

75757-2

08-09-2011

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

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

August 9, 2011

Heather R. Bjornson  
Senior Regulatory Consultant  
Technology Sciences Group, Inc.  
1150 18th Street, NW, Suite 1000  
Washington, D.C. 20036

Subject: CDG Solution 3000  
EPA Reg.#: 75757-2  
Application Date: May 12, 2011  
Receipt Date: May 17, 2011

Dear Ms. Bjornson:

This acknowledges the receipt of your Amendment application dated May 12, 2011 in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended.

**Proposed Amendment:**

Amend the directions limiting the poultry carcass wash/dip and processed food application to a maximum of 3 ppm residual chlorine dioxide for CDG Solution 3000 (EPA Reg# 75757-2). The original proposed label dated May 12, 2011 was updated with the June 7, 2011 proposed label (pin punch 07/25/11).

**General Comment:**

Based on the review of the material submitted (proposed label dated July 7, 2011), the label amendment for "CDG Solution 3000 (EPA Reg# 75757-2) is acceptable with the following comments and conditions.

a. P.2 Under "**STORAGE AND DISPOSAL**" - **Container Disposal**

- Revise Container Disposal to "**Container Handling**"
- Insert the word "on" to read "Turn the container over on its other end and tip it back and forth several times. (See EPA letter June 28, 2010 and also PR Notice 2007-4).

- Complete last sentence to read "Then offer for recycling, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by local and State authorities, by burning. If burned, stay out of smoke." (See EPA letter June 28, 2010 and also PR Notice 2007-4).

b. P. 4 - Delete the "Direction for Use" for "...carcass spray or dip solution..." because this use pattern is regulated by the FDA's FFDCAs as a processed food. See FDA's guidance in <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodIngredientsandPackaging/ucm077256.htm#6>

c. P.9 - Delete the "Direction for Use" for "For Fruit and vegetables that will be processed..." because this use pattern is regulated by the FDA's FFDCAs as a processed food. See FDA's guidance in <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodIngredientsandPackaging/ucm077256.htm#6>

d. P.11 Delete "...Gas..." and thus revise the heading to read "**Prevention of Corrosion and Slime Causing Bacteria in Oil Wells during Secondary Recovery Operations**". See Chlorine dioxide RED of August 2006 (EPA 738-R-06-007) (see EPA letter June 28, 2010; this was not addressed).

e. P.11 Under "**Prevention of Corrosion...**" -Revise first sentence to read "Prepare a 5,000 ppm stock solution of available chlorine dioxide (dilution ratio of 0.6:1) with the injection water." (See EPA letter June 28, 2010). See also RED document of August 2006 (EPA 738-R-06-007).

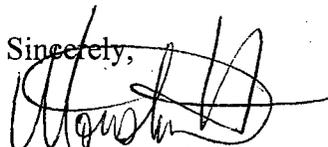
f. P.11 . Under "**Prevention of Corrosion...**" -Delete the statement "Add CDG Solution 3000 at a rate of 3 ppm chlorine dioxide per 1 ppm H<sub>2</sub>S.", since this claim is not supported by the RED of August 2006 (EPA 738-R-06-007) (see also EPA letter June 28, 2010).

A copy of the accepted stamped label with comments and conditions is enclosed for your record. Submit one copy of your final printed label/labeling before distributing or selling the product bearing the revised label/labeling.

This amendment, a stamped label, and a copy of this letter have been inserted in your file for future reference.

If you have any questions or comments concerning this letter, please contact David Liem by email at [liem.david@epa.gov](mailto:liem.david@epa.gov) or call (703) 305-1285.

Sincerely,



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

Att: EPA letter of June 28, 2010

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# CDG Solution 3000™

AN AQUEOUS SOLUTION OF CHLORINE DIOXIDE

This product is intended for the purification of water which has previously been treated in accordance with the Safe Drinking Water Act (SDWA), such as that provided by municipal water treatment facilities. Intended applications include: Treatment of Potable Water and Cooling Water in Hospitals & Healthcare Facilities, Nursing Homes, Hotels, Commercial Office Buildings, Government Buildings, Residential Buildings, and Ships; Treatment of Industrial Process Water, Food Processing Water, and Livestock Drinking Water, and Control of Slime in Human and Animal Potable Water Systems, Process Water Systems, and Cooling Towers.

