

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION: Causes moderate eye irritation. Harmful if swallowed or absorbed through the skin. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

ENVIRONMENTAL HAZARDS

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

CHEMICAL AND PHYSICAL HAZARDS

Chlorine dioxide is a strong oxidizing agent. Contamination with other materials such as acids, chlorine, organic chemicals, etc. may cause a chemical reaction resulting in evolution of chlorine dioxide and heat. Explosion and/or fire could result. Chlorine dioxide is a poisonous explosive gas. Keep all chemical and foreign materials away from this solution.

STORAGE AND DISPOSAL

DO NOT CONTAMINATE WATER, FOOD OR FEED BY STORAGE OR DISPOSAL.

PESTICIDE STORAGE: Do not store with easily oxidizable materials, acids, reducers, and combustible material. Avoid heat or freezing conditions. Store upright and do not stack drums over two high on pallets or partially filled drums. Use of a drum pump is suggested. Keep drum tightly closed when not withdrawing liquid. In case of spills, dilute with large quantities of water. Do not allow liquid to dry because this could present a fire hazard. Store only in the original container and take care to prevent cross-contamination with other pesticides, fertilizers, food and feed.

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

CONTAINER DISPOSAL: Containers equal to or less than 5 gallons: Non-refillable container. Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Containers over 5 gallons: Non-refillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip back and forth several times. Turn the container over onto its other end and tip back and forth several times. Empty the rinsate into application equipment or mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

EMERGENCY HANDLING: In case of contamination or decomposition, do not rereal container. Isolate in open, well-ventilated area. Flood with large volumes of water. Cool unopened drums in vicinity by water spray.

NOTICE: Seller expressly warrants that the product conforms to its chemical description. There are no warranties associated with the sale of the product either express or implied, including but not limited to the warranties of fitness for a particular purpose or use.

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- Apply the disinfectant use-solution to hard, non-porous surfaces, thoroughly wetting surfaces with a cloth, mop, sponge or sprayer, or by immersion. Treated surfaces must remain wet for 10 minutes. Wipe dry with a cloth, sponge or mop or allow to air dry. Preclean surfaces if heavily soiled.
- For sprayer applications, use a coarse spray device. Spray 6-8 inches from the surface rub with a brush, sponge or cloth. Do not breathe spray. Make sure that the area is thoroughly wet for at least ten (10) minutes. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions.
- After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.

† Use Anthium™ BCD-200 to Control Mold & Mildew and Slime Forming Bacteria on Non-Food Contact Surfaces (Floors, Walls, Ceilings and Drains) in Food-Processing Plants and Food-Handling Establishments

- Before treatment, all soil and gross fill must be removed from areas to be treated and cleaned with detergent followed by a potable water rinse.
- Follow the directions for **Mold & Mildew Use-Solution**: as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Application:** Drench or spray solution on walls, floors, ceilings and surfaces using a suitable watering or spraying device and making sure all surface areas are wet. During application, area must be closed as tightly as possible and sealed. After spraying, the area must be opened and aired for one (1) hour before reapplying. Avoid breathing solution mist by use of an applicable NIOSH/MSHA respirator appropriate for chlorine dioxide. Avoid contact with food or food-contact surfaces. Allow to air dry.
- Repeat application as needed.

This product may be used in accordance with FDA regulations in Title 21 CFR 173.300 and 212 CFR 173.325; Secondary direct food additives permitted in food for human consumption.

Use Anthium™ BCD-200 in Food Processing Plants to Control Odor and Slime Forming Bacteria in Cooling and Warming Waters Such as Canning Retort and Pasteurizer Cooling Water Used to Decrease or Increase Packaged Product Temperature By Immersion in or by Spraying with the Treated Process Waters

- All tanks, tunnels, conveyor chains, heat exchangers, heat exchange towers, lines, spray bars, and nozzles must be thoroughly cleaned when possible, and completely rinsed using clean, potable water prior to treatment.
- Preparation and Application of Use-Solution:** Water systems, including the cooling or warming tanks or spray systems, towers, lines and all water containing parts of the system may be batch loaded at start-up with one part Anthium™ BCD-200 per 4,000 parts potable water (5 ppm available chlorine dioxide). To maintain the 5 ppm available chlorine dioxide in the water system, a timed or electronically controlled chemical feed pump or injector system can be used for additions to the system or for treating the make-up water. Make up new Anthium™ BCD-200 solutions daily. **Preparation and Application of Optional Activated Use-Solution (acid activation):** If heavy use of cooling or warming water or introduction of additional bacteria loads is expected, or if slime buildup is heavy, an additional activation step may be used in preparation of the use-solution. Prepare the activated use-solution in a well-ventilated area and avoid breathing any fumes which may be produced while crystals are dissolving. For each one thousand (1,000) gallons of system water to be treated, measure one quart (0.95 liters) of Anthium™ BCD-200 and pour into a clean plastic container, pail or drum. To this Anthium™ BCD-200 amount, add food grade citric acid of no less than 99% purity, at the rate of 3.3 oz. (95 grams or 0.2 lbs.) of crystals per quart (0.95 liters) of Anthium™ BCD-200. Allow five (5) minutes reaction time for crystals to dissolve. Cooling or warming water systems may be batch loaded at start up using one quart (0.95 liters) of the activated solution per one thousand (1,000) gallons of potable water (5 ppm available chlorine dioxide). Batch or timed additions of the activated solution can be made or an electronically controlled chemical feed pump or injector system can be used for additions of the activated solution to the process water to maintain 5 ppm available chlorine dioxide. Make up new Anthium™ BCD-200 solutions daily.

Note: Chemical feed pumps and injectors must be chlorine resistant for best operation. Confirm levels of available chlorine dioxide by using a chlorine dioxide test kit.

Use of Anthium™ BCD-200 to Sanitize Non-Food Contact Surfaces (Walls, Ceilings, Drains and Floors) in Food Processing Plants and Food-Handling Establishments.

- Before sanitizing, all gross fill must be removed from areas to be sanitized and thoroughly cleaned with a suitable detergent.
- Prepare the **Non-Food Contact Sanitizer Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Apply the sanitizer use-solution to hard, non-porous surfaces, thoroughly wetting surfaces with a cloth, mop, sponge, or sprayer or immersion. Treated surfaces must remain wet for five (5) minutes. Wipe dry with a cloth, sponge or mop or allow to air dry. For heavily soiled surfaces, a pre-cleaning is recommended.
- For sprayer applications, use a coarse spray device. Spray 6 – 8 inches from the surface; rub with a brush, sponge or cloth. Do not breathe spray. Make sure that the area is thoroughly wet for at least five (5) minutes. Active solutions may be irritating if inhaled; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions.
- After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.

ANTHIUM™ BCD-200

2% AQUEOUS STABILIZED CHLORINE DIOXIDE

EPA REG No. 9150-3

EPA EST. No. 10183-MI-05

ACTIVE INGREDIENT:

Chlorine Dioxide2.0%

Other Ingredients98.0%

100%

FIRST AID

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

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

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

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

For 24 hour emergency information on this product, call **Chemtrec at 1-800-424-9300** (US, Canada, Puerto Rico, Virgin Islands) 1-703-527-3887 (All Other Areas)

HOTLINE: You may also contact the National Poison Control Center at 1-800-222-1222 for Emergency Medical Advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.

