UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

October 20, 2011

Connie Welch
Connie Welch & Associates
Deep Reach Oxidation, LLC
4150 Merchant Plaza, #344
Lake Ridge, VA 22192

Subject: DRO-5000
EPA Reg.#: 82484-1
Notification Date: October 10, 2011
Receipt Date: October 13, 2011

Dear Ms. Welch:

This acknowledges the receipt of your notification, submitted under the provision of PR Notice 98-10 and FIFRA section 3(c)9.

Proposed Notification:
To update the Container & Disposal language for DRO-5000 (EPA Reg# 82484-1).

General Comment:
Based on the review of the material submitted (updated submission of October 13, 2011), the notification application to update the "Storage and Disposal" statement is acceptable with comments. Revise the "**STORAGE AND DISPOSAL**" statement as per EPA regulations, 40 CFR 156.140, 40 CFR 156.144, 40 CFR 156.146, and 40 CFR 156.156 and summarized in PR Notice 2007-4 of October 29, 2007 (Revised: April 29, 2008). The following comments apply:

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal

a. [Subheading.] **Pesticide Storage**: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood area with large quantities of water. Products or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer.

b. [Subheading] **Pesticide Disposal:**
Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

c. **Subheading] Container Handling:**
[For rigid non-refillable container less than 5 gallons]
Container Handling: **Nonrefillable rigid container. Do not re-use or refill this container**. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Then offer for recycling or reconditioning if available, or puncture and dispose of in trash or in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay of smoke**

[Subheading] **Container Handling:**
[For rigid non-refillable container greater than 5 gallons]
Container Handling: **Nonrefillable rigid container. Do not re-use or refill this container**. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Then offer for recycling or reconditioning, or puncture and dispose of in trash or in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay of smoke**

This notification and a copy of this letter have been inserted in your file for future reference."

If you have any questions on this letter, please contact David Liem at 703-305-1284 or by email at liem.david@epa.gov.

Sincerely

Monisha Harris
Product Manager (32)
Regulatory Management Branch II
Antimicrobials Division (7510P)

Attachment: Product label

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Please read instructions on reverse before completing form. Form Approved. OMB No. 2070-0060. Approval expires 2-28-95

EPA

United States
Environmental Protection Agency
Washington, DC 20460

☐ Registration
☐ Amendment
☑ Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number
82484-1

2. EPA Product Manager
Monisha Harris

3. Proposed Classification
☑ None ☐ Restricted

4. Company/Product (Name)
DeepReach Oxidation, LLC/DRO5000

PM#
32

5. Name and Address of Applicant *(Include ZIP Code)*
DeepReach Oxidation, LLC, c/o Connie Welch & Assoc.
4196 Merchant Plaza, #344
Lake Ridge, VA 22192

☐ *Check if this is a new address*

6. **Expedited Reveiw.** In accordance with FIFRA Section 3(c)(3)(b)(i), my product is similar or identical in composition and labeling to:
EPA Reg. No. _____
Product Name _____

Section - II

☐ Amendment - Explain below.
☐ Resubmission in response to Agency letter dated _____
☑ Notification - Explain below.
☐ Final printed labels in repsonse to Agency letter dated _____
☐ "Me Too" Application.
☐ Other - Explain below.

Explanation: Use additional page(s) if necessary. (For section I and Section II.)
Notification updating Container Disposal Language

"This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec 1001 to willfully make any false statement to the EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA."

Section - III

1. Material This Product Will Be Packaged In:

Child-Resistant Packaging	Unit Packaging	Water Soluble Packaging	2. Type of Container
☐ Yes ☑ No	☐ Yes ☑ No	☐ Yes ☑ No	☐ Metal ☑ Plastic ☐ Glass ☐ Paper ☐ Other (Specify)
* *Certification must be submitted*	If "Yes" Unit Packaging wgt. / No. per container	If "Yes" Package wgt / No. per container	

3. Location of Net Contents Information
☑ Label ☐ Container

4. Size(s) Retail Container
5 gal./30 gal

5. Location of Label Directions
☐ on label

6. Manner in Which Label is Affixed to Product
☐ Lithograph ☑ Paper glued ☐ Stenciled ☐ Other _____

Section - IV

1. Contact Point *(Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)*

Name	Title	Telephone No. (Include Area Code)
Connie Welch	Principal, Connie Welch and Assoc	571-264-0923

Certification

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowlingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law.

