GC 2

Technical Bulletin

Disinfectant/Sanitizer/Tuberculocide/Virucide*
Fungicide/Algaecide/Slimicide/Deodorizer

EPA Registration No. 74986-5 EPA Establishment No. 071441-OH-004 [090569-OH-001]

To activate: See "Directions for Use" on package label

[Room Temperature was effectiveness temperature for each concentration claim]

Use the following number of envelopes to prepare a 500 ppm solution of chlorine dioxide in the indicated volume of water inside a closed container; for activation protocols to reach 800 ppm, product should be immersed into water for a minimum of four hours

For this concentration of chlorine dioxide	In this Volume of Water: Gallons	Liters	Immerse this number of *GC 2* envelopes for at least two (2) hours; [at least four (4) hours for 800 ppm generation]
500 ppm	2.5	10	5
500 ppm	5	20	10
500 ppm	6	24	12
500 ppm	7.5	30	15
500 ppm	10	40	20
800 ppm	-	1.25	1

Note: Verify concentration using Selective Micro® Test Strips. For concentrations above 10 ppm, use Selective Micro® Wide Range test strips; for concentrations of 10ppm or less, use Selective Micro® Low Range test strips.

Remove envelope after product has completely activated and according to product label.
Alternative dilution concentrations to targeted end-use concentrations are listed below.

Alternatively, use the following volumes of water to achieve the desired concentrations of chlorine dioxide inside a closed container:

For this concentration of chlorine dioxide	Immerse the *GC 2* in this amount of clean, potable water for at least two (2) hours; remove after.
100 ppm	10 1iters
100 ppm	2.6 gallons
50 ppm	20 liters
50 ppm	5.2 gallons
20 ppm	50 liters
20 ppm	13.1 gallons
5 ppm	200 liters
5 ppm	52 gallons
0.25 ppm	4,000 liters
0.25 ppm	1,055 gallons

Note: Verify concentration using *Selective Micro® Test Strips*. For concentrations above 10 ppm, use *Selective Micro® Wide Range Test Strips*; for concentrations of 10 ppm or less, use *Selective Micro® Low Range Test Strips*.

Do not remove *GC 2* envelope from container of water prior to 2 hours. [Remove prior to 24 hours.]
Discard the spent *GC 2* envelope and/or mesh bag (follow disposal instructions on package label), and mix solution gently prior to use. Do not reuse *GC 2* envelope.
Check concentration of solution using *Selective Micro® Chlorine Dioxide Test Strips*.
(See box on following page for instructions if check indicates concentration lower than desired.)
Record activation date and concentration on stick-on label and affix to storage container.
Storage: Store unused solution according to "Directions for Use" on package label.

DURING USE (DILUTING, APPLYING, OR WORKING WITH ACTIVATED PRODUCT):

1. **Always work in well-ventilated area and avoid inhaling fumes of activated solution.**
2. **Wear protective gloves if hands will come in contact with activated solution.**
3. **Respiratory protection is not required under the limited exposure conditions of most normal use patterns. However, wear a NIOSH/MSHA-approved respirator under the following conditions:**
   a. **when applying activated solution with a high-pressure sprayer**
   b. **when working with the activated solution for an extended period of time in a closed facility or in a poorly-ventilated area**
   c. **when normal work shift duties entail uninterrupted periods of applying the activated solution with mop, sponge, or sprayer**
   d. **when opening vessel containing stock activated solution (at 500 ppm) generated using GC-series products**
   e. **if OSHA inhalation exposure limits are reached or exceeded (please see MSDS).**
4. **Do not use product in a manner inconsistent with the label.**

IF *TEST STRIPS* INDICATE CONCENTRATION (PPM) LOWER THAN DESIRED:

1. Check expiration date on *Test Strips* container. If expired, then recheck using fresh *Test Strip* from a container that has not reached its expiration date.
2. If the original container has not expired OR if the recheck indicates a lower-than-desired concentration, THEN DO ONE OF THE FOLLOWING:

   2a. If the application solution was prepared directly to the end-concentration (not diluted from a higher concentration), discard the solution and activate a fresh (unused) *GC 2*. Recheck concentration after waiting the prescribed time to activation.

   OR

   2b. If the application solution was prepared by diluting a solution of higher concentration, add small amounts of the higher-concentration solution to the application solution– about 10% of the volume of the application solution at a time–until the *Selective Micro® Chlorine Dioxide Test Strip* indicates the desired concentration. Stir or mix the solution gently after each addition. Use a fresh (unused) *Test Strip* for each test.

RECOMMENDED SPECIFICATIONS FOR CONTAINERS USED WITH *SELECTIVE MICRO* PRODUCTS

FOR USE IN GENERATING OR STORING ACTIVATED SOLUTIONS

- The container should be–or be comparable to–a UN-approved, liquid-resealable containment incorporating a gasket-sealing surface and locking mechanism.
- Construction should be of dark or opaque/UV-blocking (preferred) oxidation-resistant plastic or glass. Some materials recommended include:
  - High Density Polyethylene (HDPE)
  - Polypropylene (PP)
  - Polyethylene Terephthalate (PET) (PETE)
  - Polyvinyl Chloride (PVC)
  - Polycarbonate (PC)
  - Glass (UV-blocking preferred)
  - Gasket materials; silicone, viton or EPDM

  Users without containers comparable to the above may contact Selective Micro Technologies for recommendations or to purchase containers for their applications.

ATCC (OR OTHER) DESIGNATIONS FOR PATHOGENIC ORGANISMS
LISTED ON THE LABELS OF REGISTERED GC PRODUCTS

—Always Consult Label to Verify Concentrations and Contact Times—

Bacteria (disinfection claims) 100 ppm/10-minute contact time

Pseudomonas aeruginosa	ATCC 15442
[Staphylococcus aureus	ATCC 6538]
[Salmonella enterica (choleraesuis)	ATCC 10708]
Methicillin-resistant *Staphylococcus aureus (MRSA)*	ATCC 33592
Vancomycin-resistant *Enterococcus faecalis (VRE*)	ATCC 51299
Candida albicans	ATCC 10231
Trichophyton interdigitale	ATCC 9533
[Listeria monocytogenes	ATCC 19111]
Mycobacterium bovis (TB)	BCG (Organon Teknika Corporation)

***Viruses (virucidal claims at 100 ppm/10-minute contact time)**

Coronavirus	ATCC VR-740, Strain 229E
[Feline Calicivirus	ATCC VR-782, Strain F-9]
Hepatitis A virus	Strain HM-175
Human Immunodeficiency Virus type 1 (*HIV-1*)	Strain HTLV-III_B
Poliovirus-1	ATCC VR-1000, Strain Brunhilde
Rotavirus	Strain WA
Influenza-A virus	ATCC VR-544, Strain Hong Kong
Rhinovirus type 37	ATCC VR-1147, Strain 151-1
Canine Parvovirus	ATCC VR-2017, Strain Cornell
Adenovirus type 5	ATCC VR-5, Strain Adenoid 75
Herpes Simplex virus type 2	ATCC VR-734, Strain G
Vaccinia virus	ATCC VR-119, Strain WR
[Norovirus (*feline calicivirus* surrogate)	ATCC VR-782, Strain F-9]
Pandemic 2009 H1N1 Influenza A virus	Reference *Influenza-A virus* (above)

Bacteria (sanitizer claim for hard, non-porous food contact surfaces) 5 ppm/1-minute contact time

[Staphylococcus aureus	ATCC 6538]
[Escherichia Coli	ATCC 11229]
[Escherichia coli O157:H7	ATCC 43895]
[Salmonella typhimurium (MDRS)	Cl 01005 (University of Maryland)]

Bacteria (sanitizer claim for hard, non-porous non-food contact surfaces) 20 ppm/5-minute contact time

[Staphylococcus aureus	ATCC 6538]
[Klebsiella pneumoniae	ATCC 4352]
[Listeria monocytogenes	ATCC 1911]

Bacteria (disinfection claims) 800 ppm/10-minute contact time

Carbapenem-resistant Enterobacteriaceae: Klebsiella pneumoniae (CRKP)	*ATCC BAA-1705*

A. SANITIZER

FOR HARD, NON-POROUS FOOD CONTACT SURFACES

As a sanitizer for stainless steel and other hard, non-porous food contact surfaces such as tanks, transfer lines and other food processing equipment in food processing plants such as poultry, fish & meat and in restaurants, dairies, beverage and bottling plants, breweries, wineries and commissaries:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Remove all gross food particles and soil prior to sanitizing using a pre-flush, pre-scrape or pre-soak treatment.
3. Clean tank, line or surface thoroughly using a suitable detergent and rinse with clean, potable water before sanitizing.
4. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
5. To apply: spray, mop, sponge or swab surfaces or fill, flush, immerse or circulate in tanks, lines, and equipment, ensuring the target surfaces remain visibly wet for at least one minute. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
6. After sanitizing, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse sanitized surface.
7. Dispose of package and spent envelope according to instructions on package label.

FOR HARD, NON-POROUS, NON-FOOD CONTACT SURFACES

As a sanitizer for non-porous, non-food contact surfaces and equipment such as sealed concrete and sealed, finished wood, backsplashes, bench and counter tops, stainless steel or hard-surface equipment, glazed tile floors, walls, and ceilings:

1. Activate *GC 2* according to “Directions for Use” on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to sanitizing.
3. Prepare a 20 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device (one part 500 ppm solution to 24 parts water).
4. To apply: spray, mop, sponge or swab onto the surfaces to be sanitized, ensuring the target surfaces remains visibly wet for at least five minutes. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After sanitizing, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse sanitized surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

B. DISINFECTANT

To disinfect stainless steel and other hard, non-porous surfaces such as tanks, transfer lines and other food processing equipment in food processing plants such as poultry, fish & meat and in restaurants, dairies, beverage and bottling plants, breweries, wineries and commissaries and to disinfect walls, floors and ceilings:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Remove all gross food particles and soil prior to disinfecting using a pre-flush, pre-scrape or pre-soak treatment.
3. Clean tank, line or surface thoroughly using a suitable detergent and rinse with clean, potable water before disinfecting.
4. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
5. To apply: spray, mop, sponge or swab surfaces or fill, flush, immerse or circulate in tanks, lines, and equipment, ensuring the target surfaces remain visibly wet for at least ten (10) minutes. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
6. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
7. Dispose of package and spent envelope according to instructions on package label.

C. Gram Negative Bactericide Against carbapenem-resistant Enterobacteriaceae: Klebsiella pneumoniae (CRKP) (Not For Use In California)

To disinfect stainless steel and other hard, non-porous surfaces such as bedrails, door handles and to disinfect walls, floors and ceilings:

1. Activate *GC 2* according to "Directions for Use" on pouch label.
2. Remove all organic particles and soil prior to disinfecting
3. Prepare an 800 ppm solution in accordance with instructions above for the activated *GC 2*.
4. To apply: spray surfaces until visibly wet, ensuring the target surfaces remain visibly wet for at least ten (10) minutes. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting allow surfaces or equipment to air dry or wipe with a clean dry cloth or wipe. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of pouch according to instructions on pouch label.