KEEP OUT OF REACH OF CHILDREN

CAUTION / PRECAUCIÓN

SEE SIDE PANELS FOR ADDITIONAL PRECAUTIONARY STATEMENTS
See attached pamphlet for Directions for Use and Applications



Manufactured for:
INTERNATIONAL DIOXIDE, INC.
40 WHITECAP DRIVE
NORTH KINGSTOWN, RI 02852



Certified to NSF/ANSI 60
Max. Use Level 206 mg/L



DIRECTIONS FOR USE

† *Not approved for use in California*

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

Anthium™ BCD-200 is a specially designed formulation of chlorine dioxide and is a very versatile biocide. It controls microbial contamination in animal research facilities, food-processing and industrial waters, pulp and papermaking processing waters and cutting oils. It also disinfectants environmental surfaces in hospitals and institutions and sanitizes food-contact surfaces. Anthium™ BCD-200 is highly effective against mold and mildew.

Anthium™ BCD-200 delivers a non-corrosive disinfectant and cleaning performance in an economical concentrate.

Anthium™ BCD-200 meets AOAC efficacy standards for hospital disinfectants and food-contact surface sanitizing solutions.

Anthium™ BCD-200 can be used in federally inspected meat and poultry plants as both a disinfectant and food-contact surface sanitizer.

The efficacy of Anthium™ BCD-200 depends on the degree of activation. Unactivated Anthium™ BCD-200 effectively controls microbes in processing waters and mold and mildew. For disinfection and sanitization, Anthium™ BCD-200 must be activated. Read the activation instructions carefully prior to using Anthium™ BCD-200.

Anthium™ BCD-200 can be used to treat hard, non-porous surfaces and water systems in: hospitals, medical and dental offices, food processing facilities, bottling plants, breweries, meat-packing plants, poultry-processing plants, fish-processing plants, food storage areas, institutional kitchens, dairy and poultry farms and production facilities, mushroom production facilities, animal research facilities, agricultural storage facilities (including containers, trailers, rail cars, vessels and bins), animal transport vehicles and equipment, animal confinement and rearing facilities, animal handling facilities, egg processing plants, livestock facilities, hatcheries, hotels, business and office buildings, institutional facilities, public facilities.

Anthium™ BCD-200 is an effective disinfectant against the following bacteria at a 300 ppm activated use-solution of Anthium™ BCD-200 (~ 30 ppm free chlorine dioxide) in 10 minutes in the presence of 5% organic serum.

- Pseudomonas aeruginosa* (*Pseudomonas*)
- Staphylococcus aureus* (*Staph*)
- Salmonella enterica* (*Salmonella*)

Anthium™ BCD-200 is tuberculocidal (effective against *Mycobacterium bovis*, BCG) at a 1200 ppm activated use-solution of Anthium™ BCD-200 (~200 ppm free chlorine dioxide) in 10 minutes at 20 deg. C.

† Anthium™ BCD-200 is an effective virucide against the following viruses at an 800 ppm activated use-solution of Anthium™ BCD-200 (~100 ppm free chlorine dioxide) in 10 minutes, 15 minutes for Canine parvovirus ATCC VR-2017:

- HIV-1 (AIDS Virus) HTLV-III*
- Canine parvovirus ATCC VR-2017*
- Rat coronavirus RCV-SDA-681*
- Mouse hepatitis virus MHV-A59*
- Minute virus of mice MVM-P*
- Parainfluenza virus, Type 1 ATCC VR-105 SENDAI/52*

Anthium™ BCD-200 is an effective sanitizer against *Salmonella typhi* at a 100-200 ppm activated use-solution of Anthium™ BCD-200 in 30 seconds.

† An unactivated use-solution of 1000 ppm of Anthium™ BCD-200 effectively controls mold and mildew in 60 seconds.

Preparation of Anthium™ BCD-200 Use-Solutions

Virucidal Use-Solution*

Prepare an approximate 800 ppm use-solution of Anthium™ BCD-200 (100 ppm of free chlorine dioxide) by adding 1 part of Anthium™ BCD-200 into a clean, plastic pail and then add 5 parts of the 10% acid activator solution. The acid activator can be acetic, citric, phosphoric, sulfuric, hydrochloric, glycolic, or other equivalent acid. Please contact your IDI or authorized representative regarding equivalent acids. Allow 15 minutes for reaction time and for the activator to completely dissolve. Then dilute the activated solution with 20 parts of water.

† Tuberculocidal Use-Solution

Prepare an approximate 1200 ppm use-solution of Anthium™ BCD-200 (200 ppm of free chlorine dioxide) by adding 1 part of Anthium™ BCD-200 into a clean, plastic pail and then add 5 parts of a 10% acid activator solution. The acid activator can be acetic, citric, phosphoric, sulfuric, hydrochloric, glycolic, or other equivalent acid. Please contact your IDI or authorized representative regarding equivalent acids. Allow 60 minutes for reaction time and for the activator to completely dissolve. Then dilute the activated solution with 12 parts of water. Prepare in a well-ventilated area and avoid breathing any fumes that may be produced during activation.

Disinfectant Use-Solution

Prepare an activated 300 ppm use-solution of Anthium™ BCD-200 by using the procedure described below.

Add 1 part Anthium™ BCD-200 to 64 parts water and then adjust the pH of the diluted Anthium™ BCD-200 to 2.6 with acetic, citric, phosphoric, sulfuric, hydrochloric or other equivalent acid. Please contact your IDI or authorized representative regarding equivalent acids. Prepare in a well-ventilated area and avoid breathing any fumes which may be produced during activation.

Alternatively to minimize worker handling, an automated system can also be utilized that will safely activate the concentrate of Anthium™ BCD-200 with any of the various acids listed to deliver the proper pH and safety dilute the material to the 300 ppm working solutions.

Specific Applications

† To Disinfect Walls, Ceilings and Floors and other Environmental Surfaces in Hospitals, Institutions, Veterinary Clinics, and Animal Research Facilities

- Before disinfection, all gross fill must be removed from areas to be disinfected and thoroughly cleaned with a suitable detergent followed by a clean, potable water rinse.
- Prepare the **Disinfectant Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Apply the disinfectant use-solution to hard, non-porous surfaces, thoroughly wetting surfaces with a cloth, mop, sponge or sprayer, or by immersion. Treated surfaces must remain wet for 10 minutes. Wipe dry with a cloth, sponge or mop or allow to air dry. For heavily soiled surfaces, a pre-cleaning is recommended.
- For sprayer applications, use a coarse spray device. Spray 6-8 inches from the surface rub with a brush, sponge or cloth. Do not breathe spray. Make sure that the area is thoroughly wet for at least ten (10) minutes. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions.
- After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.

