



# ECR CALCIUM HYPOCHLORITE AST

1" Dry Chlorinating Tablets for Industrial and Potable Water and Swimming Pool Water Treatment Applications

### Active Ingredient:

|                            |       |
|----------------------------|-------|
| Calcium Hypochlorite ..... | 68.0% |
| Inert Ingredients .....    | 32.0% |
| Total .....                | 100%  |

Minimum 65% Available Chlorine

## KEEP OUT OF REACH OF CHILDREN DANGER

**Do not mix with other chemicals. Always add product to water - Do not add water to product. See additional precautionary statements on back panel.**

**First Aid:** **If in eyes**, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. **If on skin or clothing**, take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. **If swallowed**, call poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. **If inhaled**, move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice. **Note to physician**, probable mucosal damage may contraindicate the use of gastric lavage. **Contact INFOTRAC® at 1-800-535-5053** or your poison control center for 24-hour emergency medical treatment information. Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

## STORAGE AND DISPOSAL Read before using

Do not contaminate food or feed by storage, disposal, or cleaning of equipment.

**Pesticide Storage-** Keep this product dry in a tightly closed container when not in use. Store in a cool, dry, well ventilated area away from heat or open flame. In case of decomposition, isolate container (if possible) and flood area with large amounts of water to dissolve all materials before discarding this container.

**Pesticide Disposal -** Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of use according to label instructions, contact you State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**Container Disposal -** Non-Refillable 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. Turn the container over onto its other 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 or more times. Then offer for recycling if available or place in trash collection.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMAN AND DOMESTIC ANIMALS

**DANGER :** Highly corrosive. Causes irreversible eye damage and skin burns. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and rubber gloves when handling this product. 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 and shoes before reuse. May be Fatal if swallowed. Irritating to nose and throat. Avoid breathing dust.

### Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

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

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

**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 public 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. Never add water to product. Always add product to large quantities of water. **Do not mix with any other chemicals.** Use only a clean, dry utensil made of metal or plastic each time product is taken from container. **Do not add this product to any dispensing device containing remnants of any other product. Such use may cause a violent reaction leading to fire or explosion.** Contamination with moisture, acids, organic matter, other chemicals, or easily combustible materials such as petroleum or paint products may start a chemical reaction with generation of heat, liberation of hazardous gases, and possible generation of a fire or explosion. In case of contamination or decomposition, do not reseal container. If possible isolate container in open air or well-ventilated area. Flood area with large volumes of water, if necessary.

Exclusively Distributed in North America by:

### ENVIRONMENTAL COMPLIANCE RESOURCES, LLC

1903 South Greeley Highway #307, Cheyenne, WY 82007

PH: 307-256-5044 FAX: 888-482-5044

www.ecr-world.com

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NET WEIGHT: 25 Kgs. (55 Lbs.)

CALCIUM HYPOCHLORITE,  
HYDRATED  
UN2880 RQ

Emergency Contact  
INFOTRAC®  
800-535-5053



EPA Reg. No. 86460-4  
EPA Est. No. 074815-IND-001  
CAS # 7778-54-3

Nominal Tablet Weight  
20 Grams

## Directions for Use

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

**Statement of Misuse:** Pesticide wastes are toxic. 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 the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### SWIMMING POOL WATER DISINFECTION

**SWIMMING POOL WATER DISINFECTION:** For a new pool or spring start-up, superchlorinate with 10 to 20 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 to 7.6. Adjust and maintain the alkalinity of the pool to between 50 to 100 ppm.

To maintain the pool, add manually or by feeder device, 2 oz. tablet 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 residuals 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 10 to 20 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Do not reenter pool until the chlorine residual is between 1.0 to 4.0 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 0.6 oz. of this product per 1,000 gallons, while filter is running to obtain a 3.0 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.:** Spas/hot-tubs – Apply 0.5 oz. of this product per 500-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 to a pH between 7.2 to 7.8. Some oils, lotions, fragrances, cleaners, etc. may cause foaming or cloudy water as well as reduce the efficiency of this product.

To maintain the water, apply 0.5 oz. of this product per 500-gallons of water over the surface to maintain a chlorine concentration of 5-PPM.

After each use, shock or treat with 1.5 oz. of this product per 500-gallons of water to control odor and algae.

During extended periods of disuse, add 1.5 oz. of this product per 500-gallons of water to maintain a 3-PPM chlorine concentration.

