



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

September 26, 2017

Lindsay Gaarde  
Regulatory Affairs  
Enviro Tech Chemical Services, Inc.  
500 Winmoore Way  
Modesto, CA 95358

Subject: Label Amendment – Remove fogging directions, add not for use in Florida for  
Emergency Disinfection After Floods directions and non-pesticidal terms  
Product Name: Enviro Klor Potassium Hypochlorite Solution (12.5%)  
EPA Registration Number: 63838-10  
Application Date: January 13, 2017  
Decision Number: 530859

Dear Ms. Gaarde:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

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Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Wanda Henson by phone at (703) 308-6345 or via email at [henson.wanda@epa.gov](mailto:henson.wanda@epa.gov)

Sincerely,

A handwritten signature in blue ink that reads "Wanda G. Fuller, for". The signature is written in a cursive style.

Demson Fuller, Product Manager 32  
Regulatory Management Branch II  
Antimicrobials Division (7510P)  
Office of Pesticide Programs

Enclosure

# ENVIRO KLOR™

## POTASSIUM HYPOCHLORITE SOLUTION (12.5%)

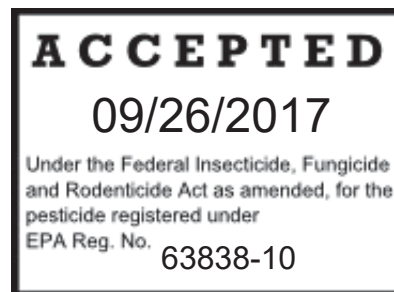
Manufactured by:  
Enviro Tech Chemical Services, Inc.  
500 Winmoore Way  
Modesto, CA 95358  
209-581-9576  
Emergency: (800) 424-9300 (CHEMTREC)

EPA REG. NO. 63838-10

EPA EST. 63838-CA-01

Active Ingredients:	
Potassium Hypochlorite.....	12.5%
Other Ingredients .....	<u>87.5%</u>
TOTAL.....	100.0%

Contains approximately 1.0 lb of Available Chlorine / Gallon



(Placed on Front Panel)  
**KEEP OUT OF REACH OF CHILDREN**

**DANGER – PELIGRO**

If you do not understand the label, find someone to explain it to you in detail.  
(Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.)

FIRST AID	
If in eyes:	<ul style="list-style-type: none"><li>• 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.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
If on skin or clothing:	<ul style="list-style-type: none"><li>• Take off contaminated clothing.</li><li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li><li>• Call a poison control center or doctor for treatment advice.</li></ul>
If swallowed:	<ul style="list-style-type: none"><li>• Call a poison control center or doctor immediately for treatment advice.</li><li>• Have person sip a glass of water if able to swallow.</li><li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li></ul>
If inhaled:	<ul style="list-style-type: none"><li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li><li>• Do not give anything by mouth to an unconscious person.</li></ul>

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage. Have product container or label with you when calling a poison control center, doctor or going for treatment.

**PRECAUTIONARY STATEMENTS**

**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**DANGER:** Corrosive. Causes irreversible eye damage and skin burns. May be fatal if swallowed. Do not get in eyes, on skin, or on clothing. Wear goggles or safety glasses and rubber gloves when handling this product. Irritating to nose and throat. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Avoid breathing vapors. Vacate poorly ventilated area 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 discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA.

**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.

**STORAGE AND DISPOSAL**

**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:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or Hazardous Waste representative at the nearest EPA Regional Office for guidance. If material has been spilled, an acceptable method of disposal is to dilute with at least 20 volumes of water followed by discharge into suitable treatment system in accordance with all Local, State and Federal environmental laws, rules, regulations, standards, and other requirements. Because acceptable methods of disposal may vary by location, regulatory agencies should be contacted prior to disposal. Enviro Klor, which is to be discarded, should be disposed of as hazardous waste after contacting the appropriate Local, State or Federal agency to determine proper procedures.

**Container Disposal, Plastic Containers:** Nonrefillable container. Do not use this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state. Clean container promptly after emptying. Offer for recycling if available. Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the

rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

## **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. In relation to the environment, this product can be considered essentially sodium free.

### **SWIMMING POOL WATER DISINFECTION**

For a new pool or spring start-up, superchlorinate with 65 to 130 fl. 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 and 7.6. Adjust and maintain the alkalinity of the pool to between 50 and 100 ppm.

To maintain the pool, add manually or by a feeder device 14 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 65 to 130 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the levels of available chlorine with a test kit. Reentry into treated pools is prohibited above 4 ppm due to risk of bodily harm.

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 3.8 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 manufacturers' instructions.

