is a highly effective odor remover that does not mask or cover up odors with a fragrance—it eliminates them on a molecular level.

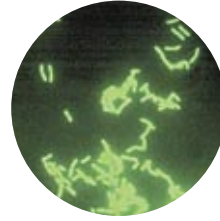
Areas of use include: Hospitals, Cruise Ships, Restaurants, Hotels, Schools & Day Care, HVAC Systems, Sports Equipment, Building Materials, Drip Irrigation Lines, Kennels, Auto Detail Shops and Households.



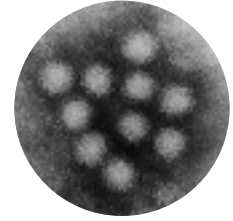
E Coli



MRSA



Legionella



Norovirus

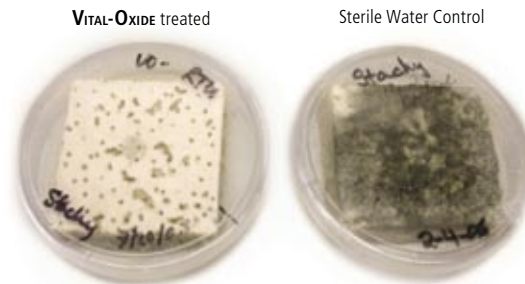
Anti-Microbial Action

Proven effective against MRSA, Norovirus, *Legionella pneumophila*, and *E coli* in testing conducted by certified independent laboratories under GLP conditions submitted to the USEPA. **VITAL-OXIDE** is a broad-spectrum antimicrobial that performs against a wide variety of bacteria, yeasts, viruses, fungi, spores, molds, mildews and other microbes. It is very effective at low concentrations, over a wide pH range.

PREVENTS MOLD & MILDEW ON HARD SURFACES & FABRIC

Results of University of Tulsa Study: Effectiveness of VITAL-OXIDE for Controlling Fungal Contamination on Building Materials

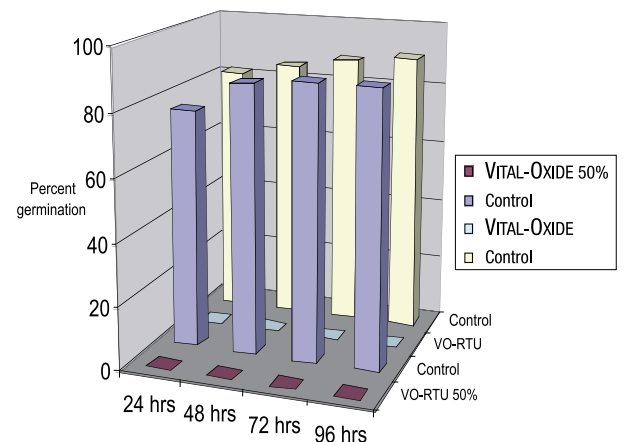
- **VITAL-OXIDE** inhibited spore germination of test fungi
- Pretreatment with **VITAL-OXIDE** inhibited the growth of fungi on sheetrock and ceiling tiles
- Spray applications of **VITAL-OXIDE** were effective in stopping fungal growth even in saturated conditions



Pretreatment of ceiling tiles with **VITAL-OXIDE** inhibited growth of *Stachybotrys* 7 months following treatment.

Fungi	Mean colony diameter (cm) of fungi after 30 days incubation on sheetrock saturated with VITAL-OXIDE "Ready To Use" (RTU) or sterile water Control		
	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

VITAL-OXIDE Treated Sheetrock Exhibits No Fungal Growth Even in Saturated Conditions



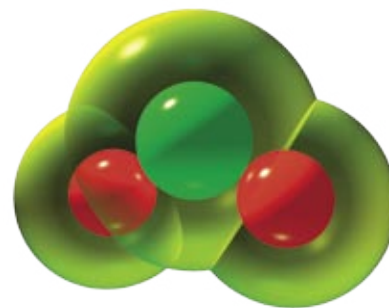
Percent Germination of *Stachybotrys* Spores

VITAL-OXIDE® USES THE POWER OF OXYGEN

KILLS HARMFUL BACTERIA & VIRUSES & REMOVES MOLD & MILDEW

THE TECHNOLOGY

The chlorine dioxide molecule has one chlorine atom and two oxygen atoms. This combination creates a molecular free radical—a magnetic like attraction that seeks out electron donors and selectively oxidizes harmful bacteria and mold.