6. Date Application Received
(Stamped)

2. Signature
Connie Welch

3. Title
Agent for DeepReach LLC

4. Typed Name
Connie Welch

5. Date
10/13/11

EPA Form 8570-1 (Rev. 3-94) Previous editions are obsolete. White - EPA File Copy (original) Yellow - Applicant Copy

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CONNIE WELCH AND ASSOCIATES

ENVIRONMENTAL & MANAGEMENT CONSULTING

WWW.CONNIEWELCHANDASSOCIATES.COM

4196 MERCHANT PLAZA, #344
LAKE RIDGE, VIRGINIA 22192

E-MAIL: CWELCH@
CONNIEWELCHANDASSOCIATES.COM

DIRECT: 571-264-0923
Fax: 703-878-7840

October 11, 2011

Monisha Harris, PM 32
Regulatory Management Branch II
Antimicrobials Division

U.S. Environmental Protection Agency
Office of Pesticide Programs (7504P)
Document Processing Desk (NOTIF)
Room S-4900, One Potomac Yard
2777 South Crystal Drive
Arlington, VA 22202

Subject: DRO-5000 Registration
EPA Registration Number 82484-1
Label Notification

Dear Ms. Harris:

On behalf of our client, DeepReach Oxidation LLC (3221 Bart Conner Drive, Norman, OK 73072, EPA Company Number 82484), we are hereby submitting this notification application updating the container disposal language per PR Notice 2007-4, for DRO-5000 (EPA Registration Number 82484-1). The following items are enclosed in support of this notification:

- Application for Pesticide Notification, EPA 8570-1 Form; and
- Label reflecting labeling changes (2 copies).

Also, please note the following:

"This notification is consistent with the guidance in PR Notice 2007-4 and the requirements of EPA's regulations at 40 CFR §§ 156.10, 156.140, 156.144, 156.146, and 156.156. No other changes have been made to the labeling or the Confidential Statement of Formula for this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if the amended label is not consistent with the requirements of 40 CFR §§ 156.10, 156.140, 156.144, 156.146, and 156.156, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under sections 12 and 14 of FIFRA."

If you have any questions, please do not hesitate to contact me at (571) 264-0923 or by email at cwelch@conniewelchandassociates.com

Sincerely,

Connie Welch
Authorized Representative of
DeepReach Oxidation LLC

Enclosures

cc: Walter Hardy, DeepReach Oxidation LLC

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DRO-5000

NOTIFICATION
Date Reviewed: 10/20/2011
Reviewed By:

FUNGISTAT/BACTERISTAT
FUMIGANT

FOR USE IN CONTAINED VACATED SPACES

TO BE USED FOR GENERATING AQUEOUS CHLORINE DIOXIDE FOR USE IN GASEOUS FORM TO INHIBIT ODOR CAUSING 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.

FOOD CONTACT SURFACES SHOULD BE COVERED OR REMOVED. IF COVERED, THEY MUST BE FULLY CLEANED AFTER TREATMENT.

ACTIVE INGREDIENT:	
CHLORINE DIOXIDE	5%
OTHER INGREDIENTS	95%
TOTAL	100%

CAUTION

KEEP OUT OF REACH OF CHILDREN
SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

STORE IN COOL DARK PLACE
KEEP FROM FREEZING

EPA Reg. No. 82484-1
EPA Est. No. 9804-OK-01

DEEPREACH OXIDATION
Norman, OK 73072

Net Contents: 5 gal., 30 gal.

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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.

PERSONAL PROTECTIVE EQUIPMENT

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 approved TC-13F-314 Low Pressure Self Contained SCBA Respirator or equivalent for gas concentrations above 5.0 ppm
- Waterproof gloves.

Follow manufacturer'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 the product's concentrate.

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 chlorine 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.

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

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 CONTRRACT 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 RESONSIBLE FOR FOLLOWING THESE DIRECTIONS UNDER BOTH STATE NAD FEDERAL LAWS.

FOR MOLD AND MILDEW CONTROL IN WOOD, WALLBOARD, CONCREATE, MASONRY (CINDER) BLOCK AND OTHER CONSTRUCTION MATERIALS IN BUILDINGS – REMEIDAL TREATEMTN OF CONFIED SPACES, FLOORS & WALLS AND THEIR CONTENTS, INCLUDING DUCT WORK AND HVAC SYSTEMS.

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

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
- Cabinet 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

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 contaminates and limit re-growth. This product is only to be used in those cases where visible microbial growth has been detected or conditions are likely to immediately result in such growth, and then only as a 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 plans
The 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 size of the structure, its contents, condition, precleaning 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.

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

Wood Surface – 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 waster. 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 surface 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 equipment includes: gloves, disposable full body clothing, headgear, foot coverings, and full-face respirator with JEPA 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 degrees + 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",
for more information on how to clean up 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 to the 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,
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,
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.

5.0 Process Directions – General
DRO-5000 is intended for use with DEEPREACH FUMIGATION PROCESS described below.

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 degrees should be maintained during treatment.

For fungistatic and bacteristatic applications, chlorine dioxide gas levels of 50 – 100 PPM must be maintained for 30 minutes. A minimum relative humidity of 70% or greater and a minimum temperature of 70 degrees 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 made 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 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.

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 anaqueous 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 dispose 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, furnishings, 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 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 space, multiple DRO Gas Release Units should be located systematically throughout the confined and sealed area to ensure even coverage.

Capacity 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 regents. 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 liters of DRO-5000 and 1.5 liters 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 are 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 approximately 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 area.

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 be 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, or equivalent, 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.

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.

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.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Disposal:
{For containers 5 gallons or less}
Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Offer for reconditioning, if appropriate. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat his procedure two more times.

{For containers greater than 5 gallons}
Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Offer for reconditioning, if appropriate. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.