SPECIAL INSTRUCTIONS FOR CLEANING AND DECONTAMINATION AGAINST HIV OF SURFACES/ OBJECTS SOILED WITH BLOOD/BODY FLUIDS that involve healthcare settings or other settings in which there is an expected likelihood of soiling of inanimate surfaces/objects with blood or body fluids, and in which the surfaces/objects likely to be soiled with blood or body fluids can be associated with the potential for transmission of human immunodeficiency virus type I (HIV-I) (associated with AIDS). Anthium™ BCD-200 destroys HIV-1 (AIDS Virus) HTLV-IIIb on precleaned environmental surfaces/objects previously soiled with blood or other body fluids in ten minutes contact

Personal Protection: The worker must wear protective equipment such as disposable latex or rubber gloves, gowns, masks and eye protection to prevent contamination from items soiled with blood or body fluids.

Cleaning Procedure: Blood and other body fluids must be thoroughly cleaned from surfaces and objects before application of Anthium™ BCD-200

Contact Time: Allow Anthium™ BCD-200 to contact treated items for 10 minutes to kill HIV-1. This time may not control other common types of viruses and bacteria.

Disposal of Infectious Material: Any blood and other body fluids must be autoclaved and disposed of according to federal, state and local regulations for infectious waste disposal.

† To Control Mold & Mildew and Slime Forming Bacteria on Walls, Floors, Ceilings, and Surfaces and other Environmental Surfaces

- Before treatment, all soil and gross fill must be removed from areas to be treated and cleaned with detergent followed by a potable water rinse.
- Follow the directions for **Mold & Mildew Control Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Application:** Drench or spray solution on walls, floors, ceilings and surfaces using a suitable watering or spraying device and making sure all surface areas are wet. During application, area must be closed as tightly as possible and sealed. After spraying, the area must be opened and aired for one (1) hour before reapplying. Avoid breathing solution mist by use of an applicable NIOSH/MSHA respirator appropriate for chlorine dioxide. Avoid contact with food or food-contact surfaces. Allow to air dry.
- Repeat application as needed.

To Disinfect Non-Porous, Hard Surfaces Such as Tile Floors, Walls and Ceilings and Stainless Steel Cold Rooms and Walk-In Incubators

- Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
- Follow the directions for **Disinfectant Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Application of Activated Disinfectant Solution:** Activated solutions may be sprayed, mopped or sponged onto surfaces to be disinfected. All surfaces must be thoroughly wetted for at least ten (10) minutes. When spraying disinfectant solutions, use an appropriate spraying device. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions. After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.

To Sanitize Non-Porous, Non-Food Contact Hard Surfaces Such as Glazed Tile Floors, Walls and Ceilings and Stainless Steel Cold Rooms and Walk-In Incubators

- Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to sanitizing.
- Follow the directions for **Non-Food Contact Sanitizer Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Application of Activated Sanitizer Solution:** Activated solutions may be sprayed, mopped or sponged onto surfaces to be sanitized. All surfaces must be thoroughly wetted for at least five (5) minutes. When spraying disinfectant solutions, use an appropriate spraying device. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions. After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.

† Mold & Mildew Use-Solution

Prepare a 1000 ppm use-solution of Anthium™ BCD-200 by placing 1 part Anthium™ BCD-200 per 20 parts working solution (1,000 ppm available chlorine dioxide) into a clean, plastic pail or drum. Dilute with clean, potable water.

Food-Contact Surface Sanitizing Solution

Prepare a 200 ppm activated use-solution of Anthium™ BCD-200 by using the procedures described below:

Add 1 part Anthium™ BCD-200 to 3 parts water and then activate by adding food-grade citric, phosphoric, acetic or other equivalent food-grade acid (of at least 95% purity) to a pH of 2.6. Please contact your IDI or authorized representative regarding equivalent acids. Agitate for 5 minutes and then allow to stand for 15 minutes. Then dilute 1 part of the activated solution with 24 parts of water.

Alternatively to minimize worker handling, an automated system can also be utilized that will safely activate the concentrate of Anthium™ BCD-200 with any of the various acids listed to deliver the proper pH and safely dilute the material to the 200 ppm working solutions.

Non-Food Contact Surface Sanitizing Solution

Prior to sanitization, remove all gross food particles and soil.

Prepare a 300 ppm activated use-solution of Anthium™ BCD-200:

To 10 gallons of water add 1.9 oz. of Anthium™ BCD-200 and 0.38 oz. of sodium hypochlorite (6%) for a nominal 30 ppm solution. Adjust the pH to between 2.5 and 3.5 with acetic, citric, phosphoric, sulfuric, hydrochloric, glycolic or other suitable acid. Hold the solution for 15 minutes before applying. The efficiency of the conversion can be affected by the quality of the water. Conditions may be adjusted to accommodate the quality of the water.

Prepare a Non-Food Contact Door Foam Sanitizer Solution:

Using a dilution and delivery device, add Anthium™ BCD-200 at the rate of 1.9 oz. per 10 gallons of water, add sodium hypochlorite (6%) at the rate of 0.38 oz. per 10 gallons of water, followed by DuPont Foam Activator at a rate of 0.38 oz. per 10 gallons of water. Hold the solution for 15 minutes before spraying.

APPLICATION INSTRUCTIONS:

FOOD PROCESSING PLANTS, FOOD-HANDLING ESTABLISHMENTS AND RESTAURANTS

Anthium™ BCD-200 can be used to:

- To control microbial contamination, slime and odor in food processing waters.
- To sanitize food processing equipment and surfaces in food processing and food-handling establishments.
- To sanitize food-contact surfaces and utensils in food-handling establishments.
- To disinfectant non-food contact surfaces in food-processing plants, food handling establishments and restaurants.

For use as a terminal food-contact surface sanitizer rinse conforming to 40 CFR 180.940 (b) and (c) Food Contact Surface Sanitizing Solutions.

Specific Applications

Use Anthium™ BCD-200 in Food Processing Plants to Control the Build-Up of Odor and Slime Forming Bacteria in Stainless Steel Transfer Lines and On-Line Equipment Such as Hydrocoolers, Pasteurizers and the Like Overnight and Over Weekends.

- Clean equipment or line thoroughly using a suitable detergent followed by a clean, potable water rinse before treatment.
- Preparation and application of solution:** For each 1000 parts of solution in lines and/or equipment, add 1 part of Anthium™ BCD-200 (20 ppm available chlorine dioxide) to potable make-up water. Mix and fill lines and equipment overnight. Drain and allow to air dry just prior to next run start-up.

