

TERM OF ISSUANCE

NAME OF PESTICIDE PRODUCT

Liquichlor 12.5%

NOTICE OF PESTICIDE: REGISTRATION
 REREGISTRATION
(Under the Federal Insecticide, Fungicide,
and Rodenticide Act, as amended)

NAME AND ADDRESS OF REGISTRANT (Include ZIP code)

Van Waters & Rodgers Inc.
Subsidiary of Univar
P.O. Box 34325
Seattle, WA 98124-1325

NOTE: Changes in labeling formula differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above U.S. EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby Registered/Reregistered under the Federal Insecticide, Fungicide, and Rodenticide Act.

A copy of the labeling accepted in connection with this Registration/Reregistration is returned herewith.

Registration is in no way to be construed as an indorsement or approval of this product by this Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

Based on your response to the Reregistration Eligibility Document, EPA has reregistered the above named product subject to the comments recorded in the succeeding paragraph. This action is taken under the authority of section 4(g)(2)(C) of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended. Reregistration under this section does not eliminate the need for continual reassessment of pesticides. EPA may require submission of data at any time to maintain the registration of your product.

Make the following labeling changes before you release the product for shipment:

1. In the Ingredient Statement, you must total the Active and Inert Ingredients to "100%":

Active Ingredient:

Sodium hypochlorite..... 12.5%

Inert Ingredients:..... 87.5%

Total..... 100.0%

2. The Ingestion Statement and Environmental Hazards Statements must be corrected in the product bulletin to be the same as those that appear on the product label.

ATTACHMENT IS APPLICABLE

SIGNATURE OF APPROVING OFFICIAL

DATE

A stamped copy of the product label is enclosed for your records.

Submit one copy of the final printed label before releasing the product in channels of trade with the revised labeling.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sec. 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

Sincerely,



Ruth G. Douglas
Product Manager (32)
Antimicrobial Program Branch
Registration Division (H7504C)

Enclosure

3047

LIQUICHLOR[®] 12.5%

ACTIVE INGREDIENT: SODIUM HYPOCHLORITE 12.5% INERT INGREDIENTS 87.5%

NOTE: This product degrades with age, use within one month of receipt. Use a chlorine test kit and increase dosage as necessary, to obtain required level of available Chlorine.

KEEP OUT OF REACH OF CHILDREN

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive, may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Ventilate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS: This product is toxic to fish. Do not discharge into lakes, streams, ponds, or public waterways unless in accordance with NPDES permits. For guidance, contact the regional office of the U.S. Environmental Protection Agency.

PHYSICAL OR 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 (e.g. urine, feces, etc.) will release chlorine gas which is irritating to eyes, lungs and mucous membranes.

FIRST AID

IF CONTACT WITH EYES OCCURS: Flush with water for at least 15 minutes. Get prompt medical attention.

IF CONTACT WITH SKIN OCCURS: Wash with plenty of soap and water.

IF SWALLOWED: Drink large quantities of milk or gelatin solution. If these are not available, drink large quantities of water. **DO NOT** give vinegar or other acids. **DO NOT** induce vomiting. Get prompt medical attention.

FOR ADDITIONAL SAFETY INFORMATION,
SEE MATERIAL SAFETY DATA SHEET

DOT SHIPPING NAME: 18 HYPOCHLORITE SOLUTION
CORROSIVE MATERIAL, UN1751 (5.1 - 6.2)

CAS NO. 60898 HYPOCHLORITE 7661-85-4

0691 NET 53 GAL. LOT



FOR INSTITUTIONAL AND INDUSTRIAL DO NOT STORE IN OR ABOUT DWELL

DIRECTIONS FOR USE

It is a violation of federal law to use this product in a manner inconsistent with labeling. **STORAGE AND DISPOSAL:** Store this product in a cool dry area away from sunlight and heat to avoid deterioration. In case of spill, flood large quantities of water. Product or residue that cannot be used should be washed with water before disposal in a sanitary sewer. Do not reuse container for trash collection. Do not contaminate food or feed by storage, disposal or use of equipment.