DISINFECTANT USES IN MEDICAL AND DENTAL OFFICES, LABORATORIES, HOSPITALS, CLINICS, MORGUES AND INSTITUTIONS

NOTE: This product is not to be used as a terminal sterilant/high-level disinfectant on any surface or instrument that (1) is introduced directly into the human body, either into or in contact with the blood stream or normally sterile areas of the body or (2) contacts intact mucous membranes but which does not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to pre-clean or decontaminate critical or semi-critical medical devices prior to sterilization or high-level disinfection.

A. To disinfect non-porous, hard surfaces such as stainless steel or hard-surface equipment, glazed tile floors, walls, ceilings, floors, shelves, drawers, door handles, stainless steel cold rooms and walk-in incubators:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
4. Spray, mop or sponge the 100 ppm solution onto surfaces to be disinfected. All surfaces must be visibly wet for at least ten (10) minutes. When spraying disinfectant solution, use an appropriate spraying device. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

B. To disinfect equipment tops, bench tops, biological hoods, incubators, stainless steel equipment and instruments:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
3. Prepare a 100 ppm solution of activated *GC 2* and prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
4. Spray, mop or sponge the 100 ppm solution onto surfaces to be disinfected. All surfaces must be visibly wet for at least ten (10) minutes. When spraying disinfectant solution, use an appropriate spraying device. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

C. To disinfect commercial animal confinement facilities such as swine pens, calf barns and kennels:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Remove all animals and feed from facility to be disinfected.
3. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other structures occupied or traversed by animals.
4. Empty all troughs, racks and other feeding and watering appliances.
5. Prepare a 100 ppm solution of activated *GC 2* in accordance with instructions above OR prepare a 500 ppm solution *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).

FOR GENERAL APPLICATION WITH SPRAYER:

6. With soap or detergent, thoroughly clean all surfaces and rinse with water.
7. Using a commercial sprayer, saturate all surfaces with the solution keeping visibly wet for a period of at least ten (10) minutes. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
8. After treatment, ventilate buildings, coops or other enclosed spaces before reentering. Do not house poultry or employ equipment until treatment has been absorbed, set, or dried.

AS A DISINFECTING SOAK:

6. With soap or detergent, thoroughly clean halters, ropes or other types of equipment used in handling and restraining animals and forks, shovels and scrapers used in removing litter and manure. Rinse with water.
7. Fill container or vat with 100 ppm solution and immerse items for a period of at least ten (10) minutes.
8. Discard solution in sanitary drain or as ordinary non-hazardous waste. Do not reuse solution.
9. Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before reuse.
10. Dispose of package and spent envelope according to instructions on package label.

D. For application in poultry operations:

DISINFECTION TREATMENT OF EGG ROOM (NOT FOR USE IN CALIFORNIA):

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 20 ppm solution of activated *GC 2* directly in accordance with instructions above or prepare a 500 ppm solution *GC 2* and use a 1:25 dilution device or (one part 500 ppm solution to 24 parts water).
3. Spray solution in a high-pressure sprayer as a prewash to remove gross filth or heavy soil. When applying the solution using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
4. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
5. Spray hard non-porous surfaces within the entire area, being sure to cover walls, ceiling, floors, work tables and benches. All hard, non-porous surfaces should be wet for five (5) minutes. Allow surfaces to dry for at least 1 hour (or overnight, if possible) before resuming operations. Vacate the premises during this treatment. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. Washing and spraying operations should be conducted once a week, or more frequently in cases of heavy contamination during operations.
6. Allow treated surfaces to air dry and then ventilate the area. Do not rinse treated surfaces. Do not reuse solution.
7. Prepare and place a shoe bath at the entrance to the egg room for use upon entry. Also, prepare and place a hand/glove dip or rinse at the entrance to the egg room for use upon entering and exiting the room. For instruction in the preparation of shoe baths and hand/glove rinses, please refer to the "Use In Glove Dips And Shoe Baths" section of this document. Replace both the shoe bath and the hand/glove dip daily or when solution is soiled. Keep doors to the room closed at all times to prevent bacterial contamination.
8. Dispose of package(s) and spent envelope(s) according to instructions on package label.

DISINFECTION TREATMENT OF HATCHING ROOM (NOT FOR USE IN CALIFORNIA):

Pre-Treatment

1. Separate chicks from Hatch and remove all poultry and feeds from premises.
2. Remove all trash containers with eggshells, down, etc. from the hatching area.
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. Rinse surfaces with water.

Treatment Process

6. Activate *GC 2* according to "Directions for Use" on package label.
7. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
8. Spray hard non-porous surfaces within the entire area, being sure to cover walls, ceiling, floors, equipment and benches. All hard, non-porous surfaces should be wet for ten (10) minutes. Vacate the premises during this treatment. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
9. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

Post-Treatment

10. After treatment, ventilate buildings, coops or other enclosed spaces. Do not house poultry or employ equipment until treatment has been absorbed, set or dried.
11. Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before use.
12. Please refer to the "Use in Glove Dips and Shoe Baths" section of this document.

DISINFECTION TREATMENT OF INCUBATOR ROOM (NOT FOR USE IN CALIFORNIA):

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Before treatment, spray incubator room with a high-pressure water wash. Remove gross filth or soil from all surfaces.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
4. Spray hard non-porous surfaces within the entire area, being sure to cover walls, ceiling, floors, equipment and benches. All hard, non-porous surfaces should be wet for ten (10) minutes. Vacate the premises during this treatment. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. Treat incubator room in this manner once a week.
5. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water). Mop floors with solution daily.
6. Allow treated surfaces to air dry and then ventilate the area.
7. Prepare and place a shoe bath at the entrance to the egg room for use upon entry. Prepare a hand/glove bath. For instruction in the preparation of shoe baths and hand/glove rinses, please refer to the "Use In Glove Dips And Shoe Baths" section of this document. Replace the shoe bath and the hand/glove dip daily or when a solution is soiled. Keep doors to the room closed at all times to prevent bacterial contamination.
8. Each time eggs are removed from the incubator, submerge eggs in glove dip, then spray with spray bottle. Replace the hand/glove dip daily or when solution is soiled.
9. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not rinse treated surfaces. Do not reuse solution

TREATMENT OF TRAY WASHING ROOM:

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Sanitizing Treatment of Tray Washing Equipment

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Spray the trays, carriages and other working equipment in a tray washing machine with water at a pressure of 300-500 psi to remove gross filth and soil.
3. Prepare a 20 ppm solution of activated *GC 2* or prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device (one part 500 ppm solution to 24 parts water.).
4. Spray the trays, carriages and other working equipment in a tray washing machine with 20 ppm solution for at least 5 minutes.
5. Store treated equipment in a closed area for reuse.

Disinfectant for Tray Washing Room

6. Activate *GC 2* according to "Directions for Use" on package label.
7. 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
8. Spray tray washing room with a high-pressure water wash. Remove gross filth or soil from all surfaces.
9. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
10. Spray hard non-porous surfaces in the tray washing room, being sure to cover walls, ceiling, floors, equipment and benches. All hard, non-porous surfaces should be wet for fifteen (15) minutes. Vacate the premises during this treatment. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. Treat tray washing room in this manner after every use.
11. After treatment, ventilate buildings, coops or other enclosed spaces. Do not re-house equipment until treatment has been absorbed, set or dried. Do not rinse treated surfaces. Do not reuse solution. Keep doors to the room closed at all times to prevent bacterial contamination.
12. Dispose of package(s) and spent envelope(s) according to instructions on package label.

Cleaning the Loading Platform

13. Spray loading platform with a high-pressure water wash to remove gross filth or soil from all surfaces.

14. Scrub loading platform with soap or detergent.
15. Rinse loading platform with water.

DISINFECTION TREATMENT OF CHICK ROOM, CHICK GRADING BOX, AND SEXING ROOM (NOT FOR USE IN CALIFORNIA):

Pre-Treatment

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
3. Remove all poultry and feeds from premises, trucks, coops and crates.
4. Empty all troughs, racks and other feeding and watering appliances.
5. Remove all litter and droppings from floors, walls and surfaces of facilities occupied or traversed by poultry.
6. Thoroughly clean all surfaces with soap or detergent and rinse with water.

Treatment Process

7. Spray the solution onto walls, ceilings, floors, and other hard, non-porous surfaces until surfaces are lightly damp. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. Using a commercial sprayer, saturate all hard, non-porous surfaces. Vacate the premises during this treatment
8. Allow treated surfaces to air dry and then ventilate the area. Do not reuse solution. Do not rinse treated surfaces. Keep doors to the room closed at all times to prevent bacterial contamination.
9. Dispose of package(s) and spent envelope(s) according to instructions on package label.

E. To disinfect drinking fountains, chalkboards, chairs, desks, tabletops, kitchens, dishes, silverware, high chairs, toys, other hard, non-porous surfaces in daycares and schools:

1. Activate *GC 2* according to "Directions For Use" on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
4. Spray, mop or sponge the 100 ppm solution onto surfaces to be disinfected. All surfaces must be visibly wet for at least ten (10) minutes. When spraying disinfectant solution, use an appropriate spraying device. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

F. To Disinfect Display screens, scales and measures, keyboards, CPR dummies, backboards, AEDs, and other hard, non-porous surfaces found in acute care centers, emergency rooms, and ambulances:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution Of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
4. Spray, mop or sponge the 100 ppm solution onto surfaces to be disinfected. All surfaces must be visibly wet for at least ten (10) minutes. When spraying disinfectant solution, use an appropriate spraying device. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

G. To disinfect bleachers, lockers, padded mats, weights and weight benches, balls, exercise equipment and other hard, non-porous surfaces found in training rooms, weight rooms, gymnasiums, and other athletic facilities:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
4. Spray, mop or sponge the 100 ppm solution onto surfaces to be disinfected. All surfaces must be visibly wet for at least ten (10) minutes. When spraying disinfectant solution, use an appropriate spraying device. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

For the sanitization of bottles used to feed calves and other livestock:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Remove any gross food particles and debris from bottle surface prior to sanitizing using a pre-flush, pre-scrape or pre-soak treatment.
3. Clean bottle thoroughly using a suitable detergent and rinse with clean, potable water before sanitizing.
4. Prepare a 5 ppm solution of activated *GC 2* in accordance with instructions above OR prepare a 500 ppm solution of activated *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
5. To apply: spray solution onto surface/inside of bottle. Ensure that the target surfaces remain visibly wet for at least one (1) minute. If applying sanitizer using an existing water supply system, inject the 5 ppm chlorine dioxide solution into the system using a Dosatron® dilution/dispenser, or another dilution/dispensing system. This will sanitize the water system, as well as calf bottles.
6. After sanitizing, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse sanitized surface.
7. Dispose of package and spent envelope according to instructions on package label.

