



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

APR - 5 2006

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

William Landman, Agent
Northstar Chemical Inc.
14200 SW Tualatin Sherwood Road
Sherwood, OR. 97140

SUBJECT: November 28, 2005 label amendment, Revised March 27, 2006
Starchlor
EPA Registration 70248-20001

Dear Mr. Landman:

The revised labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable with the following conditions:

- Under the signal word DANGER place the Spanish counterpart: **Peligro**
- Under the First Aid statements add: **Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.**
(If you do not understand the label, find someone to explain it to you in detail.)
- At the bottom of page 2 add:
Personal Protection Equipment (PPE) for Chemigation Uses
Applicators and other handlers must wear:
 - A. Goggles or face shield.
 - B. Long-sleeved shirt and long pants.
 - C. Water proof gloves.
 - D. Shoes plus socks.**Follow manufacturer's instructions for cleaning/maintaining. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.**
- At the top of page 16, add heading: Chemigation Uses.

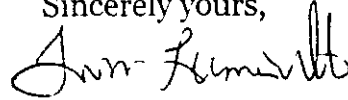
In summary, your request to add the chemigation uses are acceptable since the use is already out in the market on other substantially similar labels. This use will be subject to further review when the active ingredient is re-registered if not sooner.

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A copy of your conditionally accepted label is enclosed. If you have any questions regarding this letter, please contact Tom Luminello of my staff at (703) 308-8075.

Sincerely yours,



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

Enclosure

3/A

StarChlor

ACTIVE INGREDIENT - Sodium Hypochlorite	12.5%
INERT INGREDIENTS	87.5%
TOTAL	100.0%

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

FIRST AID	
If in eyes	<ul style="list-style-type: none"> Hold eye open and rinse slowly and gently with water for 15 - 20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> 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 swallowed	<ul style="list-style-type: none"> 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.
HOT LINE NUMBER	
Have the product container or label with you when you call a poison control center or doctor, or when going for treatment.	
NOTE TO PHYSICIAN	
Probable mucosal damage may contraindicate the use of gastric lavage.	

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.
 See other precautions on this label.

(IF you do not understand the label, find someone to explain it to you in details)

Distributed by:
 Northstar Chemical, Inc.
 Sherwood, OR 97140

ACCEPTED
 with COMMENTS
 in EPA Letter Dated:
 APR - 5 2006

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

EPA REG. NO 70248 -20001

EPA Est. No. 70248-OR-001

NET CONTENTS - XXX GALLONS

70248-
 20001

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PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. May cause severe skin irritation or chemical burns to broken skin. Causes eye damage. May be fatal if swallowed. Avoid breathing vapors. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling this product. Wash hands after handling. Vacate poorly ventilated areas as soon as possible. Do not return until odors have dissipated.

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 public waters unless this product is specifically identified and addressed in an NPDES permit. Do not discharge effluent containing this product into sewer systems without previously notifying the sewage treatment plant authority. For guidance contact your State Water Board or regional office of U.S. Environmental Protection Agency.

PHYSICAL AND CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Use only according to label directions. ~~Mixing~~ this product with gross filth, such as feces, urine, etc. or with ammonia, acids, detergents, or other chemicals will release hazardous gases which are irritating to eyes, lungs and mucous membranes.

Personal Protection Equipment (PPE) for Chemigation Uses.

Applicators and other handlers must wear:

- A. Goggles or face shield.
- B. Long sleeved shirt and long pants.
- C. Water proof gloves.
- D. Shoes plus socks.

Follow manufacturer's instructions for cleaning / maintaining.
If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry

DIRECTIONS FOR USE

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

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

This product is a broad-based sanitizer, which has many uses. For a copy of the complete usage instructions, contact Los Angeles Chemical Company or your Los Angeles Chemical distributor or dealer.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 52 to 104 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.

To maintain the pool, add manually or by a feeder device, 11 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 52 to 104 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. Do not re-enter pool until 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 & clean, apply 3 oz. of product per 1,000 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 manufactures' instructions.

HYDROTHERAPY TANKS - Add 1 oz. of this product per 1,000 gallons of water to obtain a chlorine residual of 1 ppm, as determined by a suitable chlorine test kit. Pool should not be entered until the chlorine residual is below 3 ppm. Adjust and maintain the water pH to between 7.2 and 7.6. Operate pool filter continuously. Drain pool weekly and clean before refilling.

Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

CLEAN-IN-PLACE METHOD -Thoroughly clean equipment after use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2 oz. of 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 the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

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 2 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 6 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 previously treated with a 600 ppm solution with a 200 ppm solution.

SANITIZATION OF POROUS FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by thoroughly mixing 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean 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. 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, 6 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 sanitizing solution for at least two minutes and allow the sanitizer to drain. Rinse equipment with water after treatment.