Use Anthium™ BCD-200 as a Terminal Sanitizing Rinse for Stainless Steel Tanks, Transfer Lines, On-line Equipment, Recirculating and Clean-in-Place (CIP) systems, Food-contact surfaces and similar surfaces, such as tables, trays, bins, etc., utensils and Food-Processing Equipment in Poultry, Meat, Fish & Meat Processing Plants, Dairies, Bottling Plants, Restaurants, Canneries and Breweries

- Prior to sanitization, remove all gross food particles and soil by use of a pre-flush, pre-scrape or pre-soak treatment. Then clean all lines, tanks, or surfaces with a suitable detergent followed by a potable water rinse.
- Prepare the **Food-Contact Surface Sanitizing Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Fill, immerse, circulate, wipe or spray the target surface with the sanitizing solution making sure the surface area is thoroughly wet for at least one minute. Hard to reach in-place equipment, pipes, closed vessels, etc., must be filled with the sanitizing solution to ensure contact of all surfaces. Use suitable protective breathing apparatus when spraying the solution on external equipment.
- Allow the sanitizing solution to drain from all treated surfaces and air dry. Do not rinse treated surface.
- The above solution may not be reused for sanitizing but may be diluted to 1:5 with water and used for cleaning of walls, floors and drains of the plant.

† Use Anthium™ BCD-200 To Disinfect Non-Food Contact Surfaces (Walls, Ceilings, Drains and Floors) in Food Processing Plants and Food-Handling Establishments.

- Before disinfection, all gross fill must be removed from areas to be disinfected and thoroughly cleaned with a suitable detergent followed by a clean, potable water rinse.
- Prepare the **Disinfectant Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.

† For Use in Dental Offices and Laboratories as a Dental Pumice Disinfectant

- Prepare solution in a well-ventilated area. To make one (1) liter of solution, pour 1.0 fl oz (approximately 25 mL) of Anthium™ BCD-200 into a clean glass or plastic container. To this, add 2 ½ grams (1/2 teaspoon) of citric acid crystals (included) and mix slightly, allowing 5 minutes reaction time and for crystals to dissolve completely. Avoid breathing any fumes which may be produced during activation. Once solution has yellowed, dilute to one (1) liter with clean potable water, for a working solution of 500 ppm activated ClO₂.
- To apply: The working solution can be conveniently contained in a one (1) liter plastic "squeeze" bottle for up to five days. Apply to dry pumice powder exactly as water to produce the pumice slurry. Apply additional working solution as needed to reconstitute dried out slurry to appropriate viscosity. Make fresh Anthium™ BCD-200 solutions, preferably on Monday and discarded on Friday or 5 days after preparation.

† To Control Odor and Slime Forming Bacteria in Water Bath Incubators

- When using Anthium™ BCD-200 in waterbath incubators, always begin with a freshly cleaned and disinfected reservoir.
- Application:** Fill water bath with clean, potable water to near capacity. Add 1 part Anthium™ BCD-200 for each 400 parts water (50 ppm available chlorine dioxide). When water becomes cloudy, discard water and repeat procedure.

As a Virucide* to Kill Animal Viruses (Rat Coronavirus RCV-SDA-681, Mouse Hepatitis Virus MHV-A59, Minute Virus of Mice MVM-P and Canine Parvovirus ATCC VR-2017) Parainfluenza Virus Type 1 ATCC VR-105 SENDAI/52, HIV-1 HTLV-IIIb) on Non-Porous, Hard Surfaces Such as Tile Floors, Walls and Ceilings and Stainless Steel Cold Rooms and Walk-In Incubators.

- Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
- Follow the directions for **Virucidal Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Application of Activated Use-Solution:** Activated solutions may be sprayed, mopped or sponged onto surfaces to be treated. All surfaces must be thoroughly wetted for at least ten (10) minutes (15 minutes contact time for canine parvovirus ATCC VR-2017). When spraying the virucidal solution, use an appropriate spraying device. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions. After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.

To Disinfect Bench Tops, Biological Hoods, Incubators, Stainless Steel Equipment and Instruments.

- Clean all surfaces thoroughly with a suitable detergent and rinse with water prior to disinfection.
- Follow the directions for **Disinfectant Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- Application of Activated Use-Solution:** Activated solutions may be squirted directly onto surfaces from a plastic squeeze bottle or may be used as a soak solution. All contact surfaces must be thoroughly wetted for at least ten (10) minutes. Allow to air dry. Activated solutions of Anthium™ BCD-200 stored in plastic squirt bottles, may be held up to one (1) week before replacement with fresh solution. Soak solutions of Anthium™ BCD-200 must be changed daily.

† To Disinfect Surfaces of Water Baths and Tubs

- Prior to disinfection, thoroughly clean the bath or tub with a suitable detergent and rinse with clean water.
- Follow the directions for **Disinfectant Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- To apply:** Turn circulating motor on and allow the water to circulate for at least (10) minutes. Drain tub completely. After the draining is finished, tub is ready for use.

To Disinfect Water Bath Incubators

- Prior to disinfection, thoroughly clean the reservoir with a suitable detergent and rinse with clean water.
- Follow the directions for **Disinfectant Use-Solution** as described in the Preparation of Anthium™ BCD-200 Use-Solutions section.
- To apply:** Pour the activated solution into water bath reservoir and allow to stand one (1) hour at room temperature. Drain reservoir and fill with fresh water.

† To Control Odors Resulting from the Sterilization of Spent Biologicals in Steam Autoclaves

- To reduce autoclave odors of used biologicals, spray or pour Anthium™ BCD-200 directly into the stainless steel autoclave buckets.
- Preparation of Use-Solution:** Place 1 part Anthium™ BCD-200 per 20 parts working solutions (1,000 ppm available chlorine dioxide) into a clean glass or plastic container and mix
- Application:** Spray or pour Anthium™ BCD-200 solution into or onto the autoclave buckets just prior to autoclaving.

- † To Deodorize Animal Holding Rooms, Sick Rooms, Morgues and Work Rooms**
- Rooms to be deodorized must be in a clean condition prior to Anihum™ BCD-200 application.
 - Preparation of Use-Solution:** Place 1 part Anihum™ BCD-200 per 20 parts working solution (1,000 ppm available chlorine dioxide) into a clean glass or plastic container.
 - Application:** Spray solution using a suitable spraying device onto walls, ceilings and floors, lightly dampening all surfaces. Avoid breathing mist of solutions by using an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide. Allow to air dry, and then ventilate the area. Treat as required.

IN ANIMAL REARING & CONFINEMENT FACILITIES

† To Control the Build-up of Odor and Slime Forming Bacteria in Animal Confinement Areas

- Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes, cages and other facilities and fixtures occupied or traversed by animals. Thoroughly clean all surfaces with soap or detergent and rinse with clean water.
- Preparation of Use-Solution:** Place 1 part Anihum™ BCD-200 per 20 parts working solution (1,000 ppm available chlorine dioxide) into a clean, plastic pail.
- Application:** Using a commercial sprayer; saturate all surfaces with the Anihum™ BCD-200 solution. When spraying Anihum™ BCD-200 solutions, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide to avoid breathing mist.