(For Organic Production) (For Use in Organic Production)

### ACTIVE INGREDIENTS

Chlorine dioxide . . . . . 0.30%

**INERT INGREDIENTS** . . . . . 99.70%

**TOTAL** . . . . . 100.00%

CDG Solution 3000™ contains 3000 ppm (3000 mg/liter) chlorine dioxide (available chlorine 0.85 %)

**KEEP OUT OF REACH OF CHILDREN**  
**DANGER POISON**  
**[Skull & Crossbones]**

FIRST AID	
<b>If swallowed</b>	• Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
<b>If on skin or clothing</b>	• Remove contaminated clothing. • Rinse exposed skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor immediately for treatment advice.
<b>If inhaled</b>	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance then give artificial respiration. • Call a poison control center or doctor for further treatment advice.
<b>If in eyes</b>	• 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 immediately for treatment advice.
<i>NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.</i>	
<b>HOTLINE NUMBERS</b> For chemical spill information call CHEMTREC: 1-800-424-9300 For emergency medical information, call the National Pesticide Information Center at 1-800-858-7378.	

EPA Reg. No.: 75757-2  
EPA Est. No.: 75757-PA-1

**Manufactured for:**  
CDG Environmental, LLC  
205 Webster Street  
Bethlehem, PA 18015

Net Contents: XXXXX

Patent Pending

Lot# XXXX

Date: XXXXXXX

Expiry Date: XXXX

CDG 3000 (EPA Reg. No. 75757-2)  
Label version (4) dated July 7, 2011  
Page 1 of 12

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

AUG - 9 2011

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act as  
amended, for the pesticide,  
registered under EPA Reg. No. 75757-2

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## PRECAUTIONARY STATEMENTS

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS** **Danger** **Poison: Corrosive:** Causes irreversible eye injury and skin burns. Do not get in eyes or on clothing. Do not breathe vapor or mist. Wear coveralls worn over long sleeve shirt, long pants, socks, chemical resistant footwear, chemical-resistant gloves, goggles, face shield, or shielded safety glasses and a respirator with an organic vapor removing cartridge with a prefilter approved for pesticides (MSHA / NIOSH approval number prefix TC-23C) or a canister approved for pesticides (MSHA / NIOSH approval number prefix TC-14G), or a NIOSH-approved respirator with an organic vapor (OV) cartridge or canister with any N, R, P, or HE prefilter. Fatal if swallowed, absorbed through skin, or inhaled.

Wash thoroughly with soap and water after handling, and before eating, drinking, chewing gum, using tobacco, or using the restroom. Remove and wash contaminated clothing before reuse.

Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

**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.

### STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE:** Keep containers tightly closed when not in use. Store in original container in a dark, dry place away from extremes of heat or freezing conditions. Do not store with easily oxidizable materials, acids, bases, or combustible materials.

**This product is to be used as directed within 9 months of the manufacture date indicated on the front panel of this label.**

**PESTICIDE DISPOSAL:** Pesticide wastes are acutely hazardous. Improper disposal of pesticide, prepared solutions, or rinsate is a violation of Federal law. If wastes cannot be disposed of according to label directions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative of your nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. [For product 5 gallons of less] 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 with 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. [For product containers greater than 5 gallons] Triple rinse as follows: Empty 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 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 puncture and dispose of in a sanitary landfill or by incineration, or if allowed by local and State authorities, by

### DIRECTION FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

*CDG Solution 3000* is a chlorine dioxide product designed to purify water which has previously been treated in accordance with the Safe Drinking Water Act (SDWA) including: potable water and cooling water in hospitals & healthcare facilities, nursing homes, hotels, commercial office buildings, government buildings, residential buildings, and ships; industrial process water; food processing water; livestock drinking water. *CDG Solution 3000* also is designed to control slime in potable water systems, process water systems, and cooling towers. Pathogenic

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organisms controlled include bacteria and viruses set forth in USEPA *Guide Standard Protocol for the Purification of Water* (1987), i.e., *Klebsiella terrigena*, Poliovirus and Rotavirus.

In preliminary laboratory tests, *CDG Solution 3000* also has been shown to inactivate pure cultures of *Legionella* bacteria. However, the ability of *CDG Solution 3000* to control the growth of, or inactivate *Legionella* bacteria in institutional drinking water systems, process water systems, cooling water systems, or other operating environments in which the water may be exposed to UV light, organic material, other microbial contamination and aeration, has not been documented. These preliminary findings also do not address the problem of long-term preventative maintenance of the drinking water systems, cooling water systems, process water systems and other systems for which application of this product is intended.

**Carefully read and follow the instructions for the *CDG Solution 3000* dosing equipment provided by the manufacturer or its authorized agent.**

*CDG Solution 3000* is intended for use in water systems which use as their source treated municipal water including:

- Hospitals
- Nursing homes
- Schools & public buildings
- Office Buildings
- Hotels
- Residential Buildings
- Animal facilities
- Food processing plants
- Beverage production facilities

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

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#### **Agricultural Premises and Equipment**

##### **TREATMENT OF WATER FOR ANIMAL CONSUMPTION**

**(For use to treat water for human consumption, see specific directions.)**

Add *CDG Solution 3000* to the water at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio 600:1).

