62495-20002 3-27-2008 FILE COPY 1/16

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

EPA United States Environmental Protection Agency **Office of Pesticide Programs**

March 27, 2008

Sherri Gray
Petra Chemical Company
2929 Storey Lane
Dallas, TX 75220

Subject: Sodium Hypochlorite 10%
EPA Registration No. 62495-20002
Application Date: January 3, 2008
Receipt Date: January 3, 2008

Dear Ms. Gray:

The following amendment submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), as amended, is acceptable subject to the conditions listed below.

Conditions

1. This product is comprised of a sole active ingredient, remove the "S" from the active ingredient. The percentage by weight statement is not acceptable in the ingredient statement. Change "Inert" to "Other" on the label. You must declare the percentage of available chlorine below the ingredient statement on the label.

   Revise the **Ingredient Statement** as follows:

   Active Ingredient:
   Sodium Hypochlorite 10.0%
   Other Ingredients 90.0%
   Total 100.0%
   Available Chlorine: XX

2. The product as sold in the channels of trade is based on 10% Sodium Hypochlorite not 12.5%. Therefore, the Trade Percent information should not appear on the label and has been removed.

3. Move the "Directions for Use" and Misuse statements to the top of page three of the label.

4. The Re-registration Eligibility Decision (RED) does not allot for a 100 ppm available chlorine solution under the "Sanitization of Nonporous Non-Food Contact Surfaces" or directions for use. Therefore, the directions for a 100 ppm solution have been removed.

5. The Flow/Pressure Method and Clean-In-Place Methods are not acceptable methods of application under the Sanitization of Nonporous Non-Food Contact Surfaces.

6. The Public Systems dilution conversion chart and directions for 2,000 gallons of water are inaccurate and have been removed from pages 6 and 9 of the proposed label. The directions for use below the chart are acceptable with a minor change. The ratio of the product is 1.1oz. to 100 gallons of water.

7. Revise the Swimming Pool directions for use to include re-entry instructions.

   Re-entry into treated pools is prohibited above levels of 4ppm due to risk of bodily harm.

8. Revise the Spa directions for use to include re-entry instructions.

   Re-entry into treated spas is prohibited above levels of 5ppm due to risk of bodily.

9. This product is a 10% Hypochlorite Solution. Therefore, you must adjust dilution calculations as follows:

   a. On page 4 change 2 oz. to 1.2 oz under Subsequent Dose.
   b. On page 4 change 3 oz. to 2.6 oz under Rinse Method.
   c. On page 5 change 3 oz. to 2.6 oz and 9 oz to 7 oz under Spray/Fog Method.
   d. On page 7 change 80 oz. to 83 oz under New Filter Sand
   e. On page 8 change 5 oz. to 7.5 oz under New Wells
   f. On page 8 change 21 oz. to 30 oz under Existing Equipment
   g. On page 10 change 8 oz. to 7.5 and 3 minutes to 2 minutes and 3 to 2.6 oz. under Sanitization of Porous Food Contact Surfaces (Rinse Method).
   h. On page 10 change 8 oz. to 7.5 oz. and 3 to 2.6 oz. under Sanitization of Porous Food Contact Surfaces (Immersion Method).

3/16

i. On page 10 change 8 oz. to 7.5 oz. under Sanitization of Porous Food Contact Surfaces (Spray/Fog Method).
j. On pages 10 and 11 change 8 oz. to 7.5 under Disinfection of Nonporous Non-Food Contact Surfaces (Rinse and Immersion Methods).
k. On page 11 change 8 oz. to 7.5 under Sanitization of Porous Non-Food Contact Surfaces (Rinse, Immersion and Spray/Fog Methods).

General Comments

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

Should you have any questions or comments concerning this letter, please call Wanda Henson at (703) 308-6345.

Sincerely,

Emily H. Mitchell
Product Manager - Team 32
Regulatory Management Branch II
Antimicrobials Division (7510C)

4/16

SODIUM HYPOCHLORITE SOLUTION 10%

Disinfectant — Germicide — Sanitizer

ACTIVIE INGREDIENT(S): [redacted]
SODIUM HYPOCHLORITE.....10.0%
OTHER ~~INERT~~ INGREDIENT(S).....90.0%
100.0%

KEEP OUT OF REACH OF CHILDREN — DANGER

FIRST AID

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

If swallowed:
- Call a poison control center or doctor immediately for treatment advice.
- Have 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.

HOTLINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of "gastric lavage".

EPA REG. NO. 62495-20002 **EPA EST NO. 62495-TX-1**

NET CONTENTS:

55 U.S. GALLONS (207.91)

[redacted]

ACCEPTED
with COMMENTS
EPA Letter Dated:
MAR 27 2008

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 62495-20002

Petra Chemical Company
2929 Storey Lane
Dallas, TX 75220

UN 1791 RQ

5/16

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMAN AND DOMESTIC ANIMALS
DANGER

CORROSIVE. MAY CAUSE SEVERE SKIN AND EYE IRRITATION OR CHMICAL BURNS TO BROKEN SKIN. CAUSES EYE DAMAGE. DO NOT GET IN EYES, ON SKIN OR IN CLOTHING. WEAR SAFETY GLASSES OR GOGGLES OR FACE SHIELD AND RUBBER GLOVES WHEN HANDLING THIS PRODUCT. WASH AFTER HANDLING. AVOID BREATHING VAPORS. VACATE POORLY ENTILATED AREAS AS SOON AS POSSIBLE. DO NOT RETURN UNTIL STRONG ODORS HAVE DISSIPATED.

ENVIRONMENTAL HAZARDS:

THIS PESTICIDE IS TOXIC TO FISH AND AQUATIC ORGANISMS. DO NOT DISCARGE 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 SYTEM (NPDES) PERMIT AND THE PERMITTING AUTHORITY HAS BEEN NOTIFIED IN WRITING PRIOR TO DISCHARGE. DO NOT DISCHARGE EFFLUENT CONTAINING THIS PRODUCT TO SEWER SYTEMS WITHOUT PREVIOUSLY NOTIFYING THE LOCAL SEWAGE TREATMENT PLANT AUTHORITY. FOR GUIDANCE CONTACT YOUR STATE WATER BOARD OR REGIONAL OFFICE OF THE EPA.

PHYSICAL AND CHEMICAL HAZARDS:
STRONG OXIDIZING AGENT:

MIX ONLY WITH WATER ACCORDING TO LABEL DIRECTIONS. MIXING THIS PRODUCT WITH CHEMICALS (E.G. AMMONIA, ACIDS, DETERGENTS, ETC.) OR ORGANIC MATTER WILL RELEASE CHLORINE GAS, WHICH IS IRRITATING TO EYES, LUNGS AND MUCOUS MEMBRANES.

[redacted]

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STORAGE AND DISPOSAL

DO NOT CONTAMINATE FOOD OR FEED BY STROAGE, DISPOSAL OR CLEANING OF EQUIPMENT.

PESTICIDE STORAGE: STORE THIS PRODUCT IN A COOL DRY AREA, AWAY FROM DIRECT SUNLIGHT AND HEAT TO AVOID DETERIORATION. IN CASE OF SPILL, FLOOD AREAS WITH LARGE QUANTITIES OF WATER.

PESTICIDE DISPOSAL: PRODUCT OR RINSATES THAT CANNOT BE USED SHOULD BE DILUTED WITH WATER BEFORE DISPOSAL IN A SANITARY SEWER.

CONTAINER DISPOSAL: RINSE EMPTY CONTAINER WITH WATER AND EITHER RETURN TO MANUFACTURER, OR DISCARD BY PLACING THIS CONTAINER IN TRASH COLLECTION OR BURYING IN AN APPROVED LANDFILL.

DIRECTIONS FOR USE:
IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING.

6/16

NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine.

Cooling Tower/Evaporative Condenser Water

SLUG FEED METHOD – Initial Dose: When system is noticeably fouled, apply 54 to 108 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine.

Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 12 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT FEED METHOD – Initial Dose: When system is noticeably fouled, apply 54 to 108 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 12 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD – Initial Dose: When system is noticeably fouled, apply 54 to 108 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 2 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

Sewage & Wastewater Effluent Treatment

The disinfection of sewage effluent must be evaluated by determining the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure, if the chlorinated effluent has been reduced to or below the maximum permitted by the controlling regulatory jurisdiction.