To Disinfect Hard, Non-Porous Surfaces In Commercial Animal Confinement Facilities such as Poultry Houses, Swine Pens, Calf Barns and Kennels and for use in Laboratory Animal Breeding and Research Quarters for Controlling Cross-Contamination of Microorganisms Infectious to these Animals and Humans from Treated Surfaces

- Remove all animals and feed from premises, vehicles, enclosures, coops and crates.
- Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities and fixtures occupied or traversed by animals.
- Empty all troughs, racks and other feeding and watering appliances.
- Thoroughly clean all surfaces with soap and detergent and rinse with water.
- Prepare an activated 300-ppm use-solution of Anihum™ BCD-200: Add 2 ounces of Anihum™ BCD-200 to 1 gallon of water. Once the Anihum™ BCD-200 has been diluted, add 0.5-1.0 oz. "DuPont™ AcidEdge™" per one gallon of solution OR 0.5-1.0 oz. "DuPont™ Acidic Cleaner – low foaming formula" per gallon of solution. Prepare in a well ventilated area and avoid breathing any fumes which may be produced during activation
 - 2 ounces of Anihum™ BCD-200
 - 1 gallon of water
 - To the solution of step b. add 0.5 – 1.0 oz. "DuPont™ AcidEdge™" OR 0.5 – 1.0 oz. "DuPont™ Acidic Cleaner – low foaming formula"

Always add Anihum™ BCD-200 to water. Followed by acidic cleaner.
- Application:** Using a commercial sprayer, saturate all surfaces with the activated Anihum™ BCD-200 solution for a period of ten (10) minutes. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions. Immerse all halters, ropes and other types of equipment used in handling and restraining animals as well as forks, shovels and scrapers used for removing litter and manure.
- After treatment, ventilate buildings, coops or other enclosed spaces and allow to air dry. Repopulate when solution has dried.
- Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before use.

To Sanitize Hard, Non-Porous Surfaces In Commercial Animal Confinement Facilities such as Poultry Houses, Swine Pens, Calf Barns and Kennels and for use in Laboratory Animal Breeding and Research Quarters for Controlling Cross-Contamination of Microorganisms Infectious to these Animals and Humans from Treated Surfaces

- Remove all animals and feed from premises, vehicles, enclosures, coops and crates.
- Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities and fixtures occupied or traversed by animals.
- Empty all troughs, racks and other feeding and watering appliances.
- Thoroughly clean all surfaces with soap and detergent and rinse with water.
- Prepare a 3.0 ppm activated use-solution of Anihum™ BCD-200: To 10 gallons of water add 1.9 ounces of Anihum™ BCD-200 and 0.38 oz. sodium hypochlorite (6%) for a nominal 30 ppm solution. Adjust pH to between 2.5 and 3.5 with acetic, citric, phosphonic, sulfonic, hydrochloric, glycolic or other suitable acid. Hold the solution for 15 minutes before applying. Alternatively, the following cleaners can be used instead of acid: add 0.5 – 1.0 oz. "DuPont™ AcidEdge™" per one gallon of solution OR 0.5-1.0 oz. "DuPont™ Acidic Cleaner – low foaming formula" per gallon of solution. The efficiency of the conversion can be affected by the quality of water. Conditions may be adjusted to accommodate the quality of water.
- Application:** Using a commercial sprayer, saturate all surfaces with the activated Anihum™ BCD-200 solution for a period of five (5) minutes. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions. Immerse all halters, ropes and other types of equipment used in handling and restraining animals as well as forks, shovels and scrapers used for removing litter and manure.
- After treatment, ventilate buildings, coops or other enclosed spaces and allow to air dry. Repopulate when solution has dried.
- Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before use.

POULTRY

† To Treat Poultry Chiller Water

†A) Anihum™ BCD-200 Plus Chlorine

In order to control the microorganism population in poultry chiller water, target the addition of available chlorine dioxide at 20-40 ppm level so that a residual of 0.5-3 ppm is measured in the exiting chilled water.

This is easily accomplished by activating Anihum™ BCD-200 a mixture of oxychlorine species capable of generating 95%+ of chlorine dioxide, with chlorine which is already available in all poultry chiller water systems. The feed rates of the various streams are set forth below for the reactants, chlorine and Anihum™ BCD-200

ClO ₂ PPM	ANIUM™ BCD-200 FEED RATE	Cl ₂ FEED RATE LBS. / GAL.	Cl ₂ PPM
20	1.0 gal/1000 gal H ₂ O	0.0083	10
30	1.5 gal/1000 gal H ₂ O	0.01245	15
40	2.0 gal/1000 gal H ₂ O	0.0166	20

†B) Anihum™ BCD-200 Plus Acid

This antimicrobial agent may be used as a component of (1) a carcass spray or dip solution prior to immersion of the carcass in a prechiller or chiller tank or (2) in a prechiller or chiller solution.

- When used as a carcass spray or dip solution, dilute 1 part of Anihum™ BCD-200 to 28 parts with water. The solution is then acidified to a pH between 2.5 and 2.9 with an acid selected from the following acids: phosphoric, citric, acetic, hydrochloric, lactic, malic or sulfuric.
- When used in a prechiller or chiller tank, Anihum™ BCD-200 is diluted 1:280 (i.e. 2.5 gallons of Anihum™ BCD-200 diluted to 700 gallons with water). This solution is activated by addition of an acid such as phosphonic, citric, acetic, hydrochloric, lactic, malic or sulfuric to a pH of between 2.8 to 3.2.

† To Control Bacteria, Taste and Odor in the Water Supply System

- If the water supply is badly fouled with biofilm, then add 5 ppm of available chlorine dioxide to the water supply by adding 1 part of Anihum™ BCD-200 to each 4000 parts of poultry drinking water.
- After 24 hours, the addition rate can be reduced to 1 ppm of available chlorine dioxide by adding 1 part Anihum™ BCD-200 to each 20,000 parts of poultry drinking or cooling comfort water.
- If the microbiological content of the water is eliminated by this rate of addition, the concentration of available chlorine dioxide can be reduced to 0.5 ppm (1 part of Anihum™ BCD-200 per 40,000 parts of water); if the microbiological control is not adequate at 1 ppm available chlorine dioxide, then add 1.5 ppm of available chlorine dioxide to the poultry drinking or cooling comfort water (1 part of Anihum™ BCD-200 per 14,000 parts of water).

ANIMAL REARING AND CONFINEMENT FACILITIES

To Disinfect Waterlines and Associated Fixtures in Animal Confinement Facilities such as Poultry Houses, Swine Pens, Calf Barns and Kennels When Animals are not Present

- Remove all animals from premises.
- Drain waterlines and watering appliances.
- Prepare an activated 300 ppm use-solution of Anihum™ BCD-200 by:
 - Injection Using Metering Equipment: Add Anihum™ BCD-200 at the rate of 1 part to 65 parts of water. Once the Anihum™ BCD-200 has been diluted; inject 0.5 – 1.0 oz. per gallon "DuPont™ AcidEdge™" or 0.5 – 1.0 oz. per gallon "DuPont™ Acidic Cleaner – low foaming formula".
 - Header Tank: Add 1.9 ounces of Anihum™ BCD-200 per gallon of water in a clean plastic header tank sufficient to refill water lines to deliver 300 ppm. Thoroughly mix solution, and then add 0.5 – 1.0 oz. per gallon "DuPont™ AcidEdge™" or 0.5 – 1.0 oz. per gallon "DuPont™ Acidic Cleaner – low foaming formula". Trigger each nipple drinker to ensure contact with solution.
- Turn on water supply or open filling valve to fill entire drinking water supply. Allow solution to remain in water lines for 4 – 8 hours.
- Drain waterlines and flush with clean water.