See PRODUCT BULLETIN for additional precautions and specific directions.

CONTAINER ADVICE

KEEP CONTAINER CLOSED

Handling: Always wear protective clothing including goggles, rubber gloves and apron. Wear respiratory protection if local exhaust ventilation in loading containers is not available, and more often in hot weather, to relieve pressure. Close carefully when opening and replace closures after each use. Do not use pressure to empty since the container is not a pressure vessel. Empty Containers: The empty container retains product vapor and never add any chemicals to this empty container because violent and dangerous reactions may occur. **FOLLOW ALL LABEL WARNINGS EVEN IF CONTAINER IS EMPTY.**

EMERGENCY RESPONSE

For emergency assistance involving chemicals call CHEMTREC at (800) 424-9300.

In case of Fire: Use water spray, dry chemical, or CO₂. Do not use a direct stream. Use water spray to cool nearby containers exposed to fire. Firefighters should wear self-contained breathing apparatus.

In case of Spill: Wear protective equipment including rubber boot gloves, rubber apron, chemical goggles, and respiratory protection. If spilled into waste treatment system with lots of water. For large spills, flush with lots of water. Avoid contact with acids. Do not use on materials, such as iron, steel or aluminum. Comply with all governmental regulations on reporting releases.

EPA REG. NO. 600-30001-AA
EPA EST. NO. 600-PL-602

Distributor

Van Waters & Rogers
subsidiary of **Unifl**

P.O. P-77 24288 Burien, WA 98148

JUN 30 1993

DANGER

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

550-20001

B Insert the paragraph

IF SWALLOWED: Drink large amounts of water. **DO NOT** induce vomiting.
Call a physician or poison control center immediately.

C Insert the paragraph

ENVIRONMENTAL HAZARDS: This pesticide 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 to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Product Bulletin

LIQUICHLOR 12.5%

For Institutional and Industrial Uses. Do Not Store In Or About Dwellings.

ACTIVE INGREDIENT:

Sodium hypochlorite 12.5%

INERT INGREDIENT: 87.5%

KEEP OUT OF REACH OF CHILDREN, IRRESPONSIBLE PERSONS, AND PETS

DANGER

STATEMENT OF PRACTICAL TREATMENT (FIRST AID)

If Contact With Flush with water for at least 15 minutes. Get prompt medical attention.

Eye Occurs:

If Contact With Wash with plenty of soap and water.

Skin Occurs:

ACCEPTED

If Swallowed: Drink 2-4 glasses of milk or gelatin solution. If these are not available, drink water. DO NOT give vinegar or other acids. DO NOT induce vomiting. Get prompt medical attention.

JUN 30 1993

Distributed by

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended for the pesticide registered under EPA Reg. No. 350-10001

Van Waters & Rogers Inc.

subsidiary of **Univar**

P.O. Box 34328 Seattle, WA 98124-1328

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive, may cause severe skin and eye irritation or chemical burns to broken skin. Causes eye damage. Wear safety glasses or goggles and rubber gloves when handling this product. Wash after handling. Avoid breathing vapors. Vacate poorly ventilated areas as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS: This product is toxic to fish. Do not discharge into lakes, streams, ponds, or public waterways unless in accordance with NPDES permit. For guidance, contact the regional office of the U.S. Environmental Protection Agency.

PHYSICAL OR 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 (e.g. urine, feces, etc.) will release chlorine gas which is irritating to eyes, lungs and mucous membranes.

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.

STORAGE AND DISPOSAL

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. Product or rinsate that cannot be used should be diluted with water before disposal in a sanitary sewer. Do not reuse container but place in trash collection. Do not contaminate food or feed by storage, disposal or cleaning of equipment.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 82 to 104 fl. oz. of this product per 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 7.5. Adjust and maintain the alkalinity of the pool to between 80 and 100 ppm.

To maintain the pool, add manually or by a feeder device 11 fl. oz. of this product per 10,000 gallons of water to yield an available chlorine residual between 0.8 to 1.0 ppm, as needed.