As a sanitizer for stainless steel and other hard, non-porous food contact surfaces such as tanks, transfer lines and other food processing equipment in food processing plants and in restaurants, dairies, beverage and bottling plants, and commissaries:

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Remove all gross food particles and soil prior to sanitizing using a pre-flush, pre-scrape or pre-soak treatment.
3. Clean tank, line or surface thoroughly using a suitable detergent and rinse with clean, potable water before sanitizing.
4. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
5. To apply: spray, mop, sponge or swab surfaces **OR** fill, flush, immerse or circulate in tanks, lines, and equipment, ensuring the target surfaces remain visibly wet for at least one minute. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
6. After sanitizing, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse sanitized surface.
7. Dispose of pouch [container] according to instructions on pouch [container] label.

TO CLEAN, SANITIZE OR DISINFECT SHELL EGGS INTENDED FOR FOOD OR FOOD PRODUCTS

This product will help clean or sanitize or disinfect eggshells

1. Activate *GC 2* according to "Directions for Use" on package label to prepare a solution with the desired concentration between 3 and 100 ppm.

FOR DISINFECTION AT A CONCENTRATION OF 100 PPM (NOT FOR USE IN CALIFORNIA):

2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water). Minimum contact time is 10 minutes.

FOR SANITIZATION AT A CONCENTRATION OF 5.0 PPM (NOT FOR USE IN CALIFORNIA):

2. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water). Minimum contact time is 5 minutes.

[FOR CLEANING TREATMENT AT A CONCENTRATION OF 3.0 PPM:] [THIS IS A CLEANING APPLICATION, NON-PUBLIC HEALTH USE.]

2. Dilute activated *GC 2* until solution reaches a concentration of 3.0 ppm. Monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed. Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration. Minimum contact time is 5 minutes.

FOR TREATMENT AT ALL CONCENTRATIONS:

3. Spray eggs thoroughly with activated solution, making sure that surface area is thoroughly wet. Solution should be equal to or warmer than the eggs, but not to exceed 130° F.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not rinse treated surfaces. Do not reuse solution.

Eggs that have been sanitized with this chlorine dioxide compound may be broken in the manufacture of egg products without a prior potable water rinse. Eggs must be reasonably dry before casing or breaking.

DISINFECTANT FOR BEVERAGE AND WATER SYSTEMS AND LINES

To disinfect lines, holding tanks and other equipment used in fountain drink or other beverage preparation, storage, transfer and dispensing operations or to disinfect the lines and storage tanks of potable water storage systems aboard aircraft, boats and RVs (clean-in-place applications):

Prior to disinfecting, tanks should be cleaned and then flushed thoroughly with clean, potable water.

FOR A TEN (10) MINUTE OR LONGER DISINFECTION

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
3. Fill tank completely with 100 ppm solution (filling the tank completely may require activation of several *GC 2* envelopes). Run solution through transfer lines and appliances until green solution appears at the outlets. Top-off tank with solution. Circulate or let stand in tank and lines for at least ten (10) minutes
4. Drain tanks and lines. Rinse with potable water.
5. Dispose of package and spent envelope according to instructions on package label.

USES IN INDUSTRIAL FLUID LINES AND SYSTEMS

This product can be used in the sanitization treatment of milking equipment and pasteurizers, stainless steel transfer lines, hydrocoolers, and ice-making machinery.

A. Sanitization treatment of milking equipment:

Prior to sanitization, ensure that milking equipment is adequately cleaned according to manufacturer specifications. Milking equipment should be treated within thirty (30) minutes before each milking cycle.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Disassemble from milking equipment all parts that require sanitization by-hand.
3. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
4. Fill basin with solution. Minimum contact time is 5 minutes.
5. Dip parts in solution. Do not rinse.
6. Reattach sanitized parts to milking equipment.
7. Using a dosing pump, cycle 5 ppm solution of activated *GC 2* through pipeline for 5 minutes immediately before milking cycle. Ensure that the temperature of the activated *GC 2* is between 100°F and 110°F.
8. Fully drain solution from pipeline.
9. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse solution.

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B. Sanitization treatment of stainless steel transfer lines, hydrocoolers, and pasteurizers:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a solution of a suitable detergent. Run solution through lines for preliminary cleaning.
3. Run a rinse of potable water through the line.
4. Prepare a 20 ppm solution of activated *GC 2* directly in accordance with instructions OR prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device (one part 500 ppm solution to 24 parts water).
5. Fill lines with solution. Minimum contact time is 5 minutes.
6. Fully drain solution from lines and allow to air dry before next use.
7. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse solution. Do not rinse treated surfaces.

C. Sanitization treatment of ice-making machinery:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Disassemble ice-making machinery.
3. Clean parts using a suitable detergent. Rinse parts with potable water and let air dry. Minimum contact time is 5 minutes. Reassemble machinery.
4. Using a dosing pump, add activated *GC 2* directly in accordance with instructions OR prepare a 500 ppm solution *GC 2* to incoming waterline of ice-making machinery ensuring that any residual chlorine dioxide is at or below 0.8 ppm in accordance with EPA SDWA.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse solution. Do not rinse treated surfaces.

LABORATORY EQUIPMENT SURFACES OF WATER BATHS

This product can be used in the disinfecting treatment of surfaces of water baths meant for use in laboratories.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Disconnect water bath from power source and drain bathwater.

3. Scrub hard, nonporous surfaces of bath with soap or other detergent until visible filth is removed. Rinse hard, nonporous surfaces of bath with potable water. Drain bath once more and allow hard, nonporous surfaces to dry. Drain. Allow to air dry just prior to next run start-up.
4. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
5. Spray or sponge activated solution on hard, nonporous surfaces of bath. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. All surfaces must be visibly wet for at least ten (10) minutes.
6. Allow surfaces to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
7. Dispose of package(s) and spent envelope(s) according to instructions on package label.

SANITIZING FINAL RINSE OF PRE-CLEANED OR NEW RETURNABLE OR NON-RETURNABLE CONTAINERS

This product may be used as a final sanitizing rinse for plastic, glass or metal returnable and non-returnable bottles, cans, caps, kegs, and beverage containers.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Wash bottles, cans or containers with detergent or cleaning solution and rinse with potable water.
3. Prepare a 30 ppm solution by activating *GC 2* by preparing a 500 ppm solution of activated *GC 2* and using a 6:100 dilution device (six parts 500 ppm solution to 94 parts water).

TO ACTIVATE GC-SERIES PRODUCTS DIRECTLY TO 30 PPM INSIDE A CLOSED CONTAINER:

Immerse the *GC 2* in this amount of clean, potable water for at least two (2) hours; remove within 4 hrs.
42 liters (11 gallons)

Note: Verify concentration using Selective Micro® Test Strips. For concentrations above 10 ppm, use Selective Micro® Wide Range test strips; for concentrations of 10 ppm or less, use Selective Micro® Low Range test strips.

4. To apply: rinse interior and exterior surfaces with the 30 ppm solutions by spraying, sponging, swabbing, or swirling, or immersing in a manner that ensures the target surfaces become visibly wet, for a contact time of 1 minute (including drying time). (If applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.)
5. Allow to drain dry.

For a 5 ppm rinse:

1. Activate *GC 2* according to “Directions for Use” on the pouch label.
2. Wash bottles, cans or containers with detergent or cleaning solution and rinse with potable water.
3. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water) to achieve target concentration of 5 ppm.

TO ACTIVATE GC-SERIES PRODUCTS DIRECTLY TO 5 PPM INSIDE A CLOSED CONTAINER:

Immerse the *GC 2* in this amount of clean, potable water for at least two (2) hours; remove within 4 hrs.
200 liters (53 gallons)

Note: Verify concentration using Selective Micro® Test Strips. For concentrations above 10 ppm, use Selective Micro® Wide Range test strips; for concentrations of 10 ppm or less, use Selective Micro® Low Range test strips.

4. To apply: rinse interior and exterior surfaces with the 5 ppm solutions by spraying, sponging, swabbing, or swirling, or immersing in a manner that ensures the target surfaces become visibly wet for a contact time of 1 minute (including drying time). (If applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide).
5. Allow to drain dry.

DISINFECTING, SANITIZING/ANTIMICROBIAL AND GENERAL CLEANING APPLICATIONS IN WINERIES

This product will disinfect, sanitize, and clean winemaking equipment and environmental surfaces in wineries. It is effective against microbes and spoilage organisms on all non-porous surfaces including picking bins, crushers, transfer lines/hoses/pipes, tanks, drains, pumps, presses, de-stemmers, sealed concrete floors and walls, steel cutting boards/surfaces, sumps, valves and tri-clover fittings, pruning shears, and steel wine barrels.

NOTE: 1. For additional information on label applications or to discuss other winery-specific application issues, contact Selective Micro Technologies' service personnel.

2. This product does not produce Trichloroanisol (TCA) or precursor Trichlorophenol (TCP) by chemical reaction in red wine or in cooperage oak, and therefore does not contribute to the off odors associated with the former.

A. Disinfecting and sanitizing applications for winery equipment and environmental surfaces (including all non-porous materials and surfaces, such as transfer hoses and pipes, and other items listed above):

1. Activate *GC 2* according to "Directions for Use" on package label.
1. Disinfecting Applications. For disinfecting applications, prepare a 100 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
   Sanitizing Applications on hard, food-contact surfaces. For sanitizing applications on hard, food-contact surfaces, prepare a 5 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).

Sanitizing Applications on hard, non-food-contact surfaces. For sanitizing applications on hard, non-food-contact surfaces, prepare a 20 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device (one part 500 ppm solution to 24 parts water).

3. Apply to target surfaces with mop, sponge, or spray OR fill, flush, immerse or circulate in tanks, lines and equipment, ensuring surfaces remain visibly wet for the following contact times:
   — Disinfection (100 ppm): 10 minutes
   — Sanitizing hard food-contact surfaces (5 ppm): 1 minute
   — Sanitizing hard non-food contact surfaces (20 ppm): 5 minutes
4. Dispose of package and spent envelope according to instructions on package label.