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

##### **TREATMENT OF AGRICULTURAL STORAGE FACILITIES**

Before treatment, all vehicles (containers, trailers, rail cars, vessels) must be cleaned with water to remove debris and dirt. Add *CDG Solution 3000* to water at a dose of 300 ppm (300.0 mg/liter) chlorine dioxide (a dilution ratio 10:1). Pour 2.5 quarts of diluted *CDG Solution 3000* into a foaming wand tank capable of delivering 4-6 gallons of water per minute. Allow surfaces to remain wet for at least 10 minutes. The diluted *CDG Solution 3000* may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

##### **DISINFECTION OF ANIMAL CONFINEMENT FACILITIES**

- 1) Remove all animals and feed from premises such as poultry houses, swine pens, calf barns and kennels.
- 2) Remove all litter and manure from premises of facilities.
- 3) Empty all troughs, racks and other feeding equipment/watering appliances.
- 4) Thoroughly clean all surfaces with soap or detergent and rinse with water.
- 5) Add *CDG Solution 3000* to water at a dose of 300-500 ppm (300 - 500 mg/liter) chlorine dioxide (a dilution ratio 10:1 - 6:1).
- 6) Using a commercial sprayer, saturate all surfaces with the diluted *CDG Solution 3000*. Allow surfaces to remain wet for at least 10 minutes. Immerse all halters, ropes and other types of equipment used in handling and restraining animals as well as forks, shovels and scrapers used for removing litter and manure. The

diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

- 7) After treatment, ventilate buildings, coops or other enclosed spaces and allow to air dry.
- 8) Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before reuse.

#### TREATMENT OF ANIMAL TRANSPORT VEHICLES

Before treatment, all vehicles must be cleaned with water to remove debris and dirt. Add CDG Solution 3000 to water at a dose of 300.0 ppm (300.0 mg/liter) chlorine dioxide (a dilution ratio 10:1). Pour 1 quart of diluted CDG Solution 3000 into a foaming wand tank capable of delivering 4-6 gallons of water per minute. Allow surfaces to remain wet for at least 10 minutes. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### TREATMENT FOR CONTROL OF ODOR AND SLIME FORMING BACTERIA IN ANIMAL CONFINEMENT FACILITIES

Remove all litter and manure from premises and thoroughly clean all surfaces with soap or detergent and rinse with clean water. Add CDG Solution 3000 to water at a dose of 1000 ppm chlorine dioxide (a dilution ratio 3:1). Using a commercial sprayer, saturate all surfaces with the diluted CDG Solution 3000. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### SHOE BATH USE

Add CDG Solution 3000 to shoe bath water to make the chlorine dioxide 1 -5 ppm solution (dilution ratio of 3000:1 – 600:1) of shoe bath water. Change shoe bath solution daily or when solution appears soiled.

#### DISINFECTION OF POULTRY CHILLER WATER/CARCASS SPRAY

When used in a prechiller or chiller tank, add CDG Solution 3000 to water at a dose of 0.5 – 3 ppm (0.5 – 3.0 mg/liter) chlorine dioxide (a dilution ratio 6000:1 – 1000:1). ~~When used as a carcass spray or dip solution, add CDG Solution 3000 to water at a dose of 70.0 ppm (70.0 mg/liter) chlorine dioxide (a dilution ratio of 40:1).~~

When used as a carcass spray or dip solution, add CDG Solution 3000 to water at a maximum dose rate of 10 ppm (10.0 mg/liter) (a dilution rate of 300:1) to maintain a maximum residual of 3.0 ppm (3.0 mg/liter) chlorine dioxide (a dilution ratio of 1000:1). Adjust feed dosage to maintain 3 ppm (3.0 mg/liter) residual measured immediately following the carcass spray or in the dip solution.

#### TREATMENT OF POULTRY DRINKING WATER

If the water supply has heavy contamination, prepare a solution of 5.0 ppm available chlorine dioxide by adding CDG Solution 3000 to water at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio 600:1). Allow 15 minutes before delivery to poultry. After 24 hours, the addition rate can be reduced to 1 ppm chlorine dioxide by adding CDG Solution 3000 to water at a dose of 1 mg/liter chlorine dioxide (a dilution ratio 3000:1) as long as terminal concentration at end of waterline is not less than 0.5 ppm. Treat water continuously from day one. Remove CDG Solution 3000 from drinking water 24 hours prior to vaccination, then resume treatment 24 hours after vaccinations.

#### TREATMENT OF EGG ROOM

When using a high pressure sprayer, add CDG Solution 3000 to water at a dose of 20.0 ppm (20.0 mg/liter) chlorine dioxide (a dilution ratio 150:1) as a prewash to remove gross filth or heavy soil. If it is necessary to clean the floors by mopping, add CDG Solution 3000 to water at a dose of 400 ppm (400 mg/liter) chlorine dioxide (a dilution ratio 7.5:1). Allow CDG Solution 3000 to dry on floor. Fog the entire area with a 1000 ppm solution of chlorine dioxide (1 gallon CDG Solution 3000 per 3 gallons water) for 5 minutes, being sure to cover walls, ceiling, floors, work tables and

benches. Allow to dry for 1 hour or overnight, if possible, before resuming operations.