THE ENVIRONMENTALLY SOUND ALTERNATIVE TO CHLORINE BLEACH

Although chlorine dioxide (ClO₂) has chlorine in its name, its chemistry is radically different from that of chlorine itself. Technically speaking both chlorine and ClO₂ are oxidizing agents. Yet these fundamentally different chemistries react in distinct ways with organic compounds resulting in very different by-products.

STABILIZED ClO₂

VS

CHLORINE BLEACH

- ClO₂ is not a metabolic toxin and will not aid in developing antibiotic resistance in bacteria.
- ClO₂ and its primary by-product chlorite, break down to sodium chloride (simple salt).
- ClO₂ works through Highly Selective Oxidation, reacting with vital amino acids in the cell to eliminate bacteria, viruses and denature proteins, while being relatively un-reactive to other organic material—thus reducing the level of ClO₂ required to do the job.

- Chlorine produces harmful by-products (THM) trihalomethanes and (HAAS) haloacetic acids which are linked to cancer.
- Chlorine is highly corrosive to tissues and treated articles.
- Chlorine has a poor shelf life & stability.
- Chlorine has strong unpleasant odor.
- Chlorine's large molecule can't penetrate porous surfaces thus making it ineffective against mold mycelia (roots).

THE HISTORY

ClO₂ has been recognized for its powerful disinfecting properties since the early 1900's. It is used by municipalities to purify drinking water. Environmentalist now recommend its use in eco-friendly paper production. Produced on site, these treatments require sophisticated chemical generation equipment and limit practical use to only large scale industrial operations.

In an effort to commercialize ClO₂ for the general public several companies have developed methods to produce "stabilized ClO₂". These products usually require a two-step process mixing an acid "activator" into a chlorite solution to produce ClO₂. Yet, even though products claim to have even the same amount of this key ingredient it certainly can not be assumed that they will perform in an equal manner. The results are solutions of varying strength—and safety—with a shelf life of a few days to just a few hours.

THE BREAK THROUGH

VITAL-OXIDE is a super effective, ecologically sound cleaner & odor eliminator, with proven broad-spectrum anti-microbial action. (USEPA registered #82972-1) Shelf stable & Ready To Use—no mixing required, just spray, wipe, or fog right from the bottle. Non-irritating to the skin, and not corrosive to treated articles.

Distributed By: Diamond Medical Supply 1.888.520.2500
www.diamondmedicalsupply.com



SECTION I - IDENTIFICATION

Product Name: VITAL-OXIDE

MANUFACTURER/DISTRIBUTOR

Vital Technologies, Inc.
PO Box 2026
Hobe Sound, FL 33475

PHONENUMBERS

Product Information
Medical Emergency

(772) 545-9505 available 9am-5pm EST
(800) 222-1222 available 24 hrs.

SECTION II – COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL FAMILY: Aqueous Oxidant

CHEMICAL NAMES

CONCENTRATION RANGE

Stabilized Chlorine Dioxide

<Less than 1%

n-Alkyl(60% C14, 30% C16, 5% C12, 5% C18) Dimethyl Benzyl Ammonium Chloride

<Less than 1%

n-Alkyl(68%C12,32%C14) Dimethyl Ethylbenzyl Ammonium Chloride

<Less than 1%

No active ingredients are present at concentrations greater than 1% by weight. Contains items withheld in accordance with OSHA 29 CFR XVII-1910.1200 Section (i) "Trade Secrets". At these levels none of the ingredients are known to pose any hazards to human health.

The liquid has a very mild ozone or chlorine-like odor. It is a water-based system with boiling and freezing points near those of water. At the concentrations used in this product no hazardous circumstances are anticipated if the product is used as directed.

WHMIS Classification: Not Controlled

SECTION III – HAZARDS IDENTIFICATION

Most Important Hazards: None Specific Hazards: Moderate eye irritation may occur.

SECTION IV - PHYSICAL DATA

BOILING RANGE 212°F
VAPOR PRESSURE Not Available
VAPOR DENSITY Not Available
WATER SOLUBILITY 100%
APPEARANCE Colorless liquid

SPECIFIC GRAVITY (WATER = 1) 1.05
PERCENT VOLATILES BY VOLUME 100%
EVAPORATION RATE Less than Ether
pH Approx. 8.5
ODOR Mild-Fresh

SECTION V - FIRE/EXPLOSION HAZARDS

FLAMMABILITY LIMITS: Non Flammable FLASHPOINT: N/A EXTINGUISHING MEDIA: N/A

SECTION VI - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE ACUTE: **Breathing** - Albino rats exposed to a respirable aerosol made from a solution of stabilized chlorine dioxide at levels up to 2.09 mg/l for one hour resulted in no deaths or gross pathology. **Eye Contact** - Moderate ocular irritant. **Skin Contact** - Modified Draize test on albino rabbits - no dermal irritation on prolonged contact. **Swallowing** - Acute oral toxicity in albino rats: LD₅₀ is greater than >5,000 mg/kg.; CHRONIC: At the dilutions used in this formulation, chlorine dioxide was found to be non-toxic.