DISINFECTION OF DRINKING WATER (EMERGENCY/PUBLIC/INDIVIDUAL SYSTEMS)

PUBLIC SYSTEMS: Mix a ratio of 1 fl. oz. of this product per 100 gallons of water with a hypochlorinator until a free available chlorine residual obtained throughout the distribution system. Check water frequency must be conducted at a frequency not less than that of Water Regulations. Contact your local Health Department for

INDIVIDUAL SYSTEMS: DUG WELLS: Upon completion of the (ing) with a 100 ppm available chlorine solution using a still bru 1 fl. oz. of this product into 10 gallons of water. After covering through both the pipeleave opening and the pipeline. Wash the ing solution. Start pump and pump water until strong odor of least 24 hours. After 24 hours flush well until all traces of chl your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: DRILLED, DRIVEN, & BO: turbidity as possible. Pour a 100 ppm available chlorine sanitizer by thoroughly mixing 1 fl. oz. of this product into 10 gallons of water to the well in order to force the sanitizer into the rock in the sanitizer. Drop pipeline into well, start pump and pump w Stop pump and wait at least 24 hours. After 24 hours flush w from the water. Deep wells with high water levels may necess the sanitizer into the well. Consult your local Health Depart **INDIVIDUAL WATER SYSTEMS: FLOWING ARTESIAN WEL:** lation. If analyses indicate persistent contamination, the well shou ment for further details.

EMERGENCY DISINFECTION: When boiling of water for 1 m by using this product. Prior to addition of the sanitizer, remove it to settle to the bottom. Decant the clarified, contaminated product to 20 gallons of water. Allow the treated water to stand a slight chlorine odor, if not, repeat dosage and allow the wa water can then be made palatable by pouring it between cle

PUBLIC WATER SYSTEMS

RESERVOIRS: ALGAE CONTROL: Hypochlorinated streams b be selected on each stream at least 50 yards upstream from **MAINS:** Thoroughly flush section to be sanitized by discharging feet per minute to continue under pressure while injecting the flow when chlorine residual test of 50 ppm is obtained at the 24 hour retention time. When chlorination is complete, the system

NEW TANKS, BASHN, ETC.: Remove all physical soil from a cubic feet of working capacity (500 ppm available chlorine). Fil 4 hours. Drain and flush with potable water and return to su

NEW FILTER SAND: Apply 80 fl. oz. of this product per each product dissolving as the water passes through the bed will

NEW WELLS: Flush the casing with a 50 ppm available chlora duct for each 100 gallons of water. The solution should be pu mixing with agitation. The well should stand for several hours or until a representative raw water sample is obtained. Bacterial ther treatment is necessary.

EXISTING EQUIPMENT: Remove equipment from service, th by placing 21 fl. oz. of this product per each 5 cubic feet ca Fill to working capacity and let stand at least 4 hours. Drain a practical, surfaces may be sprayed with a solution containing (approximately 1,000 available chlorine). After drying, flush v

EMERGENCY DISINFECTION AFTER FLO

WELLS: Thoroughly flush contaminated casing with a 500 pp by mixing 5 fl. oz. of this product with 10 gallons of water. Beck adding sufficient chlorinating solution to the backwash to proo mined by a chlorine test kit. After the turbidity has been reduc chlorinating solution to produce a 50 ppm available chlorine re take a representative water sample. Retreat well if water sa

RESERVOIRS: In case of contamination by overflowing strea the reservoir. Chlorinate the inlet water until the entire reserv as determined by a suitable chlorine test kit. In case of conta duct directly to the reservoir to obtain a 0.2 ppm available cl

BASHN, TANKS, FLUMBS, ETC.: Thoroughly clean all equip fl. of water to obtain 500 ppm available chlorine, as determine and return to service. If the previous method is not suitable, spr 5 fl. oz. of this product for each 5 gallons of water (1,000 ppm flush and return to service.