SPRAY/FOG METHOD - Pre-clean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in the ratio of 6 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 2 oz. of this product with 10 gallons of water.

SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a sanitizing solution by thoroughly mixing 2 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. 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, 2 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY/FOG METHOD - Pre-clean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 2 oz. product with 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Prior to using equipment, thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

DISINFECTION OF NONPORPOUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a disinfecting solution by thoroughly mixing 6 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, 6 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 the 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 6 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean 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. 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, 6 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 sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY/FOG METHOD - After cleaning, sanitize non-food contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 6 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.

SEWAGE & WASTEWATER EFFLUENT TREATMENT

The disinfection of sewage effluent must be evaluated by determining that the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure, of 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 requirement, 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 a 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.5 ppm after 15 minutes contact time.

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 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 3 oz. of this product with 100 gallons of water.

FILTER BEDS AND SLIME CONTROL - Remove filter from service, drain to a depth of 1 foot above filter sand, and add 80 oz. of product per 20 square feet 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.

DISINFECTION OF DRINKING WATER

PUBLIC SYTEMS- 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 casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by thoroughly mixing 1 oz. of this product into 10 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipe sleeve 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.

INDIVIDUAL 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 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 of pump cylinder with the sanitizer. Drop pipeline into well, 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. 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 SYSTEMS – FLOWING ARTESIAN WELLS- Artesian wells generally do not require disinfection. If analyses indicate 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 1 drop 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 several times.

PUBLIC WATER SYSTEMS

ALGAE CONTROL IN RESERVOIRS - 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 from 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 chlorine 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 place in service.

NEW FILTER SAND - Apply 80 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 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. The 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, and thoroughly clean surfaces of all physical soil. Sanitize by placing 21 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 return to 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.

EMERGENCY DISINFECTION AFTER FLOODS

WELLS - Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 5 oz. of this product with 10 gallons of water. Backwash the well to increase yield and reduce turbidity, adding sufficient chlorinating solution to the backwash to produce a 10 ppm available chlorine residual as determined by a chlorine test kit. After the turbidity has been reduced and the casing has been treated, add sufficient chlorinating solution to produce a 50 ppm available chlorine residual. Agitate the well water for several hours and take a representative water sample. Re-treat well if water samples are biologically unacceptable.

RESERVOIRS - In case of contamination by overflowing streams, establish hypochlorinating stations upstream of the reservoir. Chlorinate the inlet water until the entire reservoir obtains a 0.2 ppm available chlorine residual, as determined by a suitable chlorine test kit. In case of contamination from surface drainage, apply sufficient product directly to the reservoir to obtain a 0.2 ppm available chlorine residual in all parts of the reservoir.

BASINS, TANKS AND FLUMES, ETC - Thoroughly clean all equipment, then apply 20 oz. of product per 5 cubic feet of water to obtain 500 ppm available chlorine, as determined by a suitable test kit. After 24 hours drain, flush, and return to service. If the previous method is not suitable, spray or flush the equipment with a solution containing 5 oz. of this product for each 5 gallons of water (1000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

FILTERS - When the sand filter needs replacement, apply 80 oz. of this product for each 150 to 200 cubic feet of sand. When the filter is severely contaminated, additional product should be distributed over the surface at the rate of 80 oz. per 20 square feet. Water should stand at a depth of 1 foot above the surface of the filter bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 80 oz. of this product per each 50 square feet, allowing the water to stand at a depth of 1 foot above the filter sand. After 30 minutes, drain water to the level of the filter. After 4 to 6 hours, drain and proceed with normal backwashing.

DISTRIBUTION SYSTEM - Flush repaired or replaced section with water. Establish a hypochlorinating station and apply sufficient product until a consistent available chlorine residual of at least 10 ppm remains after a 24 hour retention time. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER FIRES

CROSS CONNECTIONS OR EMERGENCY CONNECTIONS - Hypochlorination or gravity feed equipment should be set up near the intake of the untreated water supply. Apply sufficient product to give a chlorine residual of at least 0.1 to 0.2 ppm at the point where the untreated supply enters the regular distribution system. Use a chlorine test kit.

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EMERGENCY DISINFECTION AFTER DROUGHTS

SUPPLEMENTARY WATER SUPPLIES - Gravity or mechanical hypochlorite feeders should be set up on a supplementary line to dose the water to a minimum chlorine residual of 0.2 ppm after a 20 minute contact time. Use a chlorine test kit.

WATER SHIPPED IN BY TANKS, TANK CARS, TRUCKS ETC. - Thoroughly clean all containers and equipment. Spray a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution is made by mixing 5 oz. of this product for each 10 gallons of water. During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER MAIN BREAKS

MAINS - Before assembly of the repaired section, flush out mud and soil. Permit a water flow 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 chlorine 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.