Washing and fogging operations should be conducted once a week, or more frequently in cases of heavy contamination during operations.

A shoe or boot bath of 1000 ppm chlorine dioxide (a dilution ratio of 3:1) is placed at the entrance to the egg room. Doors to the room should be kept closed at all times. A glove dip, or rinse tank or basin, containing 50 ppm chlorine dioxide (a dilution ratio of 60:1) is used on entering and exiting the room.

Both the shoe and boot bath and glove dip should be replaced daily, or sooner if traffic is heavy.

Humidifier water is treated with 40 ppm chlorine dioxide (a dilution ratio of 75:1) to prevent the build-up and airborne spread of odor-causing microorganisms.

Provide 20 ppm chlorine dioxide (a dilution ratio of 150:1) to the water supply in the egg washing machine.

#### TREATMENT OF HATCHING ROOM

- 1) As soon as chicks are separated from Hatch, remove all trash containers with eggshells, down, etc from the hatching area.
- 2) Remove all poultry and feeds from premises, trucks, coops and crates.
- 3) Remove all litter and droppings from floors, walls and surfaces of facilities occupied or traversed by poultry.
- 4) Empty all troughs, racks and other feeding and watering appliances.
- 5) Thoroughly clean all surfaces with soap or detergent and rinse with water.
- 6) Fog the entire area with a 1000 ppm solution of chlorine dioxide (a dilution ratio of 3:1). Allow a 10 minute contact time.
- 7) After treatment, ventilate buildings, coops or other enclosed spaces. Do not house poultry or employ equipment until treatment has been absorbed, set or dried.
- 8) Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before reuse.
- 9) All workers in this area should use a hand dip or rinse containing 50 ppm chlorine dioxide (a dilution ratio of 60:1)

#### TREATMENT OF INCUBATOR ROOM

Remove gross filth or soil with a high pressure water wash. Spray or fog the area with 1,000 ppm chlorine dioxide once a week for 5 minutes. Wet all surfaces and allow to dry. The floors should be mopped daily with a solution containing 400 ppm (400 mg/liter) chlorine dioxide (a dilution ratio 7.5:1). Allow CDG Solution 3000 to dry on floor. A shoe or boot bath of 1000 ppm chlorine dioxide (1 gallon CDG Solution 3000 per 3 gallons water) (3:1 ratio) is placed at all entrance to the incubator room.

Humidifier water is treated with 20 ppm chlorine dioxide (a dilution ratio of 150:1) or air filters can be sprayed with 100 ppm chlorine dioxide (a dilution ratio of 30:1) to reduce airborne bacterial contamination.

- 1) Each time eggs are removed from the incubator, use a glove dip at 50 ppm chlorine dioxide (a dilution ratio of 60:1) followed by a spray of 1000 ppm chlorine dioxide (a dilution ratio of 3:1) on eggs from a spray bottle.

Where containers are used to discard bad eggs, use a 1000 ppm solution of chlorine dioxide (a dilution ratio of 3:1) to control odors and bacterial contamination.

The doors to the incubator room should be kept closed as much as possible to avoid airborne contamination.

#### TREATMENT OF TRAY WASHING ROOM AND LOADING PLATFORM

Close all doors in the tray washing room to avoid contamination of other hatchery operations. Discard all chick downs, egg shells, and cast-off chicks into the trash barrels and transfer the covered containers to the loading platform for disposal.

Wash the trays, carriages and other working equipment in a tray washing machine with 300-500 psi water to remove gross filth and soil.

As a final rinse in the tray washing machine, use a solution containing 20 ppm chlorine dioxide (1 oz. CDG Solution 3000 per 127 oz water) in high pressure water. Allow the trays, carriers and other working equipment to air dry. The walls, floors and carrying stands must also be treated with the same solution. Allow the equipment to air dry. Hold the treated equipment in a closed area for reuse.

Entrance and exit from the tray washing room must be through a foot rinse containing a 1,000 ppm solution of chlorine dioxide (1 gallon CDG Solution 3000 per 3 gallons water). The rinse must be at least 1/2 inch deep and should be changed daily unless traffic is heavy.

After use, the tray washing room is washed with high pressure water to remove gross filth and soil. Fog the entire area with a 1000 ppm solution of chlorine dioxide (a dilution ratio of 3:1) for 15 minutes and allow to air dry. This treatment is repeated after each use of the tray wash room.