DRINKING WATER FOR POULTRY, SWINE, CATTLE AND OTHER LIVESTOCK

To Control Taste and Odor in the Water Supply System

- Prepare a solution with 5 ppm available chlorine dioxide by adding 1 part of Anihum™ BCD-200 per 4,000 parts of water (a 1:4,000 dilution) (1 fl. oz. Anihum™ BCD-200 to each 31.5 gallons). Allow 15 minutes before delivery to livestock or poultry.
- If the water supply has heavy contamination prepare a solution of 11 ppm available chlorine dioxide by adding 1 part of Anihum™ BCD-200 per 1818 parts of water (a 1:1818 dilution) (1 fl. oz. Anihum™ BCD-200 to each 14 gallons). Allow 15 minutes before delivery to livestock or poultry.
- After 24 hours, the addition rate can be reduced to 1 ppm of available chlorine dioxide by adding 1 gallon Anihum™ BCD-200 to each 20,000 gallons of animal drinking water as long as terminal concentration at end of waterline is not less than 0.5 ppm.
- Treat water continuously from day one. Remove Anihum™ BCD-200 from drinking water 24 hours prior to vaccination, then resume treatment 24 hours after vaccinations.

***Note:** When treating drinking water for poultry, swine, cattle and other livestock, this product is not intended for use in human drinking water and treated water must not be made available for human consumption.*

As a Virucide† to Kill Animal Viruses (Rat Coronavirus RCV-SDA-681, Mouse Hepatitis Virus MHV-A59, Minute Virus Mice MVM-P and Canine Parvovirus ATCC VR-2017) on Non-Porous, Hard Surfaces in Commercial Animal Confinement Facilities Such as Poultry Houses, Swine Pens, Calf Barns, and Kennels and in Laboratory Animal and Research Quarters

- Remove all animals and feed from premises, vehicles, enclosures, coops and crates.
- Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities and fixtures traversed by animals.
- Empty all troughs, racks and other feeding and watering appliances.
- Thoroughly clean all surfaces with soap and detergent and rinse with water.
- Follow the directions for **Virucidal Use-Solution** as described in the Preparation of Anihum™ BCD-200 Use-Solutions section.
- Application of Activated Use-Solution:** Activated solutions may be sprayed, mopped or sponged onto surfaces to be treated. All surfaces must be thoroughly wetted for at least ten (10) minutes (15 minutes contact time for canine parvovirus ATCC VR-2017). When spraying virucidal use-solution, use an appropriate spraying device. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions. After application, allow to air dry. Treat as required. Always apply freshly made solutions. Never reuse activated solutions.
- After treatment, ventilate buildings, coops or other enclosed spaces and allow to air dry. Repopulate when solution has dried.
- Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before use.

† To Control Mold & Mildew and Slime Forming Bacteria on Walls, Floors, Ceilings, Bins, Boxes, Pens, Barns, Kennels and other Animal Health Surfaces

- Remove animals and feed from area to be treated
- Before treatment, all soil and gross filth must be removed from areas to be treated and cleaned with detergent followed by a potable water rinse.
- Follow the directions for **Mold & Mildew Use-Solution** as described in the Preparation of Anihum™ BCD-200 Use-Solutions section.
- Application:** Drench or spray solution on walls, floors, ceilings and surfaces using a suitable watering or spraying device and making sure all surface areas are wet. During application, area must be closed as tightly as possible and sealed. After spraying, the area must be opened and aired for one (1) hour before repopulating. Avoid breathing solution mist by use of an applicable NIOSH/MSHA respirator appropriate for chlorine dioxide. Avoid contact with food or food-contact surfaces.
- Follow treatment with a potable water rinse
- Repeat application as needed.

† To Control Animal Odors on Pets and in Litter Boxes, Carpets and Concrete Floors

- For litter boxes:** Wash out litter boxes with suitable detergent and rinse with clean, potable water. Soak overnight in solution of one part Anihum™ BCD-200 per 32 parts of water (625 ppm available chlorine dioxide). Add litter, sprinkle surface liberally with Anihum™ BCD-200 solution.
- For controlling odors in carpets:** Add 1 part Anihum™ BCD-200 per 40 parts (500 ppm available chlorine dioxide) of rug shampoo mix. Shampoo carpets. Allow to air dry. **NOTE:** Anihum™ BCD-200 may bleach some carpets and fabrics, especially if applied on top of another chemical agent. Do not apply until a sample test has been tried and observed for at least 24 hours.
- For concrete floors:** Clean floor thoroughly using a suitable detergent; rinse with clean water. Prepare solution by adding 1 part Anihum™ BCD-200 per 16 parts of water (1,250 ppm available chlorine dioxide). Mop or spray solution liberally onto floor. Allow to air dry.
- For animal baths:** Wash animal well with appropriate pet shampoo; rinse with clean water. Prepare solution by adding 1 part Anihum™ BCD-200 per 200 parts of water (100 ppm available chlorine dioxide). Rinse animal thoroughly with prepared solution. Allow to air dry. Avoid direct contact with animal's eyes, nose and ears.
- For treating animal odors with high levels of ammonia:** Wash area thoroughly with suitable detergent and rinse with clean water. Preparation of solution: For each 32 parts of solution place 1 part Anihum™ BCD-200 into a clean, plastic container. To this concentrate, add 1 tablespoon household bleach and allow to react for five (5) minutes. Dilute with 32 parts of clean, potable water. Apply by mopping or spraying solution liberally onto area. Allow to air dry. Additional applications may be necessary.

ANIMAL TRANSPORT VEHICLES

† To Disinfect Hard, Non-Porous Surfaces in Vehicles Including Animal Transport Vehicles, Rail Cars, Trailers and Vessels. Active solutions may be irritating when breathed; therefore, always use an applicable NIOSH/MSHA approved respirator appropriate for chlorine dioxide when spraying these solutions.

- Prior to application of Anihum™ BCD-200 clean all vehicles with high-pressure water and a suitable detergent.
- Follow directions for **Disinfectant Use-Solution** as described in the Preparation of Anihum™ BCD-200 Use-Solutions section.
- Then apply the disinfectant use-solution to all surfaces to be treated. All treated surfaces must remain wet for at least 10 minutes.

TREATMENT OF WATER STORAGE SYSTEMS AND POTABLE WATER

To Disinfect Water Storage Systems Aboard Aircraft, Trains, Buses, Boats, RV's, Off-Shore Oil Rigs, etc.

- Prior to disinfection, clean tanks using a suitable detergent and thoroughly flush with clean, potable water.
- Follow the directions for **Disinfectant Use-Solution** as described in the Preparation of Anihum™ BCD-200 Use-Solutions section.
- Pour activated solution into tank, filling the tank completely. Bleed air out of lines and allow to stand at least ten (10) minutes. Drain tank and lines and flush with potable water.

