



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs
Antimicrobials Division (7510C)
1200 Pennsylvania Avenue NW
Washington, D.C. 20460

EPA Reg. Number:
82484-1

Date of Issuance:
AUG 28 2006

Term of Issuance:
Conditional

Name of Pesticide Product:
DRO-5000

NOTICE OF PESTICIDE:
 Registration
 Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (Include ZIP Code):

DeepReach Oxidation, LLC
3221 Broce Drive
Norman, OK 73072

Note: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data; and submit acceptable responses required for re-registration of your product under FIFRA section 4.
2. Make the labeling changes listed below before you release the product for shipment:
 - a. Revise the "EPA Registration Number to read, "EPA Reg. No. 82484-1".

Signature of Approving Official:

Mark Hartman, Chief
Regulatory Management Branch II
Antimicrobials Division (7510P)

Date:

8/28/06

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b. Revise the descriptor under the product name to include "THIS PRODUCT IS NOT FOR USE ON FOOD CONTACT SURFACES."

c. The first sentence under Environmental Hazards statement is "This product is toxic to fish and aquatic organisms."

d. Per PR Notice 2000-5 certain mandatory and advisory labeling statements are required. Please make the following changes:

-The last sentence in section 1.0 "This product is only to be used in those cases where visible growth has been detected . . ."

-The first sentence in section 1.1 "**Users of this product must develop a site specific fumigation plan . . .**"

-The first and second sentences in section 2.0 first paragraph "All **buildings must** be comprehensively inspected . . ." and "If it is ascertained that only contamination within a building . . ."

-The next to last sentence under 2.0 paragraph two "This **includes** general contractors, indoor air quality consultants . . ."

-The last sentence on page 6 under section 2.1 "Cleaning of these affected areas **must** be carried out . . ." and the next to last sentence on page 7 "Limited or Full personal protective equipment is **required** during cleanup."

-The first and second sentences in the last paragraph under 3.2 "If the application is made in a large volume of water in enclosed spaces, that are **must** be dried . . ." and ". . . other methods of ventilation **should be used**" (This statement is also found under section 3.3)

-The first sentence under section 6.0 "A careful analysis of the ductwork system **must** be made prior to any treatment and the most appropriate strategy for application **is to be determined** at that time."

-The second sentence of the second paragraph under section 6.0 "DRO Gas Release Units **must** be placed within the space to be treated . . ."

e. This product is registered to inhibit **only** the odor causing form of bacteria. Change "**Bacteria**" to "**Odor Causing Bacteria**" on the label.

f. Move statement "Prior to treating the area with DRO-5000, clean the affected area using one of the following or another preferred professional method" above Wood Surfaces – Cleanup Method. This direction for use applies to all the Methods.

3. The Agency will notify DeepReach Oxidation LLC in writing of its determination that this product should be classified as a Restricted Use Pesticide Product. DeepReach Oxidation LLC has accepted this as a condition of registration per their letter dated August 17, 2006. Therefore, the August 17, 2006 letter will serve as an agreement between DeepReach Oxidation LLC and the Agency to make the change to restricted use upon notification by the Agency.

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4. Submit three (3) copies of your final printed labeling before distributing or selling the product bearing the revised labeling.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Sincerely,



Mark Hartman, Chief
Regulatory Branch II
Antimicrobials Division (7510P)

Enclosure: (Stamped Label)

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DRO-5000

Odor Causing

FUNGISTAT/BACTERISTAT

FUMIGANT – FOR USE IN CONTAINED VACATED SPACES

TO BE USED FOR GENERATING AQUEOUS CHLORINE DIOXIDE FOR USE IN GASEOUS FORM TO INHIBIT BACTERIA AND ODOR CAUSING MICROORGANISMS, AND TO CONTROL MOLD AND MILDEW IN INDUSTRIAL, COMMERCIAL, PUBLIC BUILDINGS, LIBRARIES, MUSEUMS, RESIDENCES, HOSPITALS, CLINICS AND ANIMAL REARING AND CARE FACILITIES. *THIS PRODUCT IS NOT FOR USE ON FOOD CONTACT SURFACES. IF SURFACES COVERED, THEY MUST BE FULLY CLEANED AFTER TREATMENT*

ACTIVE INGREDIENT:

CHLORINE DIOXIDE.....	5%
OTHER INGREDIENTS.....	95%
TOTAL.....	100%

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

STORE IN COOL DARK PLACE – KEEP FROM FREEZING

E.P.A. Reg. No. 82484-R

E.P.A. Est. No. 82484-OK-01

DeepReach Oxidation, L.L.C.