The loading platform is washed to remove gross filth and soil. The trash containers are washed after discarding the contents to remove gross filth and soil and then sprayed with a 1000 ppm solution of chlorine dioxide (a dilution ratio of 3:1) and stored.

#### TREATMENT OF CHICK ROOM, CHICK GRADING BOX AND SEXING ROOM

- 1) Remove all poultry and feeds from premises, trucks, coops and crates.
- 2) Remove all litter and droppings from floors, walls and surfaces of facilities occupied or traversed by poultry.
- 3) Empty all troughs, racks and other feeding and watering appliances.
- 4) Thoroughly clean all surfaces with soap or detergent and rinse with water.
- 5) Spray or fog the entire area for 5 minutes with a dose of 1000 ppm chlorine dioxide (1 gallon CDG Solution 3000 per 3 gallons water). Allow a 10 minute contact time.
- 6) After treatment, ventilate buildings, coops or other enclosed spaces. Do not house poultry or employ equipment until treatment has been absorbed, set or dried.
- 7) Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before reuse.
- 8) All workers in this area should use a hand dip or rinse containing 50 ppm chlorine dioxide (1 gallon CDG Solution 3000 per 60 gallons water)
- 9) Use a spray bottle containing a solution of 1 gallon CDG Solution 3000 per 3 gallons water (1000 ppm chlorine dioxide) on hands, wire mesh and in empty chick boxes to control contamination and odors from litter.
- 10) Clean floor by mopping daily with a solution of 400 ppm (400 mg/liter) chlorine dioxide (a dilution ratio 7.5:1). Allow CDG Solution 3000 to air dry on floor.

#### HAND DIP FOR POULTRY WORKERS

Add CDG Solution 3000 to hand dip or rinse water to make the chlorine dioxide 50 ppm chlorine dioxide (1 gallon CDG Solution 3000 per 60 gallons water) of hand dip water. Change the solution daily or when solution appears soiled.

#### DISINFECTION, ALGAECIDE AND FUNGICIDE FOR HORTICULTURAL AND GREENHOUSE APPLICATIONS

For horticultural applications, this product may be used to disinfect (250 ppm for 10 minutes – a dilution ratio of 12:1) to treat, control and prevent funguses, bacteria, and algae, slimes, rusts, leaf spot and mildews; and to remove slimes (50 ppm for 12 hours continuous treatment- dilution ratio of 60:1) & inhibit reemergence (0.25 ppm continuous treatment- dilution rate of 12000:1) in irrigation and other non-potable water systems.

#### TREATMENT OF HORTICULTURE WORK AREA AND BENCHES

Remove all gross filth and soil and thoroughly clean all surfaces with soap or detergent and rinse with clean water. Add CDG Solution 3000 to water to make the chlorine dioxide 250 ppm (dilution ratio of 12:1). Using a commercial

sprayer, saturate all surfaces with the diluted CDG Solution 3000. Allow surfaces to remain wet for at least 10 minutes. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### TREATMENT OF HORTICULTURE POTS AND FLATS

Remove all gross filth and soil and thoroughly clean all surfaces with soap or detergent and rinse with clean water. Add CDG Solution 3000 to water to make the chlorine dioxide 500 ppm (dilution ratio of 6:1). Using a commercial sprayer, saturate all surfaces with the diluted CDG Solution 3000. Allow surfaces to remain wet for at least 10 minutes. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### TREATMENT OF HORTICULTURE CUTTING TOOLS

Remove all gross filth and soil and thoroughly clean all surfaces with soap or detergent and rinse with clean water. Add CDG Solution 3000 to water to make the chlorine dioxide 250 ppm (dilution ratio of 12:1). Immerse tools in diluted CDG Solution 3000 or spray to saturate all surfaces. Allow surfaces to remain wet for at least 10 minutes. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### TREATMENT OF HORTICULTURE BULBS

Add CDG Solution 3000 to water to make the chlorine dioxide 250-500 ppm (dilution ratio of 12:1 – 6:1). Immerse bulbs in diluted CDG Solution 3000 or spray to lightly dampen all bulbs. Allow surfaces to remain wet for at least 10 minutes. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### TREATMENT OF GREENHOUSE GLASS, WALKWAYS AND UNDER BENCH AREAS

Remove all gross filth and soil and thoroughly clean all surfaces with water. Add CDG Solution 3000 to water to make the chlorine dioxide 125-250 ppm (dilution ratio of 24:1 – 12:1). Using a commercial sprayer, saturate all surfaces with the diluted CDG Solution 3000. Allow surfaces to remain wet for at least 10 minutes. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

#### TREATMENT OF EVAPORATIVE COOLERS

Remove gross filth or soil with a water wash. Spray or fog the area with 125-250 ppm chlorine dioxide (dilution ratio of 24:1 – 12:1) for 5 minutes. Wet all surfaces and allow to dry. The floors should be mopped with a solution containing 400 ppm (400 mg/liter) chlorine dioxide (a dilution ratio 7.5:1). Allow CDG Solution 3000 to air dry on floor.