On the average, satisfactory disinfection of secondary wastewater effluent can be obtained when the chlorine residual is 0.5 ppm after 15 minutes contact. Although the chlorine residual is the critical factor in disinfection, the importance of correlating chlorine residual with bacterial kill must be emphasized. The MPN of the effluent, which is directly related to the water quality standards requirements, should be the final and primary standard and the chlorine residual should be considered an operating standard valid only to the extent verified by the coliform quality of the effluent.

The following are critical factors affecting wastewater disinfection.

Mixing: It is imperative that the product and the wastewater be instantaneously and completely flash mixed to assure reaction with every chemically active

soluble and particulate component of the wastewater.
Contacting: upon flash mixing, the flow through the system must be maintained.
Dosage/Residual Control: Successful disinfection is extremely dependent on response to fluctuating chlorine demand to maintain a predetermined, desirable chlorine level. Secondary effluent should contain 0.2 to 1.0 ppm chlorine residual after a 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.5 ppm after 15 minutes contact time.

Pulp and Paper Mill Process Water Systems

SLUG FEED METHOD – Initial Dose: When system is noticeably fouled, apply 54 to 108 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.
Subsequent Dose: When microbial control is evident, add 12 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.
INTERMITTENT FEED METHOD – Initial Dose: When system is noticeably fouled, apply 54 to 108 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown.
Subsequent Dose: When microbial control is evident, add 12 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.
CONTINUOUS FEED METHOD – Initial Dose: When system is noticeably fouled, apply 54 to 108 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine.
Subsequent Dose: Maintain this treatment level by starting a continuous feed of 2 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

Sanitization of Nonporous Non-Food Contact Surfaces

RINSE METHOD – A solution of 200 ppm available chlorine may be used in the sanitizing solution if chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.5 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.
Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. If solution contains less than 50 ppm available chlorine as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment and do not soak equipment overnight. Sanitizers used in automated

systems may be used for general cleaning but may not be reused for sanitizing purposes.

IMMERSION METHOD – A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.5 oz. of [If no test kit is available, prepare a sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, immerse the equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment. Sanitizers used in automated systems may be used for general cleaning but may not be reused for sanitizing purposes.

LOW/PRESSURE METHOD – Disassemble equipment and thoroughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 3 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at [illegible] contact with internal surfaces. Remove some solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if equipment contains less than 50 ppm available chlorine. Rinse with potable water prior to use.

CLEAN-IN-PLACE METHOD – Thoroughly clean equipment after use. Prepare a volume of 200 ppm available chlorine sanitizing solution equal to 110% volume capacity of the equipment by mixing the product in a ratio of 3 oz. [illegible] is obtained at all extremities, the system is completely filled with sanitizer and all air is removed from the system. Close drain valves, and hold under pressure for at [illegible] surfaces. Remove some solution from drain valve and test with a chlorine test kit. Remove [illegible] ppm available [illegible].

SPRAY/FOG METHOD – Pre-clean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 3 3.4 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 9 7 oz. product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solution. Always empty and rinse spray/fog

9/16

equipment with potable water after use. Thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces treated with a 600 ppm solution with a 200 ppm solution.

Emergency Disinfection After Main Breaks

MAINS – Before assembly of the repaired section, flush out mud and soil. Permit a waterflow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chorine residual test of 50 ppm is obtained at the low pressure end of the new main section after a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

Disinfection of Nonporous Non-Food Contact Surfaces

RINSE METHOD – Prepare a sanitizing solution by thoroughly mixing 8 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a disinfecting solution by thoroughly mixing, in an immersion tank, 8 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the disinfectant to drain. Do not rinse equipment with water after treatment.

DILUTION CONVERSION CHART FOR SODIUM HYPOCHLORITE SOLUTION

[redacted] Emergency disinfection: 10 drops to 20 gallons of water.

Amount of water	Available Chlorine	10%
[redacted]		
20 Gallons	0.2 to 0.6 ppm	10 drops

DISFECTION OF DRINKING WATER (EMERGENCY/PUBLIC)

PUBLIC SYSTEMS: Mix a ratio of 1 oz. of this product to 100 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Interim Primary Drinking water Regulations. Contact your local Health Department for further details.