B. For sanitizing and cleaning tanks and associated connections, pipes, and hoses:

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Place the tank washer in the middle of the tank with the attached hose extending through the racking door. Cover door with plastic tarp.
3. Place all rubber gaskets inside the tank and leave bottom valve open to drain into tub.
   NOTE: Ensure man-door on top of tank is closed and bolted.
4. Place 50 gallons of warm (not hotter than 160°F) water into the sump. To water, add:
   — For tanks not heavily soiled: Add one scoop (about 2 pounds) of caustic (e.g., 270 Xtra)
   — For heavily soiled tanks: Add one scoop (about 2 pounds) of more aggressive caustic (e.g., 231 Xtra)
5. Turn on the pump and start the tank washer, running solution of caustic for about 20 minutes.
6. Check the inside surfaces of tank visually to ensure they are clean; if not, repeat steps 4-5.
7. Rinse the tank with cold water for 5 minutes.
8. Fill the tub with 50 gallons of warm (100°F or lower) water, and add one scoop (about 2 pounds) of citric acid to tub.
9. Add 2 liters of *GC* stock solution (500 ppm) to achieve a 5 ppm concentration in tank.
10. Start the pump and tank washer, and run citric solution for 20 minutes.
11. After 20 minutes, use Selective Micro® Chlorine Dioxide Test Strips to determine concentration of chlorine dioxide. Discard solution if strips indicate less than 5 ppm. (If strips register 5 ppm, then solution can be reused to sanitize another tank.)
12. Drain tank of citric solution, and rinse with cold water for 5 minutes.
13. Restore system to the operating mode.
14. Dispose of package and spent envelope according to instructions on package label.

DISINFECTING, SANITIZING/ANTIMICROBIAL AND GENERAL CLEANING APPLICATIONS IN BREWERIES

This product will disinfect, sanitize, and clean brewing equipment and environmental surfaces in breweries. It is effective against microbes and spoilage organisms on all non-porous surfaces including tanks, bins, transfer lines/hoses/pipes, drains, fittings, pumps, sealed concrete floors and walls, steel surfaces, sumps, and valves.

NOTE: For additional information on label applications or to discuss other brewery-specific application issues, contact Selective Micro Technologies' service personnel.

A. Disinfecting and sanitizing applications for brewery equipment and environmental surfaces (including all non-porous materials and surfaces, such as transfer hoses and pipes, and other items listed above):

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Disinfecting Applications. For disinfecting applications, prepare a 100 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).

Sanitizing Applications on hard, food-contact surfaces. For sanitizing applications on hard, food-contact surfaces, prepare a 5 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
Sanitizing Applications on hard, non-food-contact surfaces. For sanitizing applications on hard, non-food-contact surfaces, prepare a 20 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device (one part 500 ppm solution to 24 parts water).

3. Apply to target surfaces with mop, sponge, or spray **OR** fill, flush, immerse or circulate in tanks, lines and equipment, ensuring surfaces remain visibly wet for the following contact times:
   — Disinfection (100 ppm): 10 minutes
   — Sanitizing hard food-contact surfaces (5 ppm): 1 minute
   — Sanitizing hard non-food contact surfaces (20 ppm): 5 minutes
4. Dispose of package and spent envelope according to instructions on package label.

B. For sanitizing and cleaning tanks and associated transfer lines, hoses, pipes, connections, drains, fittings, and pumps.

Use the below protocol in normal CIP protocol for sanitizing step. Use normal volume of solution.

1. Activate *GC 2* according to "Directions for Use" on package label. Prepare a 5 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
2. Allow solution to run through CIP system for 5-10 minutes. After cycle is finished, use chlorine dioxide test strips to verify the strength of solution. If below 5 ppm, discard solution. If readings show 5 ppm, solution can be used again for sanitizing.

DISINFECTION OF BATHROOMS, SHOWER ROOMS, LOCKER ROOMS, SPAS, AND LAUNDRY ROOMS

To disinfect sinks, toilet bowls, toilet seats, toilet handles, empty baths, showers, changing tables, washers, hair dryers, clothes dryers, hand dryers, sinks, faucets and other hard, non-porous surfaces found in bathrooms, shower rooms, locker rooms, spas, and laundry rooms:

A. Treatment of toilet seats, toilet handles, empty baths, showers, changing tables, washers, hair dryers, clothes dryers, hand dryers sinks, faucets, and other hard, non-porous surfaces:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection. Ensure that all surfaces have adequate time to air dry before applying *GC* Solution.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
4. Spray, mop or sponge the 100 ppm solution onto surfaces to be disinfected. All surfaces must be visibly wet for at least ten (10) minutes. When spraying disinfectant solution, use an appropriate spraying device. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
5. After disinfecting, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse disinfected surfaces.
6. Dispose of package and spent envelope according to instructions on package label.

B. Treatment of toilet bowls:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water). Flush toilet and clean toilet bowl thoroughly with a suitable detergent to ensure that bowl is free of urine and gross filth prior to disinfection.
3. Add *GC 2* to toilet bowl until concentration of chlorine dioxide in toilet water is 100 ppm. Verify concentration using Selective Micro® Test Strips.
4. Stir water gently for one minute. Let water sit for 20 minutes, then flush toilet.
5. Dispose of package and spent envelope according to instructions on package label. Do not reuse solution.

DISINFECTING FLOOR DRAINS

This product can be used in the daily disinfection of floor drains following drain-cleaning processes.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 100 ppm solution of *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device. Fill a dark, oxidation-resistant 5-gallon container completely with the 100ppm solution. Secure lid tightly on container.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label.
4. Remove drain cover.
5. Stopper drain pipe with an object (such as a disposable cup) to allow the drain basin to fill.
6. Pour approximately 1 gallon of the activated *GC 2* into the stopped drain.
7. Reseal container.
8. Allow solution to stand in drain for 10 minutes. If necessary, gently stir solution around drain basin for 1 minute to prevent heavy soil buildup.
9. Remove stopper from drain. Dispose of stopper of in non-food trash location.

DISINFECTING AND SANITIZING IN HORTICULTURAL AND HYDROPONIC SETTINGS

A. To disinfect non-porous hard surfaces, including stainless steel, glazed tile, sealed concrete, and sealed, finished wood used in horticultural applications:

1. Activate *GC 2* according to “Directions for Use” on package label.
2. Pre-clean all surfaces prior to application of disinfectant solution. Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt.
3. Prepare solutions in indicated concentrations and ensure surfaces are wetted and remain visibly wet for the times noted below in the instruction number 6 associated with the desired application.
4. Dispose of package and spent envelope according to directions on package label.

FOR WORK AREAS, BENCHES AND EVAPORATIVE COOLERS

5. Prepare a 100 ppm solution of *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
6. Spray or swab work area and bench surfaces with the 100 ppm solution before each work period and again after each planting is completed. Spray or swab evaporative cooler surfaces, ensuring visible wetness for at least ten (10)

minutes. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.

FOR POTS, FLATS, FLOWER BUCKETS AND CUTTING TOOLS FOR A TEN (10) MINUTE OR LONGER DISINFECTION

5. Prepare a 100 ppm of *GC 2* OR prepare a 500 ppm solution of *GC 2* and dilute by adding one part 500 ppm solution to four parts water.
6. Brush or wash used pots and flats, and then soak in the 100 ppm solution for at least ten (10) minutes before reuse. Soak tools with 100 ppm solution for at least ten (10) minutes.
7. Discard solution in sanitary drain or as ordinary non-hazardous waste. Do not reuse solution.

At end of workday, dry and oil tools.

B. To sanitize work area non-porous (non-food contact) hard surfaces, hard-surface benches, pots, flats, flower buckets and cutting tools:

1. Activate *GC 2* according to "Directions for Use" on package label.
5. Pre-clean all surfaces prior to application of sanitizing solution. Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt.
6. Prepare a 20 ppm solution of *GC 2* or prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device or add one part 500 ppm solution to 24 parts water.
4. Brush or wash used pots and flats then swab or soak in the 20 ppm solution for at least five (5) minutes before reuse. Spray, swab or soak tools with 20 ppm solution for at least five (5) minutes. Spray or swab work area and bench surfaces before each work period and again after each plant is completed.
5. Dispose of package and spent envelope according to instructions on package label. At end of workday, dry and oil tools.

GENERAL USE, NON-PUBLIC HEALTH APPLICATIONS

WATER TREATMENT FOR POULTRY DRINKING WATER AND SURFACES IN TROUGHS OR METERING AND INJECTION SYSTEMS

(NOT FOR USE IN CALIFORNIA)

This product will help control microorganisms in drinking water intended for poultry.

A. For systems that use automatic, on-demand metering/injection systems designed primarily for poultry (i.e., systems employing nipples or drip wells as the final water delivery device/method, usually situated in enclosed or protected structures):

1. Activate *GC 2* according to "Directions for Use" on product label
2. Prepare a stock solution of *GC 2* at a concentration of 500 ppm.
3. If activation vessel is different from feeder tank, transfer stock solution (500 ppm) to feeder tank. To maintain concentration, ensure that feeder tank is covered.

4. Operate system according to standard operating protocol, using a 1:500-1:100 injection device (one part solution to 99 parts water) for a concentration of 1-5 ppm.
5. Using *Selective Micro® Chlorine Dioxide Test Strips*, confirm concentrations of stock solution (500 ppm) and end-use solution up to 5 ppm but not less than an application concentration sufficient to ensure a residual concentration of 0.25 ppm.
6. Dispose of pouch [container] according to instructions on pouch [container] label.

Note: Clean and remove accumulations of organic matter in delivery lines on a regular basis. (See, for example, label and technical bulletin instructions for this product under the heading "Sanitization and General Cleaning Applications for Potable Water Systems")

B. For trough-based systems.

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Prepare a stock solution of *GC 2* at a concentration of 500 ppm.
3. If activation vessel is different from feeder tank, transfer stock solution (500 ppm) to feeder tank. To maintain concentration, ensure that feeder tank is covered.
4. Add chlorine dioxide concentrate at a ratio of 1:500-1:100 to achieve a final use concentration of 1-5 ppm.
5. Using *Selective Micro® Chlorine Dioxide Test Strips*, confirm concentrations of stock solution (500 ppm) and end-use solution up to 5 ppm but not less than an application concentration sufficient to ensure a residual concentration of 0.25 ppm.
6. Dispose of pouch [container] according to instructions on pouch [container] label.

Note: Clean and remove accumulations of organic matter in troughs on a regular basis.

WATER TREATMENT FOR THE DRINKING WATER FOR LIVESTOCK, POULTRY, FUR, AND WOOL-BEARING ANIMALS

(NOT FOR USE IN CALIFORNIA)

This product will help control microorganisms in drinking water intended for livestock, poultry, fur, and wool-bearing animals.