To Disinfect Drinking Water Supply for Poultry, Swine, Cattle and Other Livestock

Use Anihum™ BCD-200 with a chlorine dioxide generator to generate an aqueous chlorine dioxide solution. Alternatively, Anihum™ BCD-200 can be mixed manually to generate an aqueous chlorine dioxide solution. The chlorine dioxide generator and manual mixing methods react Anihum™ BCD-200 with either a chlorine solution and acid or an acid. The generated chlorine dioxide solution can be added at a point in the system which ensures uniform mixing and distribution of up to 5 ppm of chlorine dioxide.

Follow all instructions for the chlorine dioxide generator carefully. Always prepare and use chlorine dioxide solutions in a well-ventilated area. Treat water continuously from day one. Remove Anihum™ BCD-200 from drinking water 24 hours prior to vaccination, then resume treatment 24 hours after vaccinations.

***Note:** When treating drinking water for poultry, swine, cattle and other livestock, this product is not intended for use in human drinking water and treated water must not be made available for human consumption.*

- Manual Mixing Method A**
 - For a 5 ppm chlorine dioxide solution add 1 part Anihum™ BCD-200 to 4,000 parts water; approximately 1.0 fl. oz. Anihum™ BCD-200 per 32 gallons of water. Use more water for lower chlorine dioxide concentrations.
 - Add 2-5 ppm sodium hypochlorite; 1 – 3 parts of 1.5% bleach to 4,000 parts water.
 - Using an appropriate acid add sufficient acid to lower solution pH to 5.0 to 6.5
 - Allow 15 minutes before delivery to livestock water lines.
 - After 24 hours, the addition rate can be reduced to 1 ppm of available chlorine dioxide by adding 1.0 fl. oz. of Anihum™ BCD-200 to approximately 160 gallons of animal drinking water as long as terminal concentration at the end of the water line is not less than 0.5 ppm.
- Manual Mixing Method B**
 - Add 1 part Anihum™ BCD-200 to 3 parts water.
 - Activate by adding phosphoric, hydrochloric, acetic or other food grade acid to a pH of 2.5-3.5.
 - Mix and allow to stand for at least 15 minutes before delivery to livestock water lines.
 - Then dilute 1 part of the activated solution with 1,000 to 5, 000 parts water for a 1 to 5 ppm chlorine dioxide solution.

† To Control Bacteria and Odor in the Egg Room

- Wash down the entire egg room with high pressure water containing 20 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 1,000 parts with water) to remove gross filth or heavy soil.

Conduct the washing operations once per week (or more frequently in cases of heavy contamination during operations).

- If it is necessary to clean the floors by mopping, then use 390 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 per 50 parts water). Allow to dry on the floor.
- A shoe or boot bath of 1,000 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 per 20 parts water) is placed at the entrance to the egg room. Doors to the room must be kept closed at all times.
- A glove dip, or rinse tank or basin, containing 50 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 per 400 parts water) is used on entering and exiting the room.

Replace both the shoe and boot bath and glove dip daily (sooner if traffic is heavy).

- Humidification water is treated with 40 ppm of available chlorine dioxide (1 part of Anihum™ BCD-200 per 500 parts water) to prevent the build-up and airborne spread of odor-causing microorganisms.
- Provide 20 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 per 1,000 parts water) to the water supply in the egg washing machine.

† To Control Odor and Bacteria when Separating Chicks in the Chick Room, Chick Grading Box and Sexing Room

- Remove all poultry and feeds from premises, trucks, coops and crates.
- Remove all litter and droppings from floors, walls and surfaces of facilities occupied or traversed by poultry.
- Empty all troughs, racks and other feeding and watering appliances.
- Thoroughly clean all surfaces with soap or detergent and rinse with water.
- Spray the entire area for 5 minutes with a 1,000 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 to 20 parts with water. Allow a 10 minute contact time.
- Ventilate buildings, coops and other closed spaces. Do not house poultry or employ equipment until treatment has been absorbed, set or dried.
- Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent, and rinse with potable water before reuse.
- All workers in this area must use a hand dip or rinse containing 50 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 400 parts with water).
- After use, wash area with high-pressure water to remove gross filth and soil.
- Use a spray bottle containing a solution of 1,000 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to20 parts with water), on hands, wire mesh and in empty chick boxes to control contamination and odors from litter.
- To clean the floor by mopping daily, use a solution containing 390 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 per 50 parts water). Allow to air dry.

† To Control Build-Up of Slime and Odor Causing Bacteria and Enhance the Taste of Stored Potable Water

- Prior to treatment of potable water, thoroughly clean and disinfect the water storage system to ensure a sanitary condition. Thoroughly rinse with clean, potable water.
- Potable water must be treated at a rate of one part of Anihum™ BCD-200 per 4000 parts potable water (5 ppm available chlorine dioxide) and may be injected or batch treated.
- Water storage tank must be sufficiently sealed to prevent outside contamination and direct sunlight.

Using a test kit, confirm the chlorine dioxide to be 5 ppm and check to see this level does not fall below 1 ppm.

† To Help Remove Off-Odors and Tastes from Municipal Well Waters

- Inject Anihum™ BCD-200 into the incoming water main using a chemical proportioning pump, or injector, at a rate of 1 part Anihum™ BCD-200 per 20,000 parts water (1 ppm available chlorine dioxide).
- Confirm pump or injector accuracy using an International Dioxide test kit and adjust accordingly.
- Check the Anihum™ BCD-200 levels weekly.

INDUSTRIAL WATER SYSTEMS AND INDUSTRIAL BIOCIDES

† TO INHIBIT BACTERIAL SLIME FORMING BACTERIAL BUILDUP IN COMMERCIAL WATER FILTRATION SYSTEMS, SAND BEDS, GRAVEL BEDS, CHARCOAL FILTERS AND COOLING WATER SYSTEMS. Filters:

- Carefully back-flush filters with potable water, where possible, to remove any accumulated solid residue and contamination.
- Fill system with potable water and adjust pH to 6.0 with citric acid, phosphoric acid, or acetic acid (vinegar) or equivalent.
- Add 1 part of Anihum™ BCD-200 per 64 parts of (300 ppm of available chlorine dioxide) of filter system volume to the access hatch and circulate the system for 1 hour. Check the pH and bring back to 6.0 if it has drifted. Bring the available chlorine dioxide concentration back to 300 ppm.
- Circulate the solution for 1 additional hour, discharge and then water wash for 30 minutes with potable water to remove the chlorine dioxide.

† For Enclosed and Recirculating Cooling Water Systems:

- Add 2.5-10 gallons of Anihum™ BCD-200 per 10,000 gallons of cooling water (5-20 ppm of available chlorine dioxide) every week.
- Depending on the degree and type of contamination, addition frequency may be reduced to every 2-3 weeks when contamination is under control.
- For very high levels of microbial contamination of the cooling water, add an activated solution to the cooling water. First, dilute 1 part Anihum™ BCD-200 with 3 parts water and follow with acidification to a pH of 2.6 with phosphoric, citric or acetic acid. This forms an activated solution of 5,000 ppm available chlorine dioxide. Dilute the 5,000 ppm activated solution to the indicated feed solution ppm in the table below by selecting the desired concentration in cooling water. Then add the feed solution to the cooling water at a rate of 1 part of feed solution to 13 parts of cooling water.