#### TREATMENT OF RETENTION BASINS AND PONDS

Add *CDG Solution 3000* to the water at a dose of 2-5 ppm (2-5 mg/liter) chlorine dioxide (a dilution ratio 1500:1 – 600:1), and circulate or let stand overnight. Drain and rinse with clean water before re-use. To prevent slime growth after initial treatment, add *CDG Solution 3000* to the water at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio of 600:1). Do not use where fish are present.

#### TREATMENT OF DECORATIVE POOLS, FOUNTAINS AND WATER DISPLAYS

Add *CDG Solution 3000* to the water at a dose of 5 -10 ppm (5 -10 mg/liter) chlorine dioxide (a dilution ratio 600:1 – 300:1), and circulate or let stand overnight. Drain and rinse with clean water before re-use. To prevent slime growth after initial treatment, add *CDG Solution 3000* to the water supply at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide

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(a dilution ratio of 600:1). Do not use where fish are present.

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**Commercial, Institutional and Industrial Premises and Equipment**

**GENERAL DISINFECTANT**

This product may be used to disinfect (100 ppm for 10 minutes – a dilution ratio of 30:1) to treat, control and prevent fungi, bacteria, and algae, slimes, and mildews; and to remove slimes (50 ppm for 12 hours continuous treatment- dilution ratio of 60:1) in non-potable water systems.

**DEODORIZATION OF ANIMAL HOLDING ROOMS, SICK ROOMS, MORGUES AND WORK ROOMS**

Thoroughly clean all surfaces before treatment. Add CDG Solution 3000 to water to make the chlorine dioxide 1000 ppm (dilution ratio of 3:1). Spray the diluted CDG Solution 3000 using a suitable spraying device onto walls, ceilings and floors, lightly dampening all surfaces. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution. Allow surfaces to air dry and then ventilate the area. Treat as required.

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**Food Processing Plants, Food –Handling Establishments and Restaurants**

This product can be used to control microbial contamination, slime and odor in food processing waters and to sanitize previously cleaned food contact surfaces.

**SANITIZING SOLUTION FOR FOOD CONTACT SURFACES**

Prior to sanitization, remove all gross food particles and soil by use of a pre-flush, pre-scrape or pre-soak treatment. Prepare a 50 ppm solution of CDG Solution 3000 by using a dilution ratio of 60:1. Using a commercial sprayer, saturate all surfaces with the diluted CDG Solution 3000. Allow surfaces to remain wet for at least 1 minute. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

**SANITIZING SOLUTION FOR NON-FOOD CONTACT SURFACES**

Prior to sanitization, remove all gross food particles and soil. Prepare a 500 ppm solution of CDG Solution 3000 by using a dilution ratio of 6:1. Using a commercial sprayer, saturate all surfaces with the diluted CDG Solution 3000. Allow surfaces to remain wet for at least 1 minute. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

**SANITIZER FOR FOOD-PROCESSING EQUIPMENT IN DAIRIES, BREWERIES AND BOTTLING PLANTS**

Prior to sanitization, remove all gross food particles and soil by use of a pre-flush, pre-scrape or pre-soak treatment. Clean all lines, tanks, or surfaces with a suitable detergent followed by a potable water rinse. Prepare a 500 ppm solution of CDG Solution 3000 by using a dilution ratio of 6:1. Fill, immerse, circulate, wipe or spray the target surface with the food contact sanitizing solution to make sure surfaces are thoroughly wet for at least one minute. Hard to reach in-place equipment, pipes, closed vessels, etc., must be filled with the sanitizing solution to ensure contact with all surfaces. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

Allow the food contact sanitizing solution to drain from all treated surfaces and air dry. DO NOT rinse treated surface. The food contact sanitizing solution may not be reused for sanitizing but may be diluted to 10:1 with water and used for cleaning of walls, floors and drains of the plant.

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## SANITIZER FOR NON-FOOD CONTACT SURFACES IN DAIRIES, BREWERIES AND BOTTLING PLANTS

Prior to sanitization, remove all gross filth from areas to be sanitized and thoroughly clean surfaces with a suitable detergent. Prepare a 500 ppm solution of CDG Solution 3000 by using a dilution ratio of 6:1. Apply the non-food contact sanitizing solution to hard, non-porous surfaces, thoroughly wetting surfaces with a cloth, mop, sponge, sprayer, or immersion. Treated surfaces must remain wet for at least one minute. Wipe dry with a cloth, sponge or mop or allow to air dry. The diluted CDG Solution 3000 may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

Treat as required. Always apply freshly prepared CDG Solution 3000. DO NOT reuse solution.