### **SPAS, HOT-TUBS, IMMERSIONS TANKS, ETC.**

SPAS / HOT-TUBS – Apply 6.5 oz. of product per 1,000 gallons of water to obtain a free chlorine concentration of 5 ppm, as determined by a suitable test kit. Adjust and maintain pool water pH to between 7.2 and 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 6.5 oz. of product per 1,000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm. (Re)entry into treated spas/hot tubs is prohibited above 5 ppm due to risk of bodily harm.

After each use, shock treat with 10 oz. of this product per 500 gallons of water to control odor and algae.

During extended periods of disuse, add 3.8 oz. of this product daily per 1000 gallons of water to maintain a 3 ppm chlorine concentration.

HYDROTHERAPY TANKS - Add 1.2 oz. of this product per 1000 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 1.2 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2.5 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.

**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 ensure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.2 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2.5 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. 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.

**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 the product in a ratio of 2.5 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 the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to ensure 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 the product in a ratio of 2.5 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 the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to ensure 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 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 site by thoroughly mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Thoroughly spray 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 600 ppm solution with a 200 ppm solution.

### **SANITIZING OF POROUS FOOD CONTACT SURFACES**

**RINSE METHOD** - Prepare a sanitizing solution by thoroughly mixing 7.5 oz. of this product with 10 gallons of water to provide 600 ppm available chlorine by weight. Clean surfaces in the normal manner. Prior to use, immerse all surfaces in the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes and allow the sanitizer to drain. Following this, prepare a 200 ppm sanitizing solution by thoroughly mixing 2 ounces of this product with 10 gallons of water and rinse all surfaces with this 200 ppm solution. Do not rinse with water and do not soak equipment overnight.

**IMMERSION METHOD** - Prepare a sanitizing solution by thoroughly mixing, in an Immersion tank, 7.5 oz. of this product with 10 gallons of water to provide 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution, maintaining contact for at least 2 minutes and allow the sanitizer to drain. Following this, prepare a 200 ppm sanitizing solution by thoroughly mixing 2.5 ounces of this product with 10 gallons of water and rinse all surfaces with this 200 ppm solution. Do not rinse with water and do not soak equipment overnight.

**SPRAY METHOD** – Pre-clean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Thoroughly spray 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 2.5 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 2.5 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, 2.5 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 with water after treatment.

**SPRAY 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 2.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Prior to using equipment, thoroughly spray 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 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 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, 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 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 7.5 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, 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 sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

**SPRAY METHOD** – After cleaning, sanitize nonfood contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Prior to using equipment, thoroughly spray 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 the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure to ensure that 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 bacteria 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 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 12.5 to 125 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 3.8 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 100 oz. of this 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.

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

**PUBLIC SYSTEMS** – Mix a ratio of 1.2 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 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 1.2 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 a 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 you local Health Department for further details.

**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 1.2 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 the pump cylinder with the sanitizer. Drop pipeline into the well, start pump and pump water until a 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 to the well. Consult your local Health Department for further details.

**INDIVIDUAL WATER 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 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 water to stand and additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

## **PUBLIC WATER SYSTEMS**

**WATER COLLECTION PONDS: ALGAE CONTROL** – Hypo chlorinate streams feeding the reservoir. Suitable feeding points should be selected on each inlet at least 50 yards upstream from the points of entry into the water collection pond.

**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 for a 24 hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

**NEW TANK, BASIN, ETC** – Remove all physical soil from surfaces. Place 25 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 service.



**NEW FILTER SAND** – Apply 100 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 6.2 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, thoroughly clean surfaces of all physical soil. Sanitize by placing 26 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 6.2 oz. of this product for each 5 gallons of water (approximately 1,000 ppm available chlorine). After drying, flush with water and return to service.

### **EMERGENCY DISINFECTION AFTER FLOODS**

(Not for Use in the State of Florida)

**WELLS** – Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 6.2 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. Retreat well if water samples are biologically unacceptable.

**WATER COLLECTION PONDS** – In case of contamination by overflowing water inlets, establish hypochlorinating stations upstream of the water collection pond. Chlorinate the inlet water until the entire collection pond 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 water collection pond to obtain a 0.2 ppm available chlorine residual in all parts of the collection pond.

**BASINS, TANKS, FLUMES, ETC.** – Thoroughly clean all equipment, then apply 25 oz. of product per 5 cu. ft. 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 6.2 oz. of this product for each 5 gallons of water (1,000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

**FILTERS** – When the sand filter needs replacement, apply 100 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 100 oz. per 20 sq. ft. 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 100 oz. of this product per each 50 sq. ft., 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 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.

### **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 6.2 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 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 for a 24-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 65 to 130 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 14 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 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) of this initial dose when half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) of this initial dose when half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) 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 65 to 130 oz. of this 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 1.2 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.