INDIVIDUAL SYSTEMS: DUG WELLS: Upon completion of the casing (lining) wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by thoroughly mixing 2 oz. of this product into 10 gallons of water. After covering well, pour the sanitizing

10/16

solution into the well through both the pipesleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution. Start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours, flush well until all traces of chlorine have been removed from the water. Consult your local Health Department for further details.

(EMERGENCY/INDIVIDUAL SYSTEMS)

INDIVIDUAL WATER SYSTEMS: DRILLED, DRIVEN & BORED WELLS Run pump until water is as free from turbidity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by thoroughly mixing 1.5 oz. of this product into 10 gallons of water. Add 5 to 10 gallons of clean, chlorinated water to the well in order to force the sanitizer into the rock formation. Wash the exterior pump cylinder with the sanitizer. Drop pipeline into well, start pump and pump water until strong odor of chlorine is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer into the well. Consult your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: FLOWING ARTESIAN WELLS Artesian wells generally do not require disinfection. If analysis indicates persistent contamination, the well should be disinfected. Consult your local Health Department for further details.

EMERGENCY DISINFECTION: When boiling of water for 1 minute is not practical, water can be made potable by using this product. Prior to addition of the sanitizer, remove all suspended material by filtration or by allowing it to settle to the bottom. Decant the clarified, contaminated water to a clean container and add 10 drops of this product to 20 gallons of water. Allow the treated water to stand for 30 minutes. Properly treated water should have a slight chlorine odor, if not, repeat dosage and allow the water to stand an additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

PUBLIC WATER SYSTEMS

RESERVOIRS-ALGAE CONTROL: Hypochlorinate streams feeding the reservoir. Suitable feeding points should be selected on each stream at least 50 yards upstream from the points of entry into the reservoir.

MAINS: Thoroughly flush section to be sanitized by discharging the hydrants. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chorine residual test of 50 ppm is obtained at the low pressure end of the new main section after a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

NEW TANKS, BASINS, ETC.: Remove all physical soil from surfaces. Place 20 oz. of this product for each 5 cubic feet of working capacity (500 ppm available chlorine). Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to surface.

NEW FILTER SAND: Apply ~~80~~ 83 oz. of this product for each 150 to 200 cubic feet of sand. The action of the product dissolving as the water passes through the

11/16

bed will aid in sanitizing the new sand.

NEW WELLS: Flush the casing with a 50 ppm available chlorine solution of water containing 5 oz. of this product for each 100 gallons of water. This solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may then be pumped until a representative raw water sample is obtained. Bacterial examination of the water will indicate whether further treatment is necessary.

EXISTING EQUIPMENT: Remove equipment from service, thoroughly clean surfaces of all physical soil. Sanitize by placing 21 30 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine). Fill to working capacity and let stand at least 4 hours. Drain and place in service. If the previous treatment is not practical, surfaces may be sprayed with a solution containing 5 oz. of this product for each 5 gallons of water (approximately 1000 ppm available chlorine). After drying, flush with water and return to service.

AGRICULTURAL USES

FOOD EGG SANITATION: Thoroughly clean all eggs. Thoroughly mix 3 oz. of this product with 10 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130° F. Spray the sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughly dry before casing or breaking. Do not apply a potable water rinse. The solution should not be re-used to sanitize eggs.

FRUIT AND VEGETABLE WASH: Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 7.5oz. of this product with 200 gallons of water to make of 25 ppm available chlorine. After draining the tank, submerge fruit and vegetables for 2 minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegetables with sanitizing solution prior to packaging. Rinse fruit with potable water only prior to packaging.

SPRAY/FOG METHOD- Preclean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by thoroughly mixing the product in a ration of 3 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 9 oz. product with 10 gallons of water. Use spray fogging equipment, which can resist hypochlorite solution. Always empty and rinse spray/fog equipment with potable water after use. Thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse surfaces treated with a 600 ppm solution with a 200 ppm solution.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 54 to 108 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 to 7.6. Adjust and maintain the alkalinity of the pool to between 50 to 100 ppm.

12/16

To maintain the pool, add manually or by a feeder device 12 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain a residual of 1.0 to 1.5 ppm available chlorine. Test the pH, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers.