## ICE MAKING PLANTS AND MACHINERY

Ice making machinery should be disassembled and thoroughly cleaned using a suitable detergent followed by a potable water rinse. Add CDG Solution 3000 to the incoming water line of the ice machine via a chemical feed pump or injector system at a dose of 20 ppm chlorine dioxide (dilution ratio of 150:1).

## CANNING RETORT AND PASTEURIZER COOLING WATER

All tanks, tunnels, conveyor chains, heat exchangers, heat exchange towers, lines, spray bars and nozzles should be thoroughly cleaned, when possible, and completely rinsed using clean, potable water prior to treatment. Add CDG Solution 3000 to water systems, including the cooling or warming tanks or spray systems, towers, lines and all water containing parts of the system dose at start up, 5 ppm chlorine dioxide (dilution ratio of 600:1). To maintain the 5ppm chlorine dioxide concentration in the water system, a timed or electronically controlled chemical feed pump or injector system can be used for additions to the system or for treating the make-up water. Fresh CDG Solution 3000 should be used daily.

## STAINLESS STEEL TRANSFER LINES, HYDROCOOLERS AND PASTEURIZERS

Clean equipment or line thoroughly using a suitable detergent followed by a clean, potable water rinse before treatment. Add CDG Solution 3000 to potable make up water at a dose of 20 ppm chlorine dioxide (dilution ratio of 150:1) for each ten gallons of volume in lines and/or equipment. Mix and fill lines and equipment overnight. Drain and allow to air dry just prior to next run start-up.

## PROCESS WATER FOR VEGETABLE RINSES, TANKS AND LINES

All tanks, flumes and lines must be thoroughly cleaned with a suitable detergent and completely rinsed using clean, potable water prior to treatment. Chill tanks or vegetable rinse tanks may be batch loaded at start-up with a dose of 5 ppm chlorine dioxide (dilution ratio of 600:1 or 600 gallons water per 1 gallon CDG Solution 3000) for use on raw agricultural commodities. Make-up waters should be treated using a chemical feed pump or injector system and applied at the same rate per 25 gallons of potable water. Fresh CDG Solution 3000 should be used daily.

For fruit and vegetables that will be processed (i.e. chopped, sliced, peeled, cooked, canned, pasteurized, homogenized, froze, etc.) the maximum residual chlorine dioxide concentration is 3.0 ppm (dilution ratio of 1000:1).

*Note: Chemical feed pumps and injectors must be chlorine resistant for best operation. Available chlorine dioxide levels should be confirmed using an approved chlorine dioxide test kit.*

## TREATMENT TO EXTEND FRESHNESS AND SHELF LIFE OF FRUITS AND VEGETABLES

- 1) Before treatment, whole fruits and vegetables should be washed and thoroughly rinsed with clean, potable water.
- 2) Add CDG Solution 3000 to water in an immersion tank or sink at a dose of 5 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio of 600:1).
- 3) Immerse the previous cleaned fruit and vegetables and allow them to soak for at least 5 minutes.

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## Human water systems

### TREATMENT OF POTABLE WATER FOR HUMAN CONSUMPTION

For most municipal and other potable water systems, add *CDG Solution 3000* to the water at a dose of up to 2.0 ppm (2.0 mg/L) chlorine dioxide (a dilution ratio 1500:1). **Under US EPA regulations, drinking water intended for human consumption may not contain more than 0.8 ppm (0.8 mg/liter) residual chlorine dioxide no more than 1.0 ppm (1.0 mg/liter) chlorite ion.**

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

### WATER STORAGE SYSTEMS ABOARD AIRCRAFT BOATS, RV'S AND OFF-SHORE OIL RIGS

Add *CDG Solution 3000* to the water at a dose of up to 2.0 ppm (2.0 mg/L) chlorine dioxide (a dilution ratio 1500:1). **Under US EPA regulations, drinking water intended for human consumption may not contain more than 0.8 ppm (0.8 mg/liter) residual chlorine dioxide no more than 1.0 ppm (1.0 mg/liter) chlorite ion.**

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

### MUNICIPAL WELL WATERS

For most municipal water systems, add *CDG Solution 3000* to the water at a dose of up to 1.0 ppm (1.0 mg/L) chlorine dioxide (a dilution ratio 3000:1). **Under US EPA regulations, drinking water intended for human consumption may not contain more than 0.8 ppm (0.8 mg/liter) residual chlorine dioxide no more than 1.0 ppm (1.0 mg/liter) chlorite ion.**

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

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## Industrial Processes and Water Systems

### TREATMENT OF COOLING WATER SYSTEMS TO CONTROL SLIME

Add *CDG Solution 3000* to the water at a dose of 50 ppm (50 mg/liter) chlorine dioxide (a dilution ratio 60:1), and circulate or let stand overnight. Drain and rinse with clean water before re-use. To prevent slime growth after initial treatment, add *CDG Solution 3000* to the water at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio of 600:1).