FIRST AID MEASURES: IF IN EYES - Flush with water. If irritation persists consult an MD.
IF SWALLOWED - Give large amounts of water.

SECTION VII-REACTION DATA

STABILITY - Stable

CONDITIONS TO AVOID - Contact with strong acids

INCOMPATIBILITY (MATERIALS TO AVOID) - Strong acids

HAZARDOUS DECOMPOSITION PRODUCTS - Thermal or other decomposition may yield chlorine dioxide or chlorine.

HAZARDOUS POLYMERIZATION - Will not occur

SECTION VIII - SPILL PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED - No special clean-up measures are required for the consumer product. To avoid the possibility of "bleaching" the spill should be absorbed with paper towels, and the area rinsed with clean water.

WASTE DISPOSAL METHOD - No special precautions are required for the consumer product.

VOLATILE ORGANIC COMPOUNDS (VOC) None

SECTION IX - SPECIAL PRECAUTIONS

RESPIRATORY PROTECTION - None required for normal use. If consumer product accidentally contacts strong acids in restricted ventilation area, avoid breathing the vapors, and allow adequate time for the vapors to disperse before re-entering the restricted area.

VENTILATION - Use in adequately ventilated areas.

PROTECTIVE GLOVES - Not required for consumer product.

EYE PROTECTION - Not required for consumer product.

OTHER PROTECTION - Not applicable.

BULK HANDLING AND STORAGE PRECAUTIONS - Keep away from heat, and strong acids. Do not smoke. Prevent build-up of vapors by maintaining continuous flow of fresh air. Do not store above 120°F or near fire or open flame. Store large quantities in buildings that comply with OSHA 1910.106. Keep container closed when not in use. Do not transfer contents to bottles or other unlabelled containers. Do not reuse empty containers. Keep out of reach of children.

Vital Oxide Disinfectant Shown Effective Against H1N1 Virus (Swine Flu)

By Vital Technologies, Inc.

Dated: Jun 10, 2009

In a recent GLP study conducted by an internationally reputable lab, Vital Oxide disinfectant completely inactivated the H1N1 virus within a five minute exposure time.

In an eagerly anticipated recent study, Vital Oxide broad-spectrum disinfectant was tested for efficacy against the H1N1 influenza virus. According to the GLP study in accordance with EPA guidelines, Vital Oxide completely eliminated the virus within five minutes.

Study authors concluded with the following statements: "Under the conditions of this investigation and in the presence of a 5% fetal bovine serum soil load, Vital Oxide (Batch #106-105-1 and Batch #901120), ready to use and applied using a trigger spray, demonstrated complete inactivation of Swine Influenza A (H1N1) virus following a five minute exposure time at room temperature (20.0 degrees celsius) as required by the US EPA for virucidal label claims".

The swine flu virus has received considerable attention in recent months due to reported cases and fatalities throughout various regions of the world. According to the WHO (World Health Organization), "73 countries have officially reported 25,288 cases of influenza A (H1N1) infection, including 139 deaths".

The US Centers for Disease Control (CDC) have expressed concerns that the H1N1 virus could reach pandemic proportions on a worldwide scale. The WHO has also raised the alert level to "phase 5" suggesting that a pandemic is "imminent".

While medical researchers continue to work on vaccinations to help prevent the spread of the H1N1 virus, to date no vaccinations have been found effective. The H1N1 virus is a new strain of the influenza A virus that has proven to be particularly resistant to vaccinations.

Vital Oxide is one of the first disinfectants studied under rigorous laboratory practices to determine efficacy against the H1N1 virus and may be useful in preventing further swine flu outbreaks.

For more information, please visit the Vital Oxide website at <http://www.vitaloxide.com>

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Vital Technologies, Inc. produces green and environmentally friendly products to help protect schools, hospitals, daycare centers, cruise ships and homes from harmful bacteria and microbials.

Category	Health, Medical, Research
Phone	772-545-9505
City/Town	Hobe Sound
State/Province	Florida
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