FILTERS: When the sand filter needs replacement, apply 80 of sand. When the filter is severely contaminated, additional p rate of 80 fl. oz. per each 20 sq. ft. of sand. Water should sta bed for 4 to 24 hours. When filter beds can be backwashed of 80 sq. ft., allowing the water to stand at a depth of 1 foot ab the level of the filter. After 4 to 6 hours drain, and proceed

DISTRIBUTION SYSTEMS: Flush each main and secondary main

BEST AVAILABLE COPY

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 52 to 104 fl. oz. of this product per 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 80 and 100 ppm.

To maintain the pool, add manually or by a feeder device 11 fl. oz. of this product per 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 1.6 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 fl. oz. of this product per 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 and clean, apply 3 fl. oz. of this product per 1,000 gallons of water 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 manufacturers' instructions.

SPAS, HOT-TUBS, IMMERSION TANKS, ETC.

HOT TUBS: Apply 5 fl. oz. of this product per 1,000 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 to between 7.2 and 7.6. 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 fl. oz. of this product per 1,000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm.

After each use, shock treat with 16 fl. oz. of this product per 1,000 gallons of water to control odor and algae. During extended periods of disease, add 3 fl. oz. of this product daily per 1,000 gallons of water to maintain a 3 ppm chlorine concentration.

HUBBARD AND IMMERSION TANKS: Add 5 fl. oz. of product per 200 gallons of water before patient use to obtain a chlorine residual of 25 ppm, as determined by a suitable test kit. Adjust and maintain the water pH to between 7.2 and 7.6. After each use drain the tank. Add 5 fl. oz. of this product to a bucket of water and circulate this solution through the agitator of the tank for 15 minutes and then rinse out the solution. Clean tank thoroughly and dry with clean cloths.

HYDROTHERAPY TANKS: Add 1 fl. 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.

SANITIZATION OF NONPOROUS FOOD CONTACT SURFACES

RINSE 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 fl. oz. of this product per 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2 fl. oz. of this product per 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 re-establish 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 re-used 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 fl. oz. of this product per 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2 fl. oz. of this product per 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. 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 re-establish 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 re-used for sanitizing purposes.

FLOW/PRESSURE METHOD: Disassemble equipment and thoroughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing this product in a ratio of 2 fl. oz. per 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 2 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.

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 this product in a ratio of 2 fl. oz. per 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 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 this product in a ratio of 2 fl. oz. per 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing this product in a ratio of 6 fl. oz. per 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 treated with a 600 ppm solution with a 50 ppm available chlorine solution.

FILTERS: When the sand filter needs replacement, apply 80 fl. oz. of this product for each 100 sq. yd. of sand. When the filter is severely contaminated, additional product should be distributed over the surface at a rate of 80 fl. oz. per each 25 sq. ft. of sand. Water should stand at a depth of 1 foot above the surface of bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 80 fl. oz. of this product 50 sq. ft., allowing the water to stand at a depth of 1 foot above the filter sand. After 30 minutes, drain the level of the filter. After 4 to 6 hours drain, and proceed with normal backwashing.

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

EMERGENCY DISINFECTION AFTER FIRES

CROSS CONNECTIONS OR EMERGENCY CONNECTIONS: Hypochlorination or gravity feed equipment 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 test kit.

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 chlorine test kit.

WATER SHIPPED IN BY TANKS, TANK CARS, TRUCKS, ETC.: Thoroughly clean all containers and spray a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution by mixing 5 fl. oz. of this product for each 10 gallons of water. During the filling of the containers, dose 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 of at least 100 gpm to continue under pressure while injecting this product by means of a hypochlorinator. Stop when a chlorine residual test of 50 ppm is obtained at the low pressure end of the new main section hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

COOLING TOWER/EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD: Initial Dose: When system is noticeably fouled, apply 52 to 104 fl. oz. 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 11 fl. oz. of this product per 10,000 gallons 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 fl. oz. product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (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 11 fl. oz. of this product per 10,000 gallons 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 1/5) 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 fl. oz. product per 10,000 gallons of water to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 fl. oz. 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.

LAUNDRY SANITIZERS

Household Laundry Sanitizers

IN SOAKING SUDS: Thoroughly mix 2 fl. oz. of this product per 10 gallons of wash water to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent. Immerse laundry for at least 11 minutes starting the wash/rinse cycle.