Norman, OK 73072

Net Contents: 1 Quart 1 Gal. 5 Gal. 30 Gal.

ACCEPTED
with COMMENTS
in EPA Letter Dated:
AUG 28 2006

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 82484-1

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ACCEPTED
with COMMENTS
in EPA Letter Dated:

STORAGE AND DISPOSAL

Storage: Store in a cool, dark area in original container. Avoid storage in direct sunlight. In case of spill, flood with water before discarding to drain. Do not contaminate water, food, or feed by storage or disposal. AUG 28 2006

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 82484-

Container Disposal: Triple rinse. Then offer for recycling or reconditioning; or puncture and dispose of: in a sanitary landfill; or by incineration; or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

PRECAUTIONARY STATEMENTS

Hazards to Humans & Domestic Animals: CAUTION: Harmful if inhaled. Avoid breathing vapor or spray mist. Remove contaminated clothing and wash clothing before reuse. Causes moderate eye irritation. Avoid contact with eyes and clothing. Wash thoroughly with soap and water after handling.

ENVIRONMENTAL HAZARDS

THIS PRODUCT IS TOXIC TO FISH AND AQUATIC ORGANISMS.
Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

HEALTH HAZARDS – THIS PRODUCT IS DANGEROUS WHEN ACTIVATED

When combined with other materials such as acids, chlorine, organic chemicals, etc. **DRO-5000** can produce **DANGEROUS LEVELS** of chlorine dioxide gas. Chlorine dioxide gas is a strong oxidizing agent. Chlorine dioxide is irritating to the respiratory tract. The symptoms of

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chlorine dioxide intoxication depend on its concentration and on the exposure time; they include lacrimation, headache, vomiting, severe cough, asthmatic bronchitis, dyspnea, and even death. **DO NOT INHALE CHLORINE DIOXIDE.** Exposure to high concentrations of chlorine dioxide can cause death. Do not allow unprotected workers to be exposed to chlorine dioxide gas.

ACCEPTED
with COMMENTS
in EPA Letter Dated:
AUG 28 2006

PERSONAL PROTECTIVE EQUIPMENT (PPE):

— Handlers/applicators must wear:

- Long sleeve shirt and long pants
- Shoes plus socks
- Full face protective respirator using 3M 6003 or equivalent cartridges for acid vapor, chlorine and chlorine dioxide gas, when concentrations are at or below 5.0 PPM. Use NIOSH/MSHA approval TC-13F-314 Low Pressure Self Contained SCBA Respirator for gas concentrations above 5.0 PPM.
- Waterproof gloves

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 82484-1

Follow manufacture's instruction for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Rinse thoroughly and discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

FIRST AID

- If inhaled**
- Move person to fresh air.
 - If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
 - Call a poison control center or doctor for further treatment advice.

- If on skin or clothing**
- Take off contaminated clothing.
 - Rinse skin immediately with plenty of water for 15-20 minutes.
 - Call a poison control center or doctor for further treatment advice.

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If in eyes - Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for treatment advice.

If swallowed - Call a poison control center or doctor immediately for treatment advice.
- Have the person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to do so by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

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Have the product container or label with you when calling a poison control center or doctor or when going for treatment.

of the Federal Insecticide,
and Rodenticide Act
for the pesticide
under EPA Reg. No. 82484-1

PROPER ACIDIFICATION OF DRO-5000

The active component of **DRO-5000** is gaseous chlorine dioxide. To generate chlorine dioxide gas contained within an aqueous solution, acidification of a 50/50 dilution of **DRO-5000** in water, using an inorganic acid such as phosphoric, hydrochloric or sulfuric to a pH of 2, is required. Gaseous chlorine dioxide may then be released from the solution using a DRO Gas Release Unit.

DIRECTIONS FOR USE

FOR USE ONLY BY PROFESSIONAL DEEPREACH OXIDATION PERSONNEL OR PERSONS HIRED AND TRAINED UNDER CONTRACT TO DEEPREACH OXIDATION.

IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING. THIS PRODUCT IS NOT INTENDED FOR USE ON FOOD CONTACT SURFACES.

THE PERSONS APPLYING THIS PRODUCT ARE RESPONSIBLE FOR FOLLOWING THESE DIRECTIONS UNDER BOTH STATE AND FEDERAL LAWS.