For systems that use automatic, on-demand metering/injection systems designed primarily for livestock, poultry, fur- and wool- bearing animals (i.e., systems employing nipples or drip wells as the final water delivery device/method, usually situated in enclosed or protected structures):

1. Activate *GC 2* according to "Directions for Use" on product label.
2. If activation vessel is different from feeder tank, transfer stock solution (500 ppm) to feeder tank. To maintain concentration, ensure that feeder tank is covered.
3. Operate system according to standard operating protocol, using a 1:100 injection device (one part solution to 99 parts water) for a concentration of 5 ppm.
4. Confirm concentrations of stock solution (500 ppm) and end-use solution up to 5 ppm but not less than an application concentration sufficient to ensure a residual concentration of 0.25 ppm using *Selective Micro® Chlorine Dioxide Test Strips*.
5. Dispose of package and spent envelope according to instructions on package label.

TO CONTROL THE BUILDUP OF SLIME AND ODOR-CAUSING BACTERIA IN BOILER FEED WATERS

1. Activate *GC 2* according to "Directions for Use" on the product label.
2. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water) to achieve target concentration of 5 ppm.
3. Feed water should be treated at a rate of 5 ppm available ClO_2 and may be injected or applied in batch-loads. Feed water storage tanks should be sufficiently sealed to prevent outside contamination and direct sunlight.
4. Spray solution on all hard, nonporous surfaces in vents or ducts. Allow surfaces to dry for at least thirty minutes (or longer if possible). For all spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
5. After treating, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse treated surfaces.
6. Dispose of package(s) and spent envelope(s) according to instructions on package label.

DEODORIZING AND GENERAL CLEANING USES FOR NON-POTABLE WATER APPLICATIONS INVOLVING RECIRCULATING WATER SYSTEMS (E.G., COOLING TOWERS, PAPER MILLS, AND DECORATIVE OR ORNAMENTAL FOUNTAINS)

This product will help remove, control and inhibit reemergence of slimes, algae, bacteria, and other organic buildups in recirculating cooling water systems, including cooling towers and decorative or ornamental fountains. It can be used as a periodic treatment or during continuous operations in deodorizing or treatment applications involving algae, or bacteria.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 500 ppm solution of activated *GC 2* in accordance with label instructions.
3. Where possible, pre-clean surfaces prior to application. Flush tanks or water system with clean water.
4. Apply/add the 500-ppm solution to the tank water or water stream at a point in the system or in a manner which minimizes turbulence and exposure to the air.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label.

AS AN INITIAL OR REMEDIAL TREATMENT FOR RECIRCULATING COOLING WATER SYSTEMS, WATER HOLDING TANKS AND DECORATIVE AND ORNAMENTAL FOUNTAINS

6. For each 1,000 gallons of cooling or fountain water add 10 gallons of the 500 ppm solution to achieve a 5 ppm residual chlorine dioxide level. Circulate water in normal operation of the system.
7. Check residual chlorine dioxide concentration using *Selective Micro® Chlorine Dioxide Test Strips*. If residual chlorine dioxide concentration is below 5 ppm, add additional 500 ppm solution until solution reaches 5 ppm; verify with *Test Strips*.
8. Repeat daily until desired results are achieved.

FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, OR BACTERIA

6. For each 1,000 gallons of cooling or fountain water add 1 gallon of the 500 ppm solution to achieve approximately 0.5 ppm residual chlorine dioxide concentration. Circulate water in normal operation of the system.
7. Check residual chlorine dioxide concentration using *Selective Micro® Chlorine Dioxide Test Strips*. If residual chlorine dioxide concentration falls below 0.1 ppm, add more 500 ppm solution (about 1 gallon of the 500 ppm

solution for each 1,000 gallons of cooling or fountain water) to increase the residual chlorine dioxide concentration to about 0.5 ppm. Verify concentration with *Test Strips*.

INSTRUCTIONS WHEN USING A DOSING PUMP AS AN INITIAL OR REMEDIAL TREATMENT FOR RECIRCULATING COOLING WATER SYSTEMS, WATER HOLDING TANKS AND DECORATIVE AND ORNAMENTAL FOUNTAINS

6. For each 1,000 gallons of cooling or fountain water set the dosing pump to run a sufficient time to deliver approximately 10 gallons of the 500 ppm solution to the system.
7. Check residual chlorine dioxide concentration using *Selective Micro® Chlorine Dioxide Test Strips*. If residual chlorine dioxide concentration is below 5 ppm, add additional 500 ppm solution until solution reaches 5 ppm; verify with *Test Strips*.
8. Repeat daily until desired results are achieved.

INSTRUCTIONS WHEN USING A DOSING PUMP FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, OR BACTERIA

6. Set the dosing pump to achieve a continuous concentration of chlorine dioxide between 0.25 ppm and 0.5 ppm. In order to maintain this concentration and the appropriate dosing, consider the volume of water in the system, half-life (makeup/blowdown rate), evaporative rate and windage loss of the system.
7. Check residual chlorine dioxide concentration using *Selective Micro® Chlorine Dioxide Test Strips.* If residual chlorine dioxide concentration falls below 0.25 ppm, increase the dosage rate.

FOR PERIODIC TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, OR BACTERIA

6. For each 1,000 gallons of cooling or fountain water add 1 gallon of the 500 ppm solution to achieve approximately 0.5 ppm residual chlorine dioxide concentration. Circulate water in normal operation of the system. Check residual chlorine dioxide concentration using *Selective Micro® Chlorine Dioxide Test Strips*.
7. Repeat weekly or on first indications of increased slime, algae or bacteria.

GENERAL CLEANING APPLICATIONS FOR HIGH-PURITY AND OTHER WATER SYSTEMS AND ASSOCIATED MEMBRANES (e.g., REVERSE OSMOSIS (RO) AND ULTRA FILTER (UF) MEMBRANES) (NOT FOR USE IN CALIFORNIA)

This product will clean high-purity and other water distribution systems by eliminating odors, removing organic matter, and reducing the microbial populations in system components, lines, tanks, and associated RO & UF membranes.

This product, when used as directed:

(1) cleans
(2) removes organic matter
(3) reduces biological fouling
(4) eliminates odors
(5) reduces microbial populations

NOTE: 1. Because chlorine dioxide does not ionize and exists as a true gas in aqueous solution, it passes through filtration membranes even at low trans-membrane pressures. This allows both the feed and permeate sides of a membrane to be cleaned simultaneously. Chlorine dioxide's true gaseous state enhances its efficacy and facilitates rapid flush-out from water systems.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 50 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution and use a 1:10 dilution device (one part 500 ppm solution to nine parts water).
3. Make the typical plumbing or valve setting changes used during normal system cleaning cycle.
   a. If applying a 500 ppm solution using a dosing pump set at an injection rate of 10% on the feed line, direct the RO or UF permeate and reject streams to an authorized drain.
   b. If applying a 50 ppm solution directly with a self-priming injection pump, the RO or UF permeate and reject streams can be returned to the vessel containing the 50 ppm solution (closed-loop operation).
4. Bypass or shut off process control settings that, during normal production, would normally shut down the RO or UF unit.
5. Remove or bypass activated carbon cartridges. Turn off (or disable) power to any UV lights. Inject 50 ppm solution. Flow rate should be low enough that little or no solids resting in the system are displaced by the feed.
6. Continue injection until the concentration in the product stream is approximately equal to the concentration in the reject stream (with clear flow meters, the distinctive green color of aqueous chlorine dioxide can be observed). Verify product stream and reject stream concentrations are approximately the same using *Selective Micro® Chlorine Dioxide Test Strips* (High Range).
7. Discontinue injection once concentrations become nearly equal.
8. Allow a minimum 20-minute static soak. If the system were known to have had a high level of biological contamination, use a 60-minute soak and inject additional chlorine dioxide (as above) about 30 minutes into the soaking period. Re-verify approximate equality of product and reject stream concentrations, as above (instruction number 7).
   After appropriate soak time, flush the solution from the RO or UF module:
   a. Drain (remove) chlorine dioxide solution from break tanks or other holding tanks in the system.
   b. Replace the chlorine dioxide solution with potable water.
   c. Monitor the product and reject streams for color until both appear to be clear.
   d. Check the streams using *Selective Micro® Chlorine Dioxide Test Strips* (Low Range) until both streams register concentrations of 1 ppm or lower.
   e. When both streams confirm at concentrations at or below 1 ppm, discontinue flush.
9. Restore system to the operating mode.
10. Dispose of package and spent envelope according to instructions on package label. Do not reuse solution.

DEODORIZATION APPLICATIONS

This product can be used to in the treatment of strong odors in confined spaces.

A. Deodorization of animal holding rooms, sick rooms, morgues, and work rooms:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Thoroughly clean all surfaces before treatment.
3. Deodorization Applications. For deodorization applications, prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water). Spray the solution onto walls, ceilings, floors, and other hard, non-porous surfaces until surfaces are lightly damp. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
4. Allow treated surfaces to air dry and then ventilate the area. Do not reuse solution. Do not rinse treated surfaces.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label.

B. Deodorization of restrooms/bathrooms, refuse containers, diaper pails, and storage lockers:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Thoroughly clean all surfaces before treatment.
3. Deodorization Applications. For deodorization applications, prepare a 50 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:10 dilution device (one part 500 ppm solution to 9 parts water).
4. Spray the solution onto walls, ceilings, floors, and other hard, non-porous surfaces until surfaces are lightly damp. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
5. Allow treated surfaces to air dry and then ventilate the area. Do not reuse solution. Do not rinse treated surfaces.
6. Dispose of package(s) and spent envelope(s) according to instructions on package label.

OIL AND GAS INDUSTRY APPLICATIONS (NOT FOR USE IN CALIFORNIA)

This product can be used in the deodorizing treatment of water used in the hydro testing of pipelines and vessels, pipeline pigging and scraping operations, and treatment of drilling, packer, completion, work over and fracturing fluid.

A. For deodorizing treatment of water used in the hydro testing of pipelines and vessels:

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* until hydro testing water reaches a concentration of 100 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed).
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

B. For cleaning use in pipeline pigging and scraping operations:

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Add activated *GC 2* via a dosing pump to a slug of water immediately following the scraper. Ideally, this water volume can be kept to a minimum and contained between the scrapper and a trailing pig.
3. Add activated solution until the water at the discharge point or pig trap reaches a concentration of 100 ppm chlorine dioxide (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

C. For deodorizing treatment of drilling, packer, completion, work over and fracturing fluids:

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
3. Add activated *GC 2* at a point where uniform mixing of the fluids and the activated solution will occur.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

D. Deodorizing Control in Oil Wells and Petroleum Systems

For use with *GC 2*:

Chlorine Dioxide is effective in the remediation of bacteria and sulfide contamination commonly found in oil field production, injection and disposal fluids. The required dosages will vary with process conditions. Chlorine dioxide may be applied either continuously or intermittently into oil well production water as it is separated from the oil or before it is injected into the well. For continuous feeds, chlorine dioxide may be applied at dosages slightly higher than sulfide's oxidative demand as determined by a demand study. For intermittent treatment, chlorine dioxide should be applied at shock dosages from 100-3000 ppm.