IN WASHING SUDS: Thoroughly mix 2 fl. oz. of this product per 10 gallons of wash containing clothes to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent and start the wash/rinse cycle.

COMMERCIAL LAUNDRY SANITIZERS

Wet fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 2 fl. oz. of this product per 10 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the wash water prior to washing fabric/clothes in the 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.

FARM PREMISES

Remove all animals, poultry, and feed from premises, conveyances, 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 and rinse with water. To disinfect, saturate all surfaces with a solution of at least 100 ppm available chlorine for a period of 10 minutes. A 1,000 ppm solution can be made by thoroughly mixing 10 fl. oz. of this product per 10 gallons of water. Immerse all halters, ropes, and other types of equipment used in restraining animals or poultry, as well as the cleaned forks, shovels and scrapers used for removing manure. Ventilate buildings, conveyances, boats and other closed spaces. Do not house livestock or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic waterers and fountains must be rinsed with potable water before reuse.

PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD: Initial Dose: When system is noticeably fouled, apply 52 to 104 fl. 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 11 fl. oz. of this product per 10,000 gallons 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 fl. oz. product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (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.

which can resist hypochlorite solutions. Always empty and rinse sprayfog 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 available chlorine solution.

SANITIZATION OF POROUS FOOD CONTACT SURFACES

RINSE METHOD: Prepare a 600 ppm solution by thoroughly mixing 6 fl. oz. of this product with 10 gallons of water. Clean surfaces in the normal manner. Rinse all surfaces thoroughly with the 600 ppm solution, maintaining contact for at least 2 minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2 fl. oz. of this product with 10 gallons of water. Prior to using equipment, rinse all surfaces with the 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 6 fl. oz. of this product with 10 gallons of water. Clean equipment in the normal manner. Immerse equipment in the 600 ppm solution for at least 2 minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2 fl. 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 sanitizing solution of sufficient size by thoroughly mixing this product in a ratio of 6 fl. oz. per 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse sprayfog 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 fl. 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 fl. 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 fl. 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: Preclean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing this product in a ratio of 2 fl. oz. per 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 NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD: Prepare a disinfecting solution by thoroughly mixing 6 fl. 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 fl. 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 fl. 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 with water after treatment and do not soak equipment overnight.

IMMERSION METHOD: Prepare a sanitizing solution by thoroughly mixing, in an immersion tank, 6 fl. 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 a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing this product in a ratio of 6 fl. oz. per 10 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse sprayfog 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 must be evaluated by determining that the total number of coliform bacterial 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 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 a 15 to 30 minute contact time. A reasonable average of residual chlorine is about 0.5 ppm after 15 minutes contact time.

SEWAGE AND WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL: Apply a 100 to 1,000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by mixing 10 to 100 fl. oz. of this product per 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution. Prepare this solution by mixing 3 fl. oz. of this product per 100 gallons of water.

FILTER BEDS: SLIME CONTROL: Remove filter from service, drain to a depth of 1 foot above filter sand, and add 80 fl. oz. of this product per 20 sq. ft. evenly over the surface. Wait 30 minutes before draining water to a

level, or as needed to maintain water level high and even. Residual chlorine level of 1 ppm using test kit should be cleaned before treatment is begun.

INTERMITTENT FEED METHOD: Initial Dose: When system is noticeably fouled, apply 52 to 11 product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply 1/2 (or 1/3) 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.

Subsequent Dose: When microbial control is evident, add 11 fl. oz. of this product per 10,000 gallons daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Apply half (or 1/3 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 systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD: Initial Dose: When system is noticeably fouled, apply 52 to 10 product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 fl. oz. of this product per 10,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

AGRICULTURAL USES

POST-HARVEST PROTECTION: Potatoes can be sanitized after cleaning and prior to storage by a sanitizing solution at a level of 1 gallon of sanitizing solution per ton of potatoes. Thoroughly mix product with 2 gallons of water to obtain 600 ppm available chlorine.