Desired Concentration – Available Chlorine Dioxide – Cooling Water	Feed Solution – Available Chlorine Dioxide (ppm)	Dilution – Activated Solution
5 ppm	70	1:70
10 ppm	140	1:35
15 ppm	210	1:23
20 ppm	280	1:17

† TO PREVENT CORROSION AND SLIME BACTERIA IN OIL WELLS DURING SECONDARY RECOVERY OPERATIONS

- Prepare a working solution of 5,000 ppm of available chlorine dioxide by diluting each gallon of Carbone® 200 used to 4 gallons of solution with the injection water.
- Proportion 1 part of the above solution into each 150 parts of reinjected acidified (3.0- 4.0 pH) water.
- Monitor microbial content of the water and increase or decrease the addition rate of the working solution as necessary.

† TO INHIBIT THE GROWTH OF SLIME AND ODOR CAUSING BACTERIA IN WATER BASED CUTTING OILS

- Batch Method** - Add 80 oz. of Anihum™ BCD-200 per thousand gallons to fresh system and repeat weekly or on first indication of increased bacterial contamination (odor, slime, bacterial count). Alkaline systems may require higher concentration of Anihum™ BCD-200.
- Continuous Method** - Proportion in 5 gallons of Anihum™ BCD-200 per million gallons per day used in the system. Alkaline systems may require higher concentration.
- Badly Contaminated Systems** - Slug dose system with 25 gallons of Anihum™ BCD-200 per million gallons of cutting oil. Then start the **Continuous Method**.

Adjust solutions in any of the above systems to compensate for levels of contamination, pH, type of contamination etc., as necessary.

† AS A SLIMICIDE IN PAPER MILLS TO PREVENT SLIME, TAR SPOTS, AND PITCH SPOTS IN WHITE WATER SYSTEMS

By maintaining a chlorine dioxide concentration in the white water, the micro-organisms cannot produce the nodules which result in slime.

- If the pH of the white water is below 7.0, add 1 1¼ gallons of Anihum™ BCD-200 per hundred tons of paper produced.
- If the pH of the white water is above 7.0, then add ½ gallon of 5% sodium hypochlorite as an activator with each 11 ¼ gallons of Anihum™ BCD-200

Continuous proportioning of the Anihum™ BCD-200 feed is recommended for best results. In many cases, the amount can be reduced after the system is clean.

† To Control Bacteria and Odor in the Hatching Area

- As soon as chicks are separated from Hatch, remove all trash containers with eggshells, down, etc. from the hatching area.
- Remove all poultry and feeds from premises, trucks, coops and crates.
- Remove all litter and droppings from floors, walls and surfaces of facilities occupied or traversed by poultry.
- Empty all troughs, racks and other feeding and watering appliances.
- Thoroughly clean all surfaces with soap or detergent and rinse with water.
- Spray the entire area for 5 minutes with a 1,000 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 to 20 parts with water). Allow a 10 minute contact time.
- Ventilate buildings, coops, and other closed spaces. Do not house poultry or employ equipment until treatment has been absorbed, set or dried.
- Thoroughly scrub treated feed racks, troughs, automatic feeders, fountains and waterers with soap or detergent, and rinse with potable water before reuse.
- All workers in this area must use a hand dip or rinse containing 50 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 400 parts with water).

† To Control Bacteria and Odor in the Incubator Room

- The area is sprayed at least once per week for 5 minutes with a 1,000 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 20 parts with water), after removing gross filth or soil with a high pressure water wash. Wet all surfaces and allow to dry.
- Mop the floor daily with a solution containing 390 ppm of available chlorine dioxide (1 part of Anihum™ BCD-200 diluted to 50 parts with water).
- Place a shoe and boot bath containing 1,000 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 50 parts with water) at all entrances to the incubator room.
- 20 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 1,000 parts with water) is added to water in the humidification system or the air filters are sprayed with a 100 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 200 part with water) to reduce airborne bacterial contamination.
- Each time the eggs are removed from the incubator, a prior glove dip at 50 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 400 parts with water) is recommended, followed by a spray of 1,000 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 20 parts with water) on the eggs from a spray bottle.
- Where containers are used to discard bad eggs, 1 part of Anihum™ BCD-200 per 7 parts of water (3,125 ppm of available chlorine dioxide) will control obnoxious odors and bacterial contamination.
- Keep the doors to the area closed as much as possible to avoid airborne contamination.

† To Prevent Airborne and Surface Contamination of the Hatchery from the Tray Washing Room and Loading Platform

- Close all doors in the tray washing room to avoid contamination of other hatchery operations. Discard all chick downs, egg shells, and cast-off chicks into the trash barrels and transfer the covered containers to the loading platform for disposal.
- Wash the trays, carriages and other working equipment in a tray washing machine with 300-500 psi water to remove gross filth and soil.
- As a final rinse in the tray washing machine, use a solution containing 20 ppm of available chlorine dioxide (1 part of Anihum™ BCD-200 diluted to 1,000 part with water) in high pressure water. Allow the trays, carriers and other working equipment to air dry. The walls, floors and carrying stands must also be sanitized with the same solution. Allow the equipment to air dry. Hold the sanitized equipment in a closed area for reuse.
- Entrance and exit from the tray washing room must be through a foot rinse containing a solution of 1,000 ppm of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 20 parts with water). The rinse must be at least ½ inch deep and must be changed daily unless traffic is heavy.
- After use, the tray washing room is washed with high pressure water to remove gross filth and soil. It is then decontaminated by spraying with a solution containing 1,000 ppm of available chlorine dioxide (1 part of Anihum™ BCD-200 diluted to 20 parts with water) for 15 minutes and allowed to air dry. This treatment is repeated after each use of the tray wash room.
- The Loading Platform is washed from time to time to remove gross filth and soil. The trash containers are washed after discarding the contents to remove gross filth and soil. They are then sprayed with a 1,000 ppm solution of available chlorine dioxide (1 part Anihum™ BCD-200 diluted to 20 parts with water) and stored.

† FOR CONTROL OF MOLLUSKS IN ONCE THROUGH WATER COOLING SYSTEMS AND INTAKES

- Add 10 gallons of Anihum™ BCD-200 to 100 gallons of water and add 1 lb. of Activator-C (or 6.9 lbs. of Activator K) to the solution with mild stirring for 15 minutes. This produces an activated solution containing 2,000 ppm available chlorine dioxide. (Use respirator approved for chlorine dioxide).
- As an alternate activation method, reduce the pH of the above solution to 3.0 with a mineral or organic acid and allow to slowly stir for ½ hour before use.

SLUG DOSE: Add between 2.5 gallons and 12.5 gallons of the above solution per 1,000 gallons of water (5-25 ppm of available chlorine dioxide).

CONTINUOUS DOSE: Add between 0.125 gallons and 1 gallon of the above solution per