Every 7 days, or as necessary, superchlorinate the pool with 54 to 108 oz. of product for each 10,000 gallons of water to yield 5 to 10 available chlorine by weight. Check the level of available chlorine with a test kit. Do not reenter pool unitil the chlorine residual is between 1.0 to 3.0 ppm.

At the end of the swimming pool season or when water is to be drained from the pool, chlorine must be allowed to dissipate from treated pool water before discharge. Do not chlorinate the pool within 24 hours prior to discharge.

WINTERIZING POOLS – While water is still clear and clean, apply 4 oz. of product per 1000 gallons, while filter is running, to obtain a 3 ppm available chlorine residual, as determined by a suitable test kit, cover pool, prepare heater, filter and heater components for winter by following manufacturer's instructions.

SPAS AND HOT TUBS

Apply 5 oz. of product per 1000 gallons of water to obtain a free available chlorine concentration of 5 ppm, as determined by a suitable chlorine test kit. Adjust and maintain pool water pH between 7.2 to 7.8. Some oils, lotions, fragrances, cleaners, etc. may cause foaming or cloudy water as well as reduce the efficiency of the product.

To maintain the water, apply 5 oz. of product per 1000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm.

After each use, shock treat with 9 oz. of this product per 500 gallons of water to control odor and algae.

During extended periods of disuse, add 4 oz. of product daily per 1000 gallons of water to maintain a 3 ppm chlorine concentration.

DILUTION CONVERSION CHART FOR SODIUM HYPOCHLORITE SOLUTION

Public Systems: Disinfection of drinking water: [redacted] 10 drops to 20 gallons of water.

Amount of water	Available Chlorine	10%
2000 Gallons	0.2 to 0.6 ppm	2 oz.
20 Gallons	0.2 to 0.6 ppm	10 drops

SEWAGE AND WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL – Apply a 100 to 1000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by

13/16

mixing 10 to 100 oz. of this product with 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution. Prepare this solution by mixing 4 oz. of this product with 100 gallons of water.

FILTER BEDS – SLIME CONTROL – Remove filter from service, drain to a depth of 1 ft. above filter sand, and add 80 oz. of product per 20 sq/ft evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.

COMMERCIAL LAUNDRY SANITIZERS

All fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 3 oz. of the product with 10 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the pre-wash prior to washing fabrics/clothes in a regular wash cycle with a good detergent. Test the level of available chlorine, if solution has been allowed to stand. Add more of this product if the available chlorine level has dropped below 200 ppm.

Sanitization of Porous Food Contact Surfaces

RINSE METHOD – Prepare a sanitizing solution by thoroughly mixing 8 (7.5) oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 3 (2) minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 3 (2.4) oz. of this product with 10 gallons of water. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Do not rinse and do not soak equipment overnight.

IMMERSION METHOD - Prepare a 600 ppm solution by thoroughly mixing, in an immersion tank, 8 (7.5) oz. of this product with 10 gallons of water. Clean equipment in the 600 ppm solution for at least 2 minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 3 (2.4) oz. of this product with 10 gallons of water. Prior to using equipment, immerse all surfaces in a 200 ppm available chlorine solution. Do not rinse and do not soak equipment overnight.

SPRAY/FOG METHOD – Preclean all surfaces after use. Prepare a 600 ppm available chlorine solution of sufficient size by thoroughly mixing the product in a ratio of 8 (7.5) oz. product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water.

Disinfection of Nonporous Non-Food Contact Surfaces

RINSE METHOD – Prepare a disinfecting solution by thoroughly mixing 8 (7.5) oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution,

14/16

maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.
IMMERSION METHOD- Prepare a disinfecting solution by thoroughly mixing, in an immersion tank, 8 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow sanitizer to drain. Do not rinse equipment with water after treatment.