### **LAUNDRY SANITIZERS**

Household Laundry Sanitizers:

**IN SOAKING SUDS** – Thoroughly mix 2.5 oz. of this product to 10 gallons of wash water to provide 200 ppm available chlorine. Wait 5 minutes, and then add soap or detergent. Immerse laundry for at least 11 minutes prior to starting the wash/rinse cycle.

**IN WASHING SUDS** – Thoroughly mix 2.5 oz. of this product to 10 gallons of wash water 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 2.5 oz. of this product with 10 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the prewash prior to washing fabrics/clothes in the regular wash cycle with a good detergent. Test the level of available chlorine if the 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, vehicles, and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or **transversed** 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 1,000 ppm available chlorine for a period of ten minutes. A 1,000 ppm solution can be made by thoroughly mixing 14 oz. of this product with 10 gallons of water. Immerse all halters, ropes, and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels, and scrapers used for removing litter and manure. Ventilate buildings, cars, boats, and other closed spaces. Do not house livestock or poultry or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains, and waterers 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 65 to 130 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 14 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 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) of this initial dose when half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) 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 1.4 oz. of this product per 1000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) of this initial dose when half (or  $\frac{1}{3}$ ,  $\frac{1}{4}$ , or  $\frac{1}{5}$ ) 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 65 to 130 oz. of this 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 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.

**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 1.2 oz. of this product to 2 gallons of water to obtain 500 ppm available chlorine.

This product may be used for sanitizing fresh fruits and vegetables after harvest. The fruit or vegetable should be cleaned with appropriate methods prior to using this product. Use the chart below to apply product at the recommended concentration for various fruits and vegetables. As a general starting point, to obtain a 100 ppm treatment solution of available chlorine, add 31 fl. oz. of this product to 250 gallons of water. Maintain pH values of 7.0-7.8 using the appropriate food-grade buffer to assure maximum activity of this product. The commodity may be submersed or drenched with this product, followed by a potable water rinse.

**The table below are the Recommended Use Levels of Available Chlorine.**

Commodity	ppm	Commodity	ppm
Apples	150-200	Cucumber	300-350
Artichokes	100-150	Green Onions	75-120
Asparagus	125-150	Melons	100-150
Brussel Sprouts	100-150	Peach, Nectarine, Plum	50-100
Carrots	100-200	Pears (no buffer)	200-300
Cauliflower	300-400	Peppers	100-135
Celery	100-110	Potatoes(2)	65-125
Cherry	75-100	Radish	100-150
Chopped Cabbage(1)	80-100	Stonefruit (hydrocooler)	30-75
Chopped Lettuce(1)	80-100	Tomato	120-150
Citrus Fruits	25-200		

1. After treatment excess water must be removed by centrifugal processes.
2. For potatoes in a pit system use 100-150 ppm.

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 5 hours or until no chlorine odor can be detected. This solution is made by 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 2.5 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 degrees 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 6.2 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.

**MEAT AND POULTRY PLANTS** – Authorized by USDA for use in Federally inspected meat and poultry plants. Chlorine may be present in processing water of meat and poultry plants at concentrations up to 5 parts per million (ppm) calculated as available chlorine. Also, chlorine may be present in poultry chiller intake water, and in carcass wash water at concentrations up to 50 parts per million calculated as available chlorine. Chlorine must be dispensed at a constant and uniform level and the method or system must be such that a controlled rate is maintained. Thoroughly mix 1.4 oz. of this product in 200 gallons of water to make a sanitizing solution of 5 ppm available chlorine, or 14.4 oz. in 200 gallons of water for 50 ppm available chlorine.

#### **AQUACULTURAL USES**

**FISH PONDS** – Remove fish from ponds prior to treatment. Thoroughly mix 130 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 2.5 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** – Remove lobsters, seaweed, etc. from ponds prior to treatment. Drain the pond. Thoroughly mix 7,700 oz. of this product to 10,000 gallons of water to obtain at least 600 ppm available chlorine. Apply so that all barrows, gates, rocks and dams are treated with product. Permit high tide to fill the pond and then close the gates. Allow water to stand for 2 to 3 days until the available chlorine level reaches zero. Open and allow 2 tidal cycles to flush the pond before returning lobsters to the pond.

**CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS** – Prepare a solution containing 200 ppm of available chlorine by mixing 2.5 oz. of this 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.

#### **IRRIGATION SYSTEMS**

This product when used properly will control bacterial and algae growth in irrigation water systems, and thereby provide a uniform distribution of water. This product may be applied through irrigation systems such as: sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin); furrow; border or drip (trickle) or subsurface irrigation systems. Other irrigation systems not listed may be used upon approval or recommendation from the State agency responsible for pesticide regulation, or an authority designated by the pesticide regulatory agency.