COOLING TOWER AND EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD - Initial Dose: When system is noticeably fouled apply 52 to 104 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 Doses: When microbial control is evident, add 11 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 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 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 Doses: When microbial control is evident, add 11 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.

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PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD - Initial Dose: When system is noticeably fouled, apply 52 to 104 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 Doses: When microbial control is evident, add 11 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 noticeable fouled, apply 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 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 Doses: When microbial control is evident, add 11 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 52 to 104 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Doses: Maintain this treatment level by starting a continuous feed of 1 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 has begun.

AGRICULTURAL USES

POST-HARVEST PROTECTION - Potatoes can be sanitized after cleaning and 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 oz. of this product to 2 gallons of water to obtain 500 ppm available chlorine.

BEE CELLS AND BEE BOARDS - (Not Approved for Use in California) Disinfect leaf-cutting 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 5 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.

FOOD EGG SANITIZATION - Thoroughly clean all eggs. Thoroughly mix 2 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 warm 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 & VEGETABLE WASHING - Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 5 oz. of this product in 200 gallons of water to make a sanitizing solution of 25 ppm available chlorine. After draining the tank, submerge fruit or vegetables for 2 minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegetables with the sanitizing solution prior to packaging. Rinse fruit with potable water only, prior to packaging.

AQUACULTURAL USES

FISHPONDS - Remove fish from ponds prior to treatment. Thoroughly mix 103 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.

FISH POND EQUIPMENT - Thoroughly clean all equipment prior to treatment. Thoroughly mix 2 oz. of this product to 10 gallons of water to obtain 200 ppm available chlorine. Porous equipment should soak for one hour.

MAINE LOBSTER PONDS - (Not Approved for Use in California) Remove lobsters, seaweed etc. from ponds prior to treatment. Drain the pond. Thoroughly mix 6,200 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 two tidal cycles to flush the pond before returning lobsters to pond.

CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS - Prepare a solution containing 200 ppm of available chlorine by mixing 2 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.

SANITIZATION OF DIALYSIS MACHINES

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 6 oz. of this product to 10 gallons of water to obtain at least 600 ppm available chlorine. Immediately use this product in the hemodialysate system allowing for a minimum contact time of 15 minutes at 20°C. Drain system of the sanitizing solution and

thoroughly rinse with water. Discard and DO NOT reuse the spent sanitizer. Rinsate must be monitored with a suitable test kit to insure that no available chlorine remains in the system.

This product is recommended for decontaminating single and multi-patient hemodialysate systems. This product has been shown to be an effective disinfectant (virucide, fungicide, bactericide, and pseudomonicide) when tested by AOAC and EPA test methods. This product may not totally eliminate all vegetative microorganisms in hemodialysate delivery systems due to their construction and/or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when used as directed. This product should be used in a disinfectant program which includes bacteriological monitoring of the hemodialysate delivery system. This product is NOT recommended for use in hemodialysate or reverse osmosis (RO) membranes.

Consult the guidelines for hemodialysate systems, which are available from Hepatitis Laboratories, CDC, Phoenix, AZ 85021.

ASPHALT OR WOOD ROOFS AND SIDINGS

To control fungus and mildew, first remove all physical soil by brushing and hosing with clean water, and apply a 5000 ppm available chlorine solution. Mix 5 oz of this product per gallon of water and brush or spray roof or siding. After 30 minutes, rinse by hosing with clean water.

BOAT BOTTOMS

To control slime on boat bottoms, sling a plastic tarp under boat, retaining enough water to cover the fouled bottom area, but not allowing water to enter enclosed area. This envelope should contain approximately 500 gallons of water for a 14 foot boat. Add 18 oz. of this product to this water to obtain a 35 ppm available chlorine concentration. Leave immersed for 8 to 12 hours. Repeat if necessary. Do not discharge the solution until the free chlorine level has dropped to 0 ppm, as determined by a swimming pool test kit.

ARTIFICIAL SAND BEACHES

To sanitize the sand, spray a 500 ppm available chlorine solution containing 5 oz. of this product per 10 gallons of water at frequent intervals. Small areas can be sprinkled with a watering can.

Chemigation Uses

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Irrigation water conveyance systems:

To aid in keeping water-emitting devices and the irrigation water distribution system from becoming plugged by suspended solids, magnesium and calcium precipitation, manganese-iron oxides and sulfides, algae, bacteria, and slime.