Sanitization of Porous Non-Food Contact Surfaces
RINSE METHOD –Prepare a sanitizing solution by thoroughly mixing 8 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the solution for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.
IMMERSION METHOD - Prepare a sanitizing solution by thoroughly mixing, in an immersion tank, 8 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse with water after treatment.
SPRAY/FOG METHOD – After cleaning, sanitize non-food contact surfaces with a 600 ppm available chlorine solution by thoroughly mixing 8 7.5 oz. of this product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Prior to using equipment, thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

Farm Premises

Remove all animals, poultry and feed from premises, vehicles and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or traversed by animals or poultry. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with soap or detergent or rinse with water. To disinfect, saturate all surfaces with a solution of at least 1,000 ppm available chlorine for a period of 10 minutes. A 1,000 ppm solution can be made by thoroughly mixing 12 oz. of this product with 10 gallons of water. Immerse all halter, ropes and other types of equipment used in handling and restraining animals or poultry, as well as cleaned forks, shovels and scrapers used for removing litter or manure. Ventilate buildings, cars, boats, and other closed spaces. Do not house livestock or poultry or employ equipment until chlorine has dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains and waterers must be rinsed with potable water before use.

Agricultural Uses

POST-HARVEST PROTECTION – Potatoes can be sanitized after cleaning

prior to storage by spraying with a sanitizing solution at a level of 1 gallon of sanitizing solution per ton of potatoes. Thoroughly mix 1.5 oz. of this product to 2 gallons of water to obtain 500 ppm available chlorine.

Disinfect leafcutting bee cells and bee boards by immersion in a solution containing 1 ppm available chlorine for 3 minutes. Allow cells to drain for 2 minutes and dry for 4 to 6 hours or until no chlorine odor can be detected. This solution is made by thoroughly mixing 1 Tsp. of this product to 100 gallons of water. The bee domicile is disinfected by spraying with a 0.1 ppm solution until all surfaces are thoroughly wet. Allow the domicile to dry until all chlorine odor has dissipated.

Aquacultural Uses

FISH PONDS – Remove fish from ponds prior to treatment. Thoroughly mix 106 oz. of this product to 10,000 gallons of water to obtain 10 ppm available chlorine. Add more product to the water if the available chlorine level is below 1 ppm after 5 minutes. Return fish to pond after the available chlorine level reaches zero.

MAIN LOBSTER PONDS – Remove lobsters, seaweed, etc. from ponds prior to treatment. Drain the pond. Thoroughly mix 8000 oz. of this product to 10,000 gallons of water to obtain at least 600 ppm available chlorine. Apply so that all barrows, gates, rock and dam are treated with product. Permit high tide to fill the pond and then close gates. Allow water to stand for 2 to 3 days until the available chlorine level reaches zero. Open gates and allow 2 tidal cycles to flush the pond before returning lobsters to pond.

CONDITIONING LIVE OYSTERS – Thoroughly mix 5 oz. of this product to 10,000 gallons of water at 50° to 70° F to obtain 0.5 ppm available chlorine. Expose oysters to this solution for at least 15 minutes, monitoring the available chlorine level so that it does not fall below 0.05 ppm. Repeat entire process if the available chlorine level drops below 0.05 ppm or the temperature falls below 50°F.

CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS – Prepare a solution containing 200 ppm of available chlorine by mixing 3 oz. of product with 10 gallons of water. Pour into drained pond potholes. Repeat if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0 ppm, as determined by a test kit.

Sewage & Wastewater Effluent Treatment

The disinfection of sewage effluent must be evaluated by determining the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure; if the chlorinated effluent has been reduced to or below the maximum permitted by the controlling regulatory jurisdiction.

On the average, satisfactory disinfection of secondary wastewater effluent can be obtained when the chlorine residual is 0.5 ppm after 15 minutes contact. Although the chlorine residual is the critical factor is disinfection, the importance of correlating chlorine residual with bacterial kill must be emphasized. The MPN of

16/16

the effluent, which is directly related to the water quality standards requirements, should be the final and primary standard and the chlorine residual should be considered an operating standard valid only to the extent verified by the coliform quality of the effluent.

The following are critical factors affecting wastewater disinfection.

1. Mixing: It is imperative that the product and the wastewater be instantaneously and completely flash mixed to assure reaction with every chemically active soluble and particulate component of the wastewater.
2. Contacting: Upon flash mixing, the flow through the system must be maintained.
3. Dosage/Residual Control: Successful disinfection is extremely dependent on response to fluctuating chlorine demand to maintain a predetermined, desirable chlorine level. Secondary effluent should contain 0.2 to 1.0 ppm chlorine residual after 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.6 ppm after 15 minutes contact time.

[TO ORDER, CALL (insert appropriate number)]

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