VEHICULAR APPLICATIONS

This product can be used in the deodorizing treatment of vehicle interiors, water used in the washing of vehicles, and transportation, loading, hauling equipment, and other heavy machinery.

A. Deodorizing Treatment Of Vehicle Interiors:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Thoroughly clean all surfaces before treatment.
3. Deodorization Applications. For deodorization applications, prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water). Spray the solution onto walls, ceilings, floors, and other hard, non-porous surfaces until surfaces are lightly damp. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
4. Spray the solution onto walls, ceilings, floors, and other hard, non-porous surfaces until surfaces are lightly damp. For spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
5. Allow treated surfaces to air dry and then ventilate the vehicle. Do not reuse solution. Do not rinse treated surfaces.
6. Dispose of package(s) and spent envelope(s) according to instructions on package label.

B. Deodorizing treatment of transportation, loading, and hauling equipment:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Scrub hard, nonporous surfaces with soap or other detergent until visible filth is removed. Rinse hard, nonporous surfaces with potable water.
3. Deodorizing and General Cleaning Applications. For deodorizing and general cleaning applications, prepare a 100 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
4. Spray all hard, nonporous vehicle surfaces thoroughly. When applying the solution using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. All surfaces must be visibly wet for at least ten (10) minutes. After treating, allow surfaces or equipment to air dry.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse solution. Do not rinse treated surfaces.

DEODORIZING TREATMENT OF VENTILATION SYSTEMS

This product can be used for deodorizing applications during the cleaning of ventilation systems.

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.

1. Activate *GC 2* according to "Directions for Use" on package label.

2. Prepare a 20 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:25 dilution device (one part 500 ppm solution to 24 parts water).
3. Spray solution on all hard, nonporous surfaces in vents or ducts. Allow surfaces to dry for at least thirty minutes (or longer if possible). For all spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide.
4. After treating, allow surfaces or equipment to air dry. Do not reuse solution. Do not rinse treated surfaces.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label.

USE IN GLOVE DIPS AND SHOE BATHS (NOT FOR USE IN CALIFORNIA)

This product can be used to prepare glove dips and shoe/boot baths used for sanitary measures.

A. Preparing glove dips:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
3. Dispose of package(s) and spent envelope(s) according to instructions on package label.
4. Store solution in open container. Remove visible filth from gloves. Dip gloves in solution. Change solution daily or when solution appears soiled.

B. Preparing shoe baths:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
3. Dispose of package(s) and spent envelope(s) according to instructions on package label.
4. Place solution on ground in open container. Remove visible filth from footwear. Dip footwear in solution. Change solution daily or when solution appears soiled.

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

This product can be used in the cleaning and deodorizing treatment of kennels, pounds, stables, pens, pet houses, and cages.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Remove all litter and manure from premises and thoroughly clean all surfaces with a suitable soap or detergent and rinse with clean water.
3. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water).
4. Using activated solution, spray or wipe down all hard, non-porous surfaces. For all spraying applications, wear a NIOSH/MSHA-approved respirator appropriate for use with chlorine dioxide. All surfaces must be visibly wet for at least ten (10) minutes.
5. Allow surfaces to air dry. Do not reuse solution. Do not rinse disinfected surfaces.

6. Dispose of package(s) and spent envelope(s) according to instructions on package label.

DEODORIZING APPLICATIONS IN HUMIDIFIERS

This product can be used to treat humidifier system water tanks.

Prior to treatment, completely clean and rinse all tanks, tunnels, conveyor chains, heat exchangers, heat exchange towers, lines, spray bars and nozzles using potable water.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Empty humidifier water tank and remove filth with a cloth or sponge. Rinse tank with potable water.
3. Prepare a 100 ppm solution of activated *GC 2* directly in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to 4 parts water). Fill basin with solution.
4. Dip parts in activated *GC 2* solution. Do not rinse treated parts. Allow treated surfaces to air dry. Do not reuse solution. Do not rinse treated surfaces.
5. Using a dosing pump, cycle 50 ppm (50 mg/L) solution of activated *GC 2* through pipeline or bulk tank immediately before milking. Circulate solution of activated *GC 2* for 2-3 minutes. Ensure that the temperature of the activated *GC 2* does not fall below 100°F.
6. Dispose of package(s) and spent envelope(s) according to instructions on package label.

Potable Water Treatment

For use with *GC 2*. Activate according to instructions on label:

Chlorine Dioxide is used as an oxidant in drinking water treatment. The required dosages will vary with source water conditions and the degree of contamination present. For most municipal and public potable water systems, a chlorine dioxide residual of up to 0.8 ppm is sufficient to provide adequate treatment. Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.

Wastewater Treatment

For use with *GC 2*. Activate according to instructions on label:

Chlorine dioxide is effective as an oxidant in wastewater treatment. The required dosages will vary with water conditions and the degree of contamination present. For most municipal and other wastewater systems, a chlorine dioxide residual concentration of up to 5 ppm is sufficient to provide adequate treatment. For sulfide odor control, between pH 5-9, a minimum of 5.2 ppm (wt) of chlorine dioxide should be applied to oxidize 1 ppm of sulfide (measured as sulfide ion). For phenol destruction, at pH less than 8, 1.5 ppm chlorine dioxide will oxidize 1 ppm phenol; at pH greater than 10, 3.3-ppm chlorine dioxide will oxidize 1 ppm phenol.

Bacterial Slime Control in Paper Mills (Not For Use In California)

For use with *GC 2*. Activate according to instructions on label:

Chlorine Dioxide generated from sodium chlorite is effective for use in controlling microbiological growth in white paper mill systems. The required dosages will vary with the degree of microbiological and process contamination present. Depending on the specific requirements of the system, sodium chlorite should be applied continuously or intermittently through a chlorine dioxide generating system to achieve a chlorine dioxide residual concentration between 0.1 and 5.0 ppm. Intermittent treatments should be repeated as often as necessary to maintain control.

HORTICULTURAL ALGAECIDE, AND SLIME REMOVER/INHIBITER

Treats/Controls/Inhibits: Algae (*Phormidium boneri*) and ([*Penicillium digitatum], [Botrytis sp.], [Fusarium solani], Pythium aphanidermatum, Pythium irregulare, Fusarium oxysporum f. sp. basilicum (Fob)).'*

NOTE: **Do not use at concentrations higher than those recommended for each application**. When applied directly to plants, seeds, cuttings or flowers as directed, *GC 2* does not cause adverse cosmetic effects, as testing has demonstrated. However, testing has not been performed on EVERY plant species, and users are advised to spot-test *GC 2* before applying it widely.

Active solution may be irritating if breathed. If applying solution inside greenhouse or enclosed area using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide: after treatment, ventilate greenhouse

OPTIONAL DILUTION INSTRUCTIONS FOR HORTICULTURAL SETTINGS: The following dilution chart is consistent with the other dilution instructions contained in this technical bulletin. It is tailored to the typical dilution ratios of 1:5, 1:10 and 1:200 necessary for some horticultural applications. Use this chart, or dilution instructions presented elsewhere, most compatible with available dilution devices.

OPTIONAL DILUTION INSTRUCTIONS DESIGNED FOR DILUTION RATIOS REQUIRED TYPICALLY IN GREENHOUSES AND HORTICULTURAL SETTINGS			
To achieve a final chlorine dioxide concentration of :	Use a single Selective Micro Envelope of this size:	Activated in this many gallons or liters of water:	And apply using a device with an injection ratio of :
100 ppm	*GC 2*	2 liters	1:5
50 ppm	*GC 2*	2 liters	1:10
50 ppm	*GC 2*	20 liters	Undiluted
20 ppm	*GC 2*	50 liters	Undiluted
10 ppm	*GC 2*	100 liters	Undiluted
5 ppm	*GC 2*	200 liters	Undiluted
3 ppm	*GC 2*	33.3 liters	1:10
0.8 ppm	*GC 2*	125 liters	1:10

Note: Verify concentration using Selective Micro® Test Strips. For concentrations above 10 ppm, use Selective Micro® Wide Range test strips; for concentrations of 10 ppm or less, use Selective Micro® Low Range test strips.

As a dip to control and suppress bacteria [(*Erwinia chyrsanthemi*)], algae *(*such as *Phormidium boneri)* and [*(*such as *Penicillium digitatum, Botrytis sp., Fusarium solani)]* on rooted or unrooted cuttings and cut flowers:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 5 ppm solution of *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device or add one part 500 ppm solution to 99 parts water.
3. Briefly dip cuttings or cut flowers in 5 ppm solution, ensuring they remain visibly wet with solution for at least one minute.
4. Dispose of package and spent envelope according to instructions on package label.

To control and suppress bacteria [(*Erwinia chyrsanthemi*)], including algae *(Phormidium boneri)* and [*(Penicillium digitatum, Botrytis sp., Fusarium solani,] Pythium aphanidermatum, Pythium irregulare, Fusarium oxysporum f. sp. Basilicum (Fob))* in seed-bed soil and planting cubes:

1. Activate *GC 2* according to "Directions for Use" on the package label.
2. Prepare a 5 ppm solution of *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device or add one part 500 ppm solution to 99 parts water.
3. Immerse or drench seed-bed soil or planting cubes and allow to remain visibly wet with solution for ten (10) minutes
4. Dispose of package and spent envelope according to instructions on package label.

Soil or planting cubes can be seeded or planted immediately after treatment.

FOR CONTINUOUS TREATMENT TO SUPPRESS BACTERIA AND INHIBIT ALGAE, BIOSLIME, SLIME, AND BACTERIA AT A CONCENTRATION OF 0.8 PPM

1. [Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 3.0 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); [higher chlorine dioxide injection rates, such as 3.0ppm can ensure chlorine dioxide residual of up to 0.8 ppm is sufficient to provide adequate treatment]. Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 3.0 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.]

FOR CONTINUOUS TREATMENT TO SUPPRESS BACTERIA AND INHIBIT ALGAE, BIOSLIME, SLIME, AND BACTERIA AT A CONCENTRATION OF 0.8 PPM

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 0.8ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 0.8 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.

For removing slime and retarding its reemergence; for deodorizing or treatment applications involving algae *(Phormidium boneri)* and [*(Penicillium digitatum, Botrytis sp., Fusarium solani,] Pythium aphanidermatum, Pythium irregulare, Fusarium oxysporum f. sp. Basilicum (Fob))*; and for continuous treatment to inhibit their re-establishment in irrigation systems, flood floors, flooded benches, misting systems, humidification systems, recycled water systems and capillary mats:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Use power sprayer to wash all surfaces to remove loose filth. Scrub surfaces using a suitable soap or detergent to ensure that no filth remains on surfaces.
3. Prepare solutions in concentrations indicated below and ensure surfaces are wetted and remain visibly wet for the times or are applied continuously as noted below.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label.