General Instructions: Apply this product only to center pivot, lateral move, side-wheel roll, solid set, hand move, traveler, big gun, end tow, Low Energy Precision Application Systems or micro-irrigation systems. (e.g., surface or subsurface drip emitters and micro-spray). Do not apply this product to any other type of irrigation system. Crop injury, lack of effectiveness or illegal pesticide residues in the crop may result from use inconsistent with dosage instructions. The injection apparatus and irrigation system must be properly calibrated and maintained. Questions about calibration should be directed to State Cooperative Extension Specialists, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems), while using this product to treat the system, to a public water system unless the prescribed safety devices for the public water systems are in place and are properly functioning.

A person knowledgeable of the system and responsible for its operation or someone under the direct supervision of the responsible person, must start up or shut down the system and make any necessary adjustments including calibration.

Specific Irrigation System Requirements: The system must contain a functional, check valve, vacuum relief valve and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must contain a functional, automatic, quick closing check valve to prevent the flow of fluid back towards the injection pump. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being drawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls, (e.g., pressure switch or flow meter) to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. The irrigation mainline or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. piston or diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock

Irrigation systems connected to a public water system must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent, in the water supply line upstream from the point of pesticide introduction. As an alternative to the RPZ, the water from a public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

Substituted Devices: Alternative technology referenced in USEPA's "List of Alternative Chemigation Safety Equipment" may be substituted for specific backflow prevention devices.

Important notice: State Chemigation rules may necessitate protective measures in addition to those specified hereinabove.

Application/Dosage Instructions: Before chlorination is undertaken, a water quality analysis should be performed to quantify inorganic solids such as sand and silt; organic solids such as algae, bacteria and slime; dissolved solids such as iron, sulfur, sodium chlorides, calcium and pH of the water. If the pH is above 7.5 the water must be acidified if chlorination is to be effective. The application concentration and application frequency should be based on the water analysis. To determine injection rates referenced below use the following formulas:

Table 1: Injection Rate in Gallons per Hour For Positive Displacement Pumps	
$IR = \frac{0.006 \times Q \times C}{P}$	<p>IR = Injection Rate Q = Irrigation System Flow Rate (gal/min) C = Desired Concentration of Available Chlorine (ppm) P = Concentration of Product Solution (percent)</p>

Table 2: Injection Rate in Ounces per Hour For Positive Displacement Pumps	
$IR = \frac{0.77 \times Q \times C}{P}$	<p>IR = Injection Rate Q = Irrigation System Flow Rate (gal/min) C = Desired Concentration of Available Chlorine (ppm) P = Concentration of Product Solution (percent)</p>

Table 3: Injection Rate (ppm) For Proportional Rate Injection Pumps	
$IR = \frac{C \times 100}{P}$	<p>IR = Injection Rate C = Desired Concentration of Available Chlorine (ppm) P = Concentration of Product Solution (percent) 1% = 10,000 ppm</p>

Continuous Feed: Inject the required amount of this product into the irrigation system to obtain 1 to 5 ppm available chlorine, until a concentration of 1 to 2 ppm of free (residual) chlorine can be measured at the distant end of the irrigation distribution system. Measure with a reliable chlorine test kit.

Example: Using a positive displacement pump injection system (Tables 1 & 2) with an Irrigation flow rate (Q) of 100 gallons per minute (gpm), for a desired Concentration C of 5 ppm available chlorine (with 1 to 2 ppm residual chlorine measured at distant end of the irrigation system) and a concentration of this product (P) at 12.5% available chlorine: inject 0.24 gallon (30 ounces) per hour (IR) of this product.

System Maintenance: At the end of the irrigation cycle, inject the required amount of this product into the system to attain 10 to 20 ppm available chlorine for the length of time required to fill the entire system with this solution. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

Example: Using a positive displacement pump injection system (Tables 1 & 2) with an

irrigation flow rate (Q) of 100 gallons per minute (gpm), for a desired Concentration (C) of 15 ppm available chlorine and a Concentration of this Product solution (P) is 12.5; inject 0.72 gallons (92 ounces) per hour (IR) of this product.

Shock Treatment: One or two times each month, at the end of the irrigation cycle, inject the required amount of this product into the system to attain 20 to 30 ppm available chlorine for the length of time required to fill the entire system with this solution. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

Example: Using a positive displacement pump injection system (Tables 1 &2) with an irrigation flow rate (Q) of 100 gallons per minute (gpm), for a desired Concentration (C) of 25 ppm available chlorine and concentration of this Product solution (P) at 12.5% ; inject 1.2 gallons (154 ounces) per hour (IR) of this product.

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STORAGE AND DISPOSAL

Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spills, flood areas with large quantities of water. If container required a deposit, return it to Northstar Chemical Inc. or its distributor for a refund. If container is a "no deposit" container, then triple rinse and discard. Product or rinsate, which can not be used, should be diluted with water and discarded in a sanitary sewer. Do not contaminate food or feed by storage, disposal or cleaning of equipment.