FOR MOLD AND MILDEW CONTROL IN WOOD, WALLBOARD, CONCRETE, AND MASONRY (CINDER) BLOCK AND OTHER

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CONSTRUCTION MATERIALS IN BUILDINGS – REMEDIAL TREATMENT OF CONFINED SPACES, FLOORS & WALLS AND THEIR CONTENTS, INCLUDING DUCT WORK AND HVAC SYSTEMS.

Before applying the DRO 5000 fumigation, visible mold growth must be removed and conditions favorable to mold growth must be identified and corrected. See section 2.0 below.

1.0 General Description

DeepReach Oxidation's **DRO-5000**, used for interior building spaces is designed to be used to retard or inhibit growth of bacteria and fungi including mold and mildew on floors, walls, contents and other interior building surfaces until such time as the cause of such growth can be identified and corrected.

DEEPREACH FUMIGATION PROCESS is designed for use on all kinds of surfaces including:

- Painted Wallboard
- Structural members and supports
- Ceilings and above ceiling spaces
- Basements and crawl spaces
- Cabinets and countertops
- Case goods and other furnishings
- Floor surfaces
- Air Ducts and HVAC Equipment
- Sheet metal (unlined)
- Air supply and return ducts and plenums fabricated with plywood, OSB or other wood like materials
- Flexible air ducts fabricated of metal, fabric or plastic
- Air distribution components such as air handlers, mixing boxes, transfer boxes, transitions, turning vanes, dampers, fans and fan housings and associated components.
- Condensate drain pans

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under the Federal Insecticide,
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registered for the pesticide,
registered under EPA Reg. No. 82484-1

It is also used as one component of a comprehensive mold remediation or water damage restoration program. The purpose of such a program is to minimize damage from growth of mold and other potential contaminants and limit re-growth. This product [REDACTED] only be used in those cases where

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visible microbial growth has been detected or conditions are likely to immediately result in such growth, and then only as part of a program that removes that growth and identifies and corrects the conditions that led to that growth. If you need help understanding any part of these instructions or have additional questions after reading these instructions, DO NOT APPLY THIS PRODUCT until you have received the answers to all of your questions.

1.1 Fumigation plan Users of this product must

develop a site-specific fumigation plan that is consistent with product labeling and takes into account site-specific information such as the size of the structure, its contents, condition, pre-cleaning plan, and monitoring plans (inside and outside the structure to undergo fumigation).

2.0 Visible Growth

All buildings ^{must} be comprehensively inspected for visible growth as part of the remediation plan. If it is ascertained that the only contamination within a building consists of visible growth of less than 30 sq. ft., then use of this product is not necessary.

Contaminated areas larger than 30 square feet require special procedures and individuals trained in remediation. Guidelines for remediation of large areas of contamination must be addressed within the comprehensive remediation plan prepared prior to fumigation. Persons responsible for fumigation must coordinate with all participants to insure remediation guidelines are followed. This includes general contractors, indoor air quality consultants, certified industrial hygienists, building engineers and associated architects. Mold-contaminated objects that are of significant value such as rare books may be cleaned then decontaminated rather than bagged and discarded.

2.1 Pre-Cleaning

Removal of any trash and/or debris from the treatment space must be conducted prior to treatment. Significant accumulations of soils, lint and dust within the treatment space, including ducts and HVAC systems must be removed and thoroughly cleaned prior to treatment. Cleaning of these affected areas ^{must} be carried out using one of the following or another preferred professional method.

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m EPA Letter Dated:

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Wood Surfaces - Cleanup Methods

Under the Federal Insecticide,
Fungicide, and Rodenticide Act as
amended, for the pesticide,
EPA Reg. No. 82484-1

Prior to treating the area with DRO 5000, clean the affected area using one of the following or another preferred professional method.

Wood Surfaces - Cleanup Methods

- Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).
- Method 2: Damp-wipe surfaces with plain water or use a wood floor cleaner; scrub as needed.
- Method 3: High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in a well-sealed plastic bag(s).
- Method 4: Discard/remove water-damaged materials and seal in plastic bags while inside of containment. Dispose of as normal waste. HEPA vacuum area after it is dried.

Wallboard (drywall and gypsum board) - Cleanup Methods

- Method 1: HEPA vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in a well-sealed plastic bag(s).
- Method 2: Discard/remove water-damaged materials and seal in plastic bags while inside of containment. Dispose of as normal waste. HEPA vacuum area after it is dried.

Other Construction Materials (Concrete or Cinder Block) - Cleanup Methods

- Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).
- Method 2: High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in a well-sealed plastic bag(s)

Prior to DRO 5000 treatment, thoroughly clean all surfaces to remove loose existing dirt.