AS AN INITIAL OR REMEDIAL TREATMENT TO DISINFECT WATER HOLDING TANKS AND IRRIGATION/TRANSFER LINES (CLEAN-IN-PLACE APPLICATION)

5. Flush tank thoroughly with clean water. Activate *GC 2* according to "Directions for Use" on package label.
6. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
7. Fill tank completely. Run 100 ppm solution through irrigation/transfer lines and appliances until green solution appears at the outlets. Top-off tank with solution. Circulate or let stand in tank and lines for at least ten (10) minutes.
8. Drain tanks and lines, flush with clean water, and resume normal operation.

FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA

5. Prepare a 0.25 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:2,000 dilution device or add one part 500 ppm solution to 1,999 parts water.
6. Use the prepared 0.25 ppm solution to operate the water system following normal application procedures.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 0.25 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.

[FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA AT A CONCENTRATION OF 3.0 PPM]

1. [Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to water system until water reaches a concentration of 3.0 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); [higher chlorine dioxide injection rates, such as 3.0 ppm can ensure chlorine dioxide residual of up to 0.8 ppm is sufficient to provide adequate disinfection]. Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 3.0 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.]

FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA AT A CONCENTRATION OF 0.8 PPM

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to water system water reaches a concentration of 0.8 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro®* *Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 0.8 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.

As an algaecide and bactericide for treating, preventing, suppressing and controlling horticultural diseases on hard, non-porous surfaces in commercial greenhouses, garden centers and nurseries:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Pre-clean all non-plant surfaces prior to application of solution. Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose dirt.
3. Prepare solutions in indicated concentrations and ensure all surfaces are wetted and remain visibly wet for the times noted below.
4. Dispose of package and spent envelope according to instructions on package label.

AS AN INITIAL OR REMEDIAL TREATMENT TO KILL ALGAE AND BACTERIA ON HARD NON-POROUS SURFACES ON EQUIPMENT, GREENHOUSE STRUCTURES, GLAZING, PLASTIC, BENCHES, WALKWAYS, FLOORS, WALLS, FAN BLADES, VENTILATION DUCTS, WATERING SYSTEMS, COOLERS AND STORAGE ROOMS

5. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
6. Apply the 5 ppm solution with mop, sponge or sprayer. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
7. Visibly wet all surfaces and ensure the surfaces remain visibly wet for at least one hour.

   Note: Heavy growths of algae or bacteria may require scrubbing to remove dead growth.

AS A WEEKLY PREVENTATIVE TREATMENT TO KILL, CONTROL AND SUPPRESS BACTERIA AND CONTROL AND SUPPRESS ALGAE ON HARD NON-POROUS SURFACES ON EQUIPMENT, GREENHOUSE STRUCTURES, GLAZING, PLASTIC, BENCHES, WALKWAYS, FLOORS, WALLS, FAN BLADES, VENTILATION DUCTS, WATERING SYSTEMS, COOLERS AND STORAGE ROOMS

5. Prepare a 5 ppm solution of activated *GC 2* in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
6. Apply 5 ppm solution with mop, sponge or sprayer. When applying these solutions using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide. Visibly wet all surfaces and ensure the surfaces remain visibly wet for at least one hour (kill/cidal) and at least one minute (suppression).

As a dip to control and suppress bacteria [(*Erwinia chyrsanthemi*)] on cuttings and cut flowers:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
3. Briefly dip cuttings or cut flowers in 5 ppm solution and ensure they remain visibly wet with solution for at least one minute.
4. Dispose of package and spent envelope according to instructions on package label.

To maintain freshness and extend shelf-life for cut flowers:

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 5 ppm solution of *GC 2* in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
3. Unbundle the flowers to preclude bunching, and place in vase on display or in cold storage in the 5 ppm solution of chlorine dioxide. Solution may include 2% sucrose.
4. Refresh solution every 24 hours.
5. Dispose of package and spent envelope according to instructions on package label.

As a drench or spray to control and suppress bacteria, and algae in commercial mushroom growing operations (pre- and post-casing)

(Not For Use In California):

PRE-CASING:

1. Activate *GC 2* according to "Directions for Use" on the package label.
2. Prepare a 0.8 ppm solution of *GC 2* OR prepare a 500 ppm solution of *GC 2* and add 0.20 ounces per gallon.
3. Drench or spray mushroom beds until all mushrooms are visibly wet with solution. When applying these solutions using a prayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide
4. Begin casing mushroom beds.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label.

POST-CASING:

1. Activate *GC 2* according to "Directions for Use" on the package label.
2. Prepare a 0.8 ppm solution of *GC 2* OR prepare a 500 ppm solution of *GC 2* and add 0.2 ounces per gallon.
3. Drench or spray mushroom beds until all mushrooms are visibly wet with solution. When applying these solutions using a sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label.

Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.

APPLICATION IN HYDROPONIC SETTINGS

Treats/Controls/Inhibits: Algae (*Phormidium boneri*) and ([*Penicillium digitatum], [Botrytis sp.], [Fusarium solani], Pythium aphanidermatum, Pythium irregulare, Fusarium oxysporum f. sp. basilicum (Fob)).*

NOTE: Do not use at concentrations higher than those recommended for each application.

Active solution may be irritating if breathed. If applying in enclosed area or greenhouse using a high-pressure sprayer, wear a NIOSH/MSHA-approved respirator appropriate for chlorine dioxide: after treatment, ventilate sprayed area.

OPTIONAL DILUTION INSTRUCTIONS IN HYDROPONIC SETTINGS: The following dilution chart is consistent with the other dilution instructions contained in this technical bulletin. It is tailored to the typical dilution ratios of 1:5, 1:10 and 1:200 necessary for hydroponic applications. Use this chart, or dilution instructions presented elsewhere, most compatible with available dilution devices.

OPTIONAL DILUTION INSTRUCTIONS DESIGNED FOR DILUTION RATIOS REQUIRED TYPICALLY IN HYDROPONIC SETTINGS			
To achieve a final chlorine dioxide concentration of :	Use a single Selective Micro Envelope of this size:	Activated in this many gallons or liters of water:	And apply using a device with an injection ratio of :
100 ppm	*GC 2*	2 liters	1:5
50 ppm	*GC 2*	2 liters	1:10
50 ppm	*GC 2*	20 liters	Undiluted
20 ppm	*GC 2*	50 liters	Undiluted
10 ppm	*GC 2*	100 liters	Undiluted
5 ppm	*GC 2*	200 liters	Undiluted
3 ppm	*GC 2*	33.3 liters	1:10
0.8 ppm	*GC 2*	125 liters	1:10
0.25 ppm	*GC 2*	20 liters	1:200

Note: Verify concentration using Selective Micro® Test Strips. For concentrations above 10 ppm, use Selective Micro® Wide Range test strips; for concentrations of 10 ppm or less, use Selective Micro® Low Range test strips.

To control and suppress bacteria [(*Erwinia chyrsanthemi*)], including algae *(Phormidium boneri)*; [*(Penicillium digitatum, Botrytis sp., Fusarium solani,] Pythium aphanidermatum, Pythium irregulare, Fusarium oxysporum f. sp. Basilicum (Fob))* on ornamentals, edibles in hydroponic gardens

(Not For Use In California):

1. Activate *GC 2* according to "Directions for Use" on the package label.
2. Prepare a 10.0 ppm solution of *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:50 dilution device or add one part 500 ppm solution to 49 parts water.
3. Immerse or ornamentals, edibles. Ensure crops are visibly wet with solution for ten (10) minutes.
4. Dispose of package and spent envelope according to instructions on package label.

AS A DIP, SPRAY, OR DRENCH AT A CONCENTRATION OF 5.0 PPM

1. Activate *GC 2* according to "Directions for Use" on the package label.
2. Prepare a 5 ppm solution of *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:100 dilution device or add one part 500 ppm solution to 99 parts water.
3. Immerse or ornamentals, edibles. Ensure crops are visibly wet with solution for ten (10) minutes.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label.

[FOR CONTINUOUS TREATMENT TO SUPPRESS BACTERIA AND INHIBIT ALGAE, BIOSLIME, SLIME, AND BACTERIA AT A CONCENTRATION OF 3.0 PPM]

1. [Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 3.0 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); [higher chlorine dioxide injection rates, such as 3.0 ppm can ensure chlorine dioxide residual of up to 0.8 ppm is sufficient to provide adequate treatment]. Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro®* *Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 3.0 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.]

FOR CONTINUOUS TREATMENT TO SUPPRESS BACTERIA AND INHIBIT ALGAE, BIOSLIME, SLIME, AND BACTERIA AT A CONCENTRATION OF 0.8 PPM

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 0.8 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro®* *Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 0.8 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.

For removing slime and retarding its reemergence; for deodorizing or applications involving algae *(Phormidium boneri)* and [*(Penicillium digitatum, Botrytis sp., Fusarium solani,] Pythium aphanidermatum, Pythium irregulare, Fusarium oxysporum f. sp. Basilicum (Fob))*; and for continuous treatment to inhibit their re-establishment in irrigation systems, flood floors, flooded benches, misting systems, humidification systems, recycled water systems and capillary mats:

1. Activate *GC 2* according to “Directions for Use” on package label.
2. Pre-clean all surfaces prior to application of deodorizing solution. Sweep and remove all plant debris. Use power sprayer to wash all surfaces to remove loose filth. Scrub surfaces using a suitable soap or detergent to ensure that no filth remains on surfaces.
3. Prepare solutions in concentrations indicated below and ensure surfaces are wetted and remain visibly wet for the times or are applied continuously as noted below.
4. Dispose of package(s) and spent envelope(s) according to instructions on package label.

AS AN INITIAL OR REMEDIAL TREATMENT TO DISINFECT WATER HOLDING TANKS AND IRRIGATION/TRANSFER LINES (CLEAN-IN-PLACE APPLICATION)

1. Flush tank thoroughly with clean water. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 100 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of activated *GC 2* and use a 1:5 dilution device (one part 500 ppm solution to four parts water).
3. Fill tank completely. Run 50 ppm solution through irrigation/transfer lines and appliances until green solution appears at the outlets. Top-off tank with solution. Circulate or let stand in tank and lines for at least ten (10) minutes.
4. Drain tanks and lines, flush with clean water, and resume normal operation.

[FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA AT A CONCENTRATION OF 3.0 PPM]

1. [Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to water system until water reaches a concentration of 3.0 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); higher chlorine dioxide injection rates, such as 3.0 ppm can ensure chlorine dioxide residual of up to 0.8 ppm is sufficient to provide adequate treatment. Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 3.0 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.]

FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA AT A CONCENTRATION OF 0.8 PPM

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 0.8 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 0.8 ppm concentrations at emitter hoses, mist nozzles, and drip tubes.

To maintain freshness and extend shelf-life for cut ornamentals, edibles*, and crops* (*Not For Use In California):

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Prepare a 5 ppm solution of *GC 2* in accordance with instructions above OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).
3. Unbundle the crops to preclude bunching, and submerge crops in the 5 ppm solution or place the crops in cold storage in the 5 ppm solution of chlorine dioxide. Solution may include 2% sucrose.
4. Refresh solution every 24 hours.
5. Dispose of package and spent envelope according to instructions on package label.

TO EXTEND SHELF-LIFE AND FRESHNESS OF FRUITS AND VEGETABLES IN FOOD PROCESSING FACILITIES

This product will reduce concentrations of spoilage microbes on raw agricultural commodities (RACs) intended for commercial food processing.

1. Activate *GC 2* according to "Directions for Use" on the package label.
2. Wash and **thoroughly** rinse fruits and vegetables with clean, potable water.
3. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution of *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water).

4. Apply the 5 ppm solution to fruits and vegetables by: either immersing/dipping in a tank of 5 ppm solution for 1 minute OR using an application-specific sprayer (the industry standard fan or cone spray nozzle pattern) to cover all surfaces evenly with a 5 ppm spray; surfaces should remain visibly wet for 1 minute. Replenish immersion solution at the rate of depletion; verify 5 ppm concentration using *Selective Micro® Chlorine Dioxide Test Strips*. Empty and wash immersion tanks with every shift change.
5. Follow application to fruits and vegetables with a potable water rinse or canning, blanching, or cooking.
6. Dispose of package and spent envelope according to instructions on package label.

PLANT AND CROP APPLICATIONS TO CONTROL SPOILAGE MICROBES IN AGRICULTURAL WATER

[FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA AT A CONCENTRATION OF 3.0 PPM]

1. [Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 3.0 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); [higher chlorine dioxide injection rates, such as 3.0 ppm can ensure chlorine dioxide residual of up to 0.8 ppm is sufficient to provide adequate treatment]. Residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 3.0 ppm concentrations at emitter hoses, mist nozzles, drip tubes, and other point-of-application.]

FOR CONTINUOUS TREATMENT TO INHIBIT THE RE-ESTABLISHMENT OF SLIME, ALGAE, AND BACTERIA AT A CONCENTRATION OF 0.8 PPM

1. Activate *GC 2* according to "Directions for Use" on product label.
2. Using a dosing pump, add activated *GC 2* to watering system until water reaches a concentration of 0.8 ppm (required concentration levels vary according to site-specific conditions—monitor the microbial content of the water and increase or decrease the addition rate of the activated solution as needed); residual disinfectant and disinfection byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.
3. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

NOTE: Use ultra-low-range *Selective Micro® Chlorine Dioxide Test Strips* to verify concentration at downstream production points. Organic loads vary across water supplies, and will influence injection level necessary to ensure 0.8 ppm concentrations at emitter hoses, mist nozzles, drip tubes, and other point-of-application devices.

PLANT AND CROP APPLICATIONS TO CONTROL THE BUILDUP OF SPOILAGE MICROBES IN PROCESS WATERS FOR FRUITS AND VEGETABLES AND ASSOCIATED TANKS, FLUMES, AND LINES

This product will inhibit spoilage microbial growth in water used to process fruits and vegetables.

NOTE: 1. Replacement and replenishment intervals will vary with microbial challenge presented by fruits and vegetables treated. Selective Micro Technologies recommends a beginning concentration of 5 ppm, with adjustments to ensure a residual concentration between 0.25 and 5 ppm depending on microbial challenge and operation-unique factors.

2. Apply chlorine dioxide solution continuously or intermittently to achieve a residual concentration level between 0.25 – 5.0 ppm.

3. Regularly confirm concentration of process water using *Selective Micro® Chlorine Dioxide Test Strips* or other measurement means (e.g., Oxidation Reduction Potential (ORP) metering).

1. At regular intervals or before beginning a shift, clean tanks, flumes, and lines using normal procedures, and follow with potable water rinse. In conditions of severe microbial accumulation (or when slime is visible), it is advisable to treat the thoroughly cleaned system with a treatment before returning the system to normal operation. See *GC's* "Sanitization and General Cleaning Applications for Water Lines and Tanks in Potable Water Systems" for recommendations on cleaning tanks that are contaminated severely.
2. Determine the number of *GC* envelopes necessary based on the capacity of the tank or system, anticipated replenishment/replacement cycle based on expected microbial loads, and specific application method—once-through or recycled. The optimal concentration necessary to ensure a residual concentration of between 0.25 and 5.0 ppm will vary across operations.

   Generate stock 500 ppm external to the tank and meter the stock solution in adequate volume to raise the volumes of process water to the desired concentration via mechanical injection (recommended) or by batch-loading.
   For "recycle" process designs, generate stock 500 ppm solution external to the tank and inject activated solution in sufficient volume to raise the process water to the desired concentration via mechanical injection (recommended) or by batch-loading.

Consult pages 1-2 of this Technical Bulletin for dilution instructions, or scale to application using the table below, which presents, as a starting point, the total volume of stock 5 ppm solution generated using a single package of each product in the GC-series product line. For example, with a 1,000-gallon system capacity, two *GC 2*s would fill the system at 5 ppm — and leave an additional 270 gallons at 5 ppm in reserve.

VOLUME OF 5 PPM SOLUTION USING SINGLE GC-SERIES PRODUCT

GC-Series Product	Volume of Water Specified To Generate 500 ppm Stock Solution	Volume of 5 ppm Solution Created Using a Single GC Envelope	
	Liters	Liters	Gallons[1]
GC 2	2	200	50

[1] Rounded to nearest 5 gallons

Note: Verify concentration using Selective Micro® Test Strips. For concentrations above 10 ppm, use Selective Micro® Wide Range test strips; for concentrations of 10 ppm or less, use Selective Micro® Low Range test strips.

3. Activate *GC 2* according to "Directions for Use" on package label.
4. Prepare a 5 ppm solution of activated *GC 2* OR prepare a 500 ppm solution with *GC 2* and use a 1:100 dilution device (one part 500 ppm solution to 99 parts water) to achieve target concentration of 5 ppm.
5. Verify concentration of process solution using *Selective Micro® Chlorine Dioxide Test Strips* or other means. Adjust concentration by adding additional water if the concentration is above 5 ppm or by adding additional concentrate if below 5 ppm (or below desired concentration between 0.25 and 5.0 ppm).
6. Cover or enclose containers holding solution, and operate normally.
7. Check concentration at regular intervals using test strips or other means to ensure target concentration is maintained. Replenish solution as necessary to maintain target concentration.

8. At desired intervals, drain system, clean as necessary, and refill with freshly-activated solution.
9. Dispose of package and spent envelope according to instructions on package label.

Note: Clean and remove accumulations of organic matter in delivery lines on a regular basis. (See, for example, label and technical bulletin instructions for this product under the heading "Sanitization and General Cleaning Applications for Potable Water Systems")

PLANT AND CROP APPLICATION OF FLUME WATERS FOR CONTROL OF SLIME

This product can be used to treat slime [and other bioslimes] in flume waters.

1. Activate *GC 2* according to "Directions for Use" on package label.
2. Add activated *GC 2* to flume via a dosing pump at a concentration of 50 ppm (50 mg/liter) and let stand overnight or circulate for 10-15 hours.
3. To prevent slime growth after initial treatment, add *GC 2* using a dosing pump to the water at a dose of 5.0 ppm (5.0 mg/liter) chlorine dioxide. Minimum contact time for control of listed pathogenic organisms is 5 minutes.
4. Drain and rinse flume with clean, potable water before putting system back into use.
5. Dispose of package(s) and spent envelope(s) according to instructions on package label. Do not reuse.

Additional Professional Use Sites

Ambulance

Health Club

Public eating places

Warehouse

Club

(Institutional)

Hotel/Motel

Public Facility

Blood Bank

Kennel

Public Places

Wrestling Match

Cafeteria (Kitchen)

Laundromat

Recreational Center

Clinic

Restaurant

College Locker

Commercial Building

Military Installation

Day Care Center

Nursing Home

School (Bus) (Vehicle)

Dental Office

Office Building

Shelter

Patient Room

Pharmacy

Veterinary (Office) (Clinic)

Health Care Facility

Physician's Office

Waiting Room

Additional Hard, non-porous surfaces:

Bathroom Surfaces Examination Tables

Parquet Sinks

Patient Chairs

Bed Frame

Fixtures

Plastic (mattress covers)

Stretchers

Bidet Furniture

Portable Toilets

Table Tops

Brass

Recycling Bins

Telephones

Cabinets

Glazed Ceramic (tile)

Refrigerator Exteriors

Toilet Seats

Ceramic Floor

Glazed Porcelain (tile)

Salad Bar

Sneeze Guard

Tools

Chairs

Laminate (surfaces)

Sealed Granite

Urinals

Chrome

Sealed Marble Vinyl (tile)

Clean up Carts

Linoleum

Sealed Quartz

Washable Walls

Microwave Oven

Wheelchairs

Door Knob

Mirror

(Exterior) Sealed Stone

Sealed Stone Interiors

Outdoor (patio) furniture

Shower Curtain (plastic)

Wrestling Mat

Marketing Claims

- Kills Germs
- Kills bacteria, specified viruses*, bacteria and fungi^
- Spray directly onto surface to be treated
- Easy to use, apply to surface and allow to air dry
- Ideal for commercial kitchens, bathrooms, laundry rooms, and locker rooms
- Kills odor causing bacteria, mold, mildew, and algae caused by flooding, water leaks, storm damage, or excess dampness
- Contains no phosphates
- Dye and Fragrance Free
- Hard Surface Disinfectant
- ClO_2 Generating System
- Formulated for Hospital Use
- No Rinse Formula
- No Rinse Required
- Leaves No Residue
- No Harmful Residue
- Just Add Water
- Selective Micro Technologies Logo

- Questions? Call (855) 256-8299
- Scan for more Info (QR CODE)
- Facebook, You Tube, Twitter Logos
- Patent: 6002466 B2
- See full directions for specific uses and precautionary statements.
- Use as Refill for *GC* (Description) and (Part #), and/or mop bucket, and/or pressure sprayer, and/or pump sprayer.

- *See Page 6, ATCC designation for viruses claimed as disinfection
- ^Kills Athlete's Foot fungi

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Selective Micro Technologies believes the information contained on this Instruction Bulletin is accurate. The suggested procedures are based on experience as of the date of publication. They are not necessarily all-inclusive nor fully adequate in every circumstance. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulations, or rules of insurance requirements.

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