LEAF-CUTTING BEE CELLS & BEE BOARDS: Disinfect leaf cutting bee cells and bee boards by a solution containing 1 ppm available chlorine for 3 minutes. Allow cells to drain for 2 minutes and/or until no chlorine odor can be detected. This solution is made by thoroughly mixing 1 tap. of 100 gallons of water. The bee domicile is disinfected by spraying with 0.1 ppm solution until all surfaces are wet. Allow the domicile to dry until all chlorine odor has dissipated.

FOOD EGG SANITIZATION: Thoroughly clean all eggs. Thoroughly mix 2 fl. oz. of this product of warm water to produce a 200 ppm available chlorine solution. The sanitized temperature should be 130°F. Spray the warm sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughly caulk or break. Do not apply a potable water rinse. The solution should not be re-used to a

FRUIT AND VEGETABLE WASHING: Thoroughly clean all fruits and vegetables in a wash tank. Use 5 fl. oz. of this product in 100 gallons of water to make a sanitizing solution of 25 ppm available chlorine. Drain the tank, submerge fruit or vegetables for 2 minutes in a second wash tank containing the sanitizing solution. Spray rinse vegetables with the sanitizing solution prior to packaging. Rinse fruit with water only prior to packaging.

AQUACULTURAL USES

FISH PONDS: Remove fish from ponds prior to treatment. Thoroughly mix 103 fl. oz. of this product with 100 gallons of water to obtain 10 ppm available chlorine. Add more product to the water if the available chlorine level reaches 1 ppm after 5 minutes. Return fish to pond after the available chlorine level reaches 2 ppm.

FISH POND EQUIPMENT: Thoroughly clean all equipment prior to treatment. Thoroughly mix 2 fl. oz. of this product with 10 gallons of water to obtain 200 ppm available chlorine. Porous equipment should be soaked in the solution for 2 hours.

MAINE LOBSTER PONDS: Remove lobsters, seaweed etc. from ponds prior to treatment. Thoroughly mix 48.5 gallons per 10,000 gallons of water to obtain at least 600 ppm available chlorine. Treat all barrows, gates, rock and dam are treated with product. Permit high tide to fill the pond gates. Allow water to stand for 2 to 3 days until the available chlorine level reaches zero. Open gates 2 tidal cycles to flush pond before returning lobsters to pond.

CONDITIONING LIVE OYSTERS: Thoroughly mix 5 fl. oz. of this product with 10,000 gallons of water to obtain 0.5 ppm available chlorine. Expose oysters to this solution for at least 15 minutes, available chlorine level so that it does not fall below 0.05 ppm. Repeat entire process if the available chlorine 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 available chlorine by mixing 2 fl. oz. of this product with 10 gallons of water. Pour into drained pond pool if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0.1 ppm by a test kit.

SANITIZATION OF DIALYSIS MACHINES

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 6 fl. oz. of this product with 10 gallons of water to obtain at least 600 ppm available chlorine. Immediately use this product in the system allowing for a minimum contact time of 15 minutes at 20°C. Drain system of the sanitizer thoroughly rinse with water. Discard and DO NOT reuse the spent sanitizer. Rinse must be made suitable test kit to insure that no available chlorine remains in the system.

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

Consult the guidelines for hemodialysis systems which are available from the Hepatitis Laboratories, AR 85021.

ASPHALT OR WOOD ROOFS AND SIDINGS

To control fungus and mildew, first remove physical soil by brushing and hoeing with clean water. Mix 5,000 ppm available chlorine solution. Mix 5 fl. oz. of this product per gallon of water and brush or hose. After 30 minutes, rinse by hoeing with clean water.

BOAT BOTTOMS

To control slime on boat bottoms, sling a plastic tarp under boat, retaining enough water to cover bottom area, but not allowing water to enter enclosed area. This envelope should contain approximately 100 gallons of water for a 14 foot boat. Add 18 fl. oz. of this product to this water to obtain a 25 ppm available chlorine solution. Leave immersed for 8 to 12 hours. Repeat if necessary. Do not discharge the solution until chlorine level has dropped to 0 ppm, as determined by a swimming pool test kit.

ARTIFICIAL SAND BEACHES