Limited or Full personal protective equipment is ^{required} during cleanup. Limited personal protective equipment includes gloves, N-95 respirator or half-face respirator with HEPA filter. Full personal protective

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equipment includes: gloves, disposable full body clothing, headgear, foot coverings, and full-face respirator with HEPA filter.

Use professional judgment, consider potential for remediator exposure and size of contaminated area.

3.0 Water Damage

When evidence of water damage is obvious, every effort must be made to identify the cause and correct it prior to fumigation. Evidence of water damage includes stains on ceilings or walls, wet spots, or standing water. When this occurs, excess water must be removed and sources of water that could contribute to further damage must be eliminated.

3.1 Elevated Surface Water Activity

Relative humidity above 65% leads to elevated water activity on surfaces and in porous materials. Elevated water activity leads to accelerated microbial growth, especially when humidity remains elevated more than 24 hours at a time. In such case, the cause of the elevated humidity must be identified and actions undertaken to place it under control. Conditions of elevated humidity and temperature are optimum conditions for application of the **DRO-5000** (Temperature 70°+ and RH 70% +). Once the process has been completed, steps should be taken to control relative humidity within the treated space, such as the installation of a dehumidifier.

3.2 Water Damage Remediation

Strategies to respond to water damage within 24-48 hours are a key part of avoiding mold contamination due to water incursion. Use professional judgment, consult with local experts and/or refer to EPA guidance documents such as "Mold Remediation in Schools and Commercial Buildings", www.epa.gov/mold/moldresources.html for more information on how to cleanup after water damage.

If mold or mildew is present follow the Mold Remediation Methods section of this label before treating.

Prior to application, thoroughly clean surfaces to remove loose existing dirt. Follow specific directions for surfaces listed on this label.

Apply as needed for prevention of molds and mildews that cause odors, discoloration or staining, but do not exceed 4 applications per year. **ACCEPTED WITH COMMENTS**

Letter Dated:
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Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, 82484-1

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same surface or area. Make applications as part of a routine cleaning program.

If the application is made in a large volume of water in enclosed spaces, that area ^{must} be dried as soon as possible to prevent conditions favorable to mold growth. To assist the drying process after cleaning, and application of this product use of fans, dehumidifiers, heaters or other methods of ventilation ^{should be used}. Please consult with your local county extension office or EPA, www.epa.gov/mold/moldresources.html for more information.

3.3 Special considerations

Because the fumigant can bleach wet carpets and fabrics, these materials must be free from damp spots prior to treatment. Wet carpets must be dried thoroughly. Carpets should be vacuumed thoroughly and vacuum cleaner bag discarded in an outdoor trash container prior to treatment. To assist the drying process after cleaning, fans, dehumidifiers, heaters or other methods of ventilation ^{should be used}

Dry wood and drywall within 24 hours to prevent conditions favorable to mold growth. To assist the drying process after cleaning and application of this product, use fans, dehumidifiers, heaters or other methods of ventilation ^{should be used}. Please consult with your local county extension office or EPA, www.epa.gov/mold/moldresources.html for more information.

3.4 Other Hard, Non-Porous Surfaces

This product is not for use in food/feed handling areas. When it is applied in an area where food handling may occur, those specific food-handling surfaces should be covered or removed. If covered, they must be fully cleaned after treatment.

4.0 General Directions:

The DEEPREACH FUMIGATION PROCESS effectively controls by inhibiting growth of bacteria, fungi, and other odor, stain, or damage causing organisms on floors, walls and other surfaces in residential, commercial, institutional, medical and industrial buildings.

DRO-5000 when used in the DEEPREACH FUMIGATION PROCESS is a bacteriostat, fungistat (mold and mildew), mildewstat and deodorizer for use in residential, commercial and industrial settings. It will not stain or bleach materials or fabrics and will not harm or damage interior surfaces, when used as directed.

ACCEPTED
with COMMENTS
in EPA Letter Dated:

AUG 28 2006

Under the Federal Insecticide, Fungicide, and Rodenticide Act, amended, for the pesticide, registered under EPA Reg. No. 82484-1

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5.0 Process directions- General

DRO-5000 is intended for use with DEEPREACH FUMIGATION PROCESS, described below:

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 82484-1

5.1 Gas Levels for antimicrobial activity/Rate of application

DEEPREACH FUMIGATION PROCESS employs a continuous monitor/control system in which gas levels are adjusted in real time during the treatment period to ensure appropriate concentrations are present.