**GENERAL** – Do not contaminate ground water or expose humans or animals by the use of irrigation systems to apply pesticide chemicals.

Any chemigation system must include mechanical devices and/or design features adequate to protect the irrigation source water and the general environment from pesticide contamination due to equipment failure, malfunctions or accidents. Such devices or design features must be approved or recommended by the State agency responsible for pesticide regulation, or recommended/approved by an authority designated by the pesticide regulatory agency. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless safety devices or protective measures for preventing contamination of public water systems are in place. Such devices or protective measures must be approved or recommended by the State agency responsible for pesticide regulation, or recommended/approved by an authority designated by the pesticide regulatory agency.

A person knowledgeable of the chemigation/irrigation system and responsible for its operation or under the supervision of the responsible person, must shut the system down and make necessary adjustments, should the need arise. Some state pesticide agencies may require a person operating a chemigation system to obtain and possess pesticide applicator certification or a license to operate such a system. It is the responsibility of the operator of the chemigation system to determine if certification or licensing is required.

**CALIBRATION** – If the irrigation water has high levels of nutrients causing bacterial, algae, and other biofouling that reduces system performance, continuous chlorination may be necessary. The recommended level of free residual chlorine for continuous feed is 1 to 2 ppm, measured at the end of the farthest lateral using a good quality test kit for available chlorine. The available chlorine level should be checked periodically. If you have questions about calibration or other technical aspects, you should contact State Extension Service specialists, the equipment manufacturer or other experts.

**SHOCK TREATMENTS** – Periodic shock treatments at a higher available chlorine rate of up to 20 ppm free residual may be appropriate where bacteria and/or algae clogging and build-up are not managed by maintaining a continuous residual. The frequency of the chlorine shock application depends upon the frequency and extent of bio-clogging.

**INJECTION** – The rate of sanitizer injection into the irrigation water flow required to supply the desired available chlorine dosage in ppm can be estimated using the following equation:

$$I = (0.0066) \times (\text{ppm desired}) \times (\text{system flow rate in gpm}) / (\text{potassium hypochlorite solution strength})$$

Where I is the injection rate in gallons per hour.

For example: To obtain 5 ppm available chlorine at a water flow rate of 30 gallons per minute while injecting 12.5% potassium hypochlorite solution, you should inject:

$$I = (0.0066) \times (5) \times (30) / 12.5 = 0.072 \text{ gallons per hour of 12.5\% potassium hypochlorite solution.}$$

**NOTE:** This calculation, when applied to clean water, which is free of amine nitrogen and organic nutrients, will give a result close to the actual product injection rate required. In actual practice, however, contaminants in the water may consume sanitizer such that the available chlorine concentration is less than expected from the calculation. To correctly establish the product dose setting required, it is necessary to measure the available chlorine at the end of the treated increment in the field and adjust the sanitizer dose setting until the desired available chlorine concentration is obtained. Only experience can establish the actual injector settings required to provide the desired level of available chlorine at the end of the farthest lateral.

Injection should be started during irrigation, near the end of the irrigation sequence, but early enough to establish the desired available chlorine concentration throughout the system being treated. Apply the sanitizer upstream of the filter to help keep the filter clean. Determine the level of available chlorine as described in the “Calibration” section, above, using a chlorine test kit. Allow sufficient time to achieve a steady reading.

**DO NOT** apply sanitizer when fertilizers, herbicides, and insecticides are being injected since they will consume the available chlorine and may produce toxic reaction products.

Water treated with ENVIRO KLOR must be used for the irrigation of fields, either crop-bearing, fallow or pasture, where treated water remains on the field. Alternatively, treated water must be held for 2 to 3 days (until the available chlorine level reaches zero) before being released into surface water.

**SENSITIVE PLANT SPECIES PRECAUTIONS** – Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. Certain plants, including various species of trees, flowers, shrubs, agronomic crops, fruits and vegetables are adversely affected by chlorinated irrigation. The use of this product can impact the growth, appearance, and health of the plants.

Begonias, geraniums and other ornamental plant species are known to be sensitive to continuous chlorination at levels of 1-2 ppm free chlorine. Plant species such as tomato, lettuce, broccoli, and petunia are sensitive to periodic chlorination levels of 10-20 ppm free chlorine.

If uncertain of a plant’s tolerance, consult an agronomist or a support agency such as a University Extension Service or your local agent of the U.S. Department of Agriculture.

**DOT Description: Hypochlorite Solution, 8, UN 1791, PG II**

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