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

### TREATMENT OF PROCESS WATER SYSTEMS TO CONTROL SLIME

Add *CDG Solution 3000* to the water at a dose of 50 ppm (50 mg/liter) chlorine dioxide (a dilution ratio 60:1), and circulate or let stand overnight. Drain and rinse with clean water before re-use. To prevent slime growth after initial treatment, add *CDG Solution 3000* to the water supply at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio of 600:1).

**Minimum contact time for control of listed pathogenic organisms is 5 minutes.**

### TREATMENT OF FLUME WATERS FOR CONTROL OF SLIME

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Add *CDG Solution 3000* to the water at a dose of 5 ppm (5 mg/liter) chlorine dioxide (a dilution ratio 600:1), and circulate or let stand overnight. Drain and rinse with clean water before re-use. To prevent slime growth after initial treatment, add *CDG Solution 3000* to the water supply at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide (a dilution ratio of 600:1).

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**Residential and Public Access**

**DEODORIZER FOR RESTROOMS/BATHROOMS, REFUSE CONTAINERS, DIAPER PAILS, STORAGE LOCKERS**

Thoroughly clean all surfaces before treatment. Add *CDG Solution 3000* to water to make the chlorine dioxide 50 ppm (dilution ratio of 60:1). Spray the diluted *CDG Solution 3000* using a suitable spraying device onto walls, ceilings, floors, and surfaces, until lightly damp. The diluted *CDG Solution 3000* may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution. Allow surfaces to air dry and then ventilate the area. Treat as required.

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**Swimming Pools**

**TREATMENT OF SWIMMING POOLS**

Add *CDG Solution 3000* to swimming pools waters to make the chlorine dioxide 1 -5 ppm (dilution ratio of 3000:1 – 600:1). Maintain the swimming pool water pH from 7.2 to 7.6.

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**Ventilation Systems**

**TREATMENT OF VENTILATION SYSTEMS**

To treat non-porous hard surfaces for odor causing bacteria associated with ventilation and air conditioning duct work in residential and commercial settings. Prior to inspecting, cleaning, treating or working on a ventilation system or its components, the system must be turned off or disconnected from any part of the system not isolated.

Mechanically clean, vacuum, or blow free of dirt, dust, mold and debris all duct work using a commercial duct cleaning system or service prior to treatment. The air ducts to be treated must be mechanically sound and free of air leaks.

Add *CDG Solution 3000* to the water at a dose of 500 ppm chlorine dioxide (a dilution ratio 6:1). Prepare in a well-ventilated area. The diluted *CDG Solution 3000* may be irritating if inhaled. Always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying this solution.

**Minimum contact time for control of listed pathogenic organisms is 10 minutes.**

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**Prevention of Corrosion and Slime Causing Bacteria in Oil and Gas Wells During Secondary Recovery Operations**

Prepare a 500 ppm stock solution of available chlorine dioxide by diluting each gallon of this product used to 5 gallons of solution with the injection water.

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Proportion 1 part of the above working solution into 150 parts of reinjected acidified (3.0 – 4.0 pH) water. Add CDG Solution 3000 at a rate of 2 ppm chlorine dioxide per 1 ppm H<sub>2</sub>S.

Monitor microbial content of the water and increase or decrease the addition rate of the working solution as necessary.

ENHANCED OIL RECOVERY SYSTEMS:

When used as directed CDG Solution 3000 effectively controls slime-forming and sulfate-reducing bacteria in injection and produced water systems, water disposal systems, and other oilfield water systems. Treat water at critical points in the system such as water or oil storage tanks, surge tanks, oil-water separators, before or after injection pumps, and injection well headers.

HYDRO-TESTING:

Water used to hydro-test pipelines or vessels should contain 100-1000 ppm of CDG Solution 3000, depending on water quality and length of time the equipment will remain idle.

PIPELINE PIGGING AND SCRAPING OPERATIONS

Add CDG Solution 3000 to a slug of water immediately following the scraper (ideally this water volume can be kept to a minimum and contained between the scraper and a trailing pig). Sufficient product should be added to produce a concentration of 100-1000 ppm of CDG Solution 3000 in the water at the discharge point or pig trap depending on the length of the pipeline and the severity of biofouling.

DRILLING, PACKER, COMPLETION, WORK OVER AND FRACTURING FLUIDS:

CDG Solution 3000 should be added to these fluids at a point where uniform mixing will occur. Add 100-1000 ppm of CDG Solution 3000 to a freshly prepared fluid depending on the severity of contamination.

**CONDITIONS OF SALE AND WARRANTY**

CDG Environmental, LLC ("CDG"), its Supplemental Distributors and the Seller warrant that this product conforms to the chemical description on the label and is reasonably fit for the purposes referred to in the Directions for Use.

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