To control odor-causing microorganisms, chlorine dioxide gas levels of 5.0 – 10.0 PPM should be maintained within the confined treatment space or closed duct system for at least 30 minutes. A minimum relative humidity of 70% or greater and a minimum temperature of 70° should be maintained during treatment.

For Fungistatic and Bacteristatic applications, chlorine dioxide gas levels of a minimum of 50-100 PPM must be maintained for 30 minutes. A minimum relative humidity of 70% or greater and a minimum temperature of 70° should be maintained during treatment.

5.2 Relative Humidity adjustments

If the adjustment of Relative Humidity to 70% results in a large volume of water being dispersed into an enclosed space, that area should be dehumidified as soon as possible to prevent conditions favorable to mold growth. To assist the drying process after treatment, use fans, dehumidifiers, heaters or other methods of ventilation.

6.0 Sealing the Treatment Space and Ventilation System

A careful analysis of the ductwork system ^{must} be made prior to any treatment and the most appropriate strategy for application ^{is to be determined} at that time.

Prior to any gas release, the treatment space and its ventilation system must be sealed airtight. All doors, windows, outside vents and other openings must be sealed utilizing sealing materials such as tape and plastic. Special attention should be paid to wall openings between rooms in the overhead spaces, and to ventilation and piping runs. Any ductwork that leads beyond the designated containment space must be isolated and sealed tight. Any negative air machines that exhaust air from the containment space must be

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shut off and sealed. A smoke test must be conducted to detect drafts and air leaks prior to gas release.

- Special care should be taken to insure that fresh air intakes to air handling units are blocked. DRO Gas Release Units ^{must} be placed within the space to be treated in such a manner as to insure even coverage. All heat sources and refrigeration sources must be turned off. Prior to gas release, the air-handler fan only must be turned on to circulate the gas through the duct system during the entire treatment period and during the subsequent chlorine dioxide dissipation period. Do not run the refrigeration condensing units, cooling coils, heating units, or heat exchangers until the chlorine dioxide detectors measure 0.0 PPM.

6.1 Placarding and Site Security

Appropriate placards are to be placed in and around the treatment space, and security arrangements made to insure there is no entry into the treatment space. If only a portion of a building is being treated, all adjacent spaces including spaces above and below the treatment space must be vacant, monitored and access controlled, or the treatment must be conducted while the building is vacant.

6.2 Gas Monitoring

Chlorine dioxide concentrations are continually monitored via Interscan Corp. Chlorine dioxide gas monitors, Models 133-LD, and LD233-2, dual channel, using electrochemical sensors located outside the containment area. Air samples from the containment space are drawn through ¼" ID HDPE tubing via internal air pumps within the detectors. Data is logged at 1 second intervals. Sensors have a range of detection from 0 – 200 PPM, 0-50 PPM and 0-2 PPM with a sensitive 2.0 PPM, down to 0.02 PPM.

Periodically, during the treatment, the perimeter of the treatment space must be monitored hourly for gas intrusion from the treatment space using a handheld chlorine dioxide monitor. The level of chlorine dioxide gas must be measured at 0 ppm by the metering devices.

6.3 Placing the Chlorine dioxide gas sampling ports

Prior to the DRO Gas Release Unit activation, the gas sampling hoses leading to the gas analyzers are placed strategically within the treatment space to ensure a representative sampling of the gas concentration.

ACCEPTED
with COMMENTS
in EPA Letter Dated:

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7.0 Treating the Prepared Space - General

DRO-5000 is diluted 50/50 with water, and added to the DRO Gas Release Unit. One or more DRO Gas Release Units are placed throughout the confined treatment space. The dilute DRO-5000 is acidified to create an aqueous solution of chlorine dioxide. DRO Gas Release Units are designed to separate the evolving gas from the aqueous solution. Upon remote actuation of the DRO Gas Release Unit(s), Air blowers within the Gas Release Units dilute and disperse the gas into the treatment environment. The gas concentration within the treatment space is continually monitored and controlled via chlorine dioxide gas analyzers, with a sensitivity of 0.02 PPM chlorine dioxide and a range from 0.0 PPM to 199.9 PPM chlorine dioxide. A residual gas concentration minimum is held for a specific time to effect the appropriate microbial reduction desired. For consistency of performance, temperature and relative humidity are also monitored.

7.1 Determination of Number of DRO Gas Release Units required for specific treatment space.

Each DRO Gas Release Unit is capable of supplying enough chlorine dioxide gas to treat approximately 5,000 to 8,000 Cu. Ft. of confined space. This variance is due to the organic loading of the space being treated. Carpets, furnishing, drapes, etc. may represent additional demand of the gas. Measure in feet, the length, the width, and the height of the treatment space, calculate the volume of the treatment space then consult the capacity Chart below to determine the maximum number of DRO Gas Release Units required for the size of the treatment space. Depending on the volume and configuration of the intended treatment space, multiple DRO Gas Release Units should be located systematically throughout the confined and sealed area to ensure even coverage.

ACCEPTED
with COMMENTS
in EPA Letter Dated:

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under the Federal Insecticide,
fungicide and Rodenticide Act as
amended, for the pesticide,
registered under EPA Reg No. 82484-1

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See Capacity Chart Below:

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 8248

Vol. Cu. Ft.	Number of DRO Gas Release Units	
	Minimum	Maximum
800 – 5000 Cu. Ft.	1	1
5001 – 10,000 Cu. Ft.	2	2
10,001 - 15,000 Cu. Ft.	2	3
15,001 – 20,000 Cu. Ft.	2	4
20,001 – 25,000 Cu. Ft.	3	5
25,001 – 30,000 Cu. Ft.	3	6
30,001 – 35,000 Cu. Ft.	3	7
35,001 – 40,000 Cu. Ft.	4	8
40,001 – 45,000 Cu. Ft.	4	9
45,001 – 50,000 Cu. Ft.	4	10
100,000 + Cu. Ft.	8	20

7.2 Placement of DRO Gas Release Units

Prior to the DRO Gas Release Unit activation, the units are placed strategically within the treatment space to ensure even distribution of the gas concentration

7.3 Chemical loading of DRO Gas Release Units

Each DRO Gas Release Unit has one or more reaction tubes from which chlorine dioxide is created and dispersed. Each tube is loaded identically, from pre-measured bottles containing the reaction reagents. The loading is done in two separate steps: 1) **DRO-5000** dilution with water, and 2) acidification of dilute **DRO-5000**. The DRO Gas Release Unit loading process is as follows:

Step 1

Pour 1.5 liter of **DRO-5000** and 1.5 liter of water into each reaction tube being utilized for the treatment. (See Capacity Chart) As DRO 5000 and water are non reactive, the timing and order of these additions is not critical.

NOTE: Prior to acidification test all DRO Gas Release Units individually to insure that all pumps and blowers are operational and that each unit properly responds to radio control from the computer control panel, located outside the containment area. Once the equipment test process has been completed successfully, the acidification step can begin. Prior to acidification, the entire containment space must be cleared of all personnel.

Step 2

While wearing PPE, add the pre-measured volume (120 ml or Approx. 4.0 Fl. Oz.) of acid into each reaction tube to adjust solution pH to 2.0. Exit the contained area, sealing the exit behind you as you depart the confined space.

7.4 Activation of DRO Gas Release Units

Actuate the DRO Gas Release Units from their remote control panel. Monitor gas levels. Maintain desired gas levels by activating or inactivating the DRO Gas Release Units as required maintaining target gas levels for the desired time period.

8.0 Chlorine Dioxide Gas Dissipation

Chlorine dioxide gas rapidly breaks down within the sealed space and gas levels at and below Permissible Exposure Levels (PEL) of 0.1 PPM are attained within approximately 6 to 12 hours. Do not reenter confined space without PPE until the chlorine dioxide gas has 0.02 PPM on the Interscan 233-2 LD dual channel and 133 LD single channel gas metering devices. If it is necessary for a worker to enter the space, he/she must use a full-face protective respirator using 3M 6003 or equivalent cartridges for acid vapor, chlorine and chlorine dioxide gas, or NIOSH/MSHA approval TC-13F-314 Low Pressure Self Contained SCBA Respirator, when gas concentrations are above 5.0 PPM

The HVAC systems can be returned to full operation as soon as the treatment is completed and all gas has cleared the spaces.

ACCEPTED
with **COMMENTS**
in EPA Letter Dated:

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9.0 Post Treatment Activities

Chlorine dioxide gas leaves no visible residue on surfaces within the treatment space. All fumigation equipment will be removed from the spaces, placards removed and all sealing material removed to bring the space back into normal use.

ACCEPTED
with COMMENTS
EPA Letter Dated:

AUG 28 2006

the Federal Insecticide,
Fungicide and Rodenticide Act as
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