### TABLET VOLUME TABLE

| ECR Tablet Size               | ECR Tablet Weight—Nominal  | Tablet per Ounce |
|-------------------------------|----------------------------|------------------|
| 30mm diameter ( 1.18 inches ) | 20-grams ( 0.7 ounces )    | 1.43 tablets     |
| 76mm diameter ( 3.0 inches )  | 300-grams ( 10.58 ounces ) | 0.1 tablets      |

## FOOD PROCESSING

For use in federally inspected meat and poultry plants.

### Chlorine potable water treatment compounds.

Chlorine may be present in processing water of meat and poultry plants at concentrations up to 5 parts per million 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.

### Cooling and retort water treatment compounds.

Chemical agents may be added to water used to cook and cool containers of meat and poultry products to prevent staining of containers and to control corrosion and deposit formation on surfaces of processing equipment. The amount used should be the minimum sufficient for the purpose.

Calcium hypochlorite solutions providing 1% available chlorine should be fed into tanks or channels by an elevated tank to provide a concentration of 2 ppm available chlorine. The flow may be controlled with a noncorroding valve or a pinch-stop on a rubber hose.

Feed points should be located to provide uniform distribution of solution throughout the entire system. Long and narrow tanks may require the solution to be fed at two points to insure proper distribution.

## Disinfection of Drinking Water (Potable Water)

### Public Systems

Mix a ratio of 1 ounce of this product to 6000 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Interim Primary Drinking Water Regulations. Contact your local Health Department for further details.

### Individual Systems

**Dug Wells** - Upon completion of the casing (lining) wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by thoroughly mixing 1 ounce of this product into 40 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipe sleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution. Start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until traces of chlorine have been removed from the water. Contact your 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 ounce of this product into 40 gallons of water. Add 5 to 10 gallons of clean, chlorinated water to the well in order to force the sanitizer into the rock formation. Wash the exterior of pump cylinder with the sanitizer. Drop pipeline into well, start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer into the well. Consult your local Health Department for further details.

**Flowing Artesian Wells** - Artesian wells generally do not require disinfection. If analyses indicate persistent contamination, the well should be disinfected. Consult your local Health Department for further details.

### Emergency Disinfection

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

The tablets are designed to be used in tablet chlorinator systems. The tablets provide a minimum of 65% available chlorine. The tablets are placed in the chlorinator and the bottom layer of tablets is eroded as water flows through or into the chlorinator. The inlet water flow controls the rate of chlorination; higher flows result in higher delivery of available chlorine. Consult the instruction manual for the chlorinator system to determine how to achieve this level with the tablet chlorinator in use.

### Other Calcium Hypochlorite Uses

Calcium Hypochlorite is also used in the sanitization of water systems, public wells, municipal water mains, sanitization in the food industry, odor and taste control in potable water systems, algae control in reservoirs, industrial cooling water systems, and general industrial sanitization.

## Directions for Agricultural Irrigation

### AGRICULTURAL USE REQUIREMENTS:

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirement for the protection of agricultural workers on farms, forests, nurseries, greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Workers Protection Standard.

The Restricted-Entry Interval (REI) is 0 days when using this product.

There are no posting or notification requirements when using this product.

Personal Protective Equipment should be worn as described under the "Precautionary Statements" section of this label.

### DIRECTIONS FOR THE CONTROL OF BACTERIA, ALGAE, SLIME BUILD-UP AND CLOGGING IN SPECIFIED IRRIGATION SYSTEMS

AQUAFIT ECR Calcium Hypochlorite AST tablets are designed to be used in tablet chlorinator systems. The tablets provide a minimum of 65% available chlorine. The tablets are placed in the chlorinator and the bottom layer of tablets is eroded as water flows through or into the chlorinator. The inlet water flow controls the rate of chlorination; higher flows result in higher delivery of available chlorine. The Application Rates section provides the levels of free residual chlorine needed to prevent or address bio-fouling occurring in drip, micro, sprinkler, or trickle irrigation systems. Consult the instruction manual for the chlorinator system to determine how to achieve this level with the tablet chlorinator in use.

This product is to be applied through drip, micro, sprinkler, or trickle sprinkler irrigation systems only for agricultural crops only where this manner of use will not cause crop damage.

### APPLICATION RATES

If the irrigation water has high levels of nutrients causing bacterial, algal, or other bio-fouling that reduces system performance, continuous use of this product 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 free chlorine (also called "free residual" or "free available" chlorine).

**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 shock application depends upon the frequency and extent of bio-clogging.

**Superchlorination**, bringing concentrations to as much as 100 ppm total available chlorine, is recommended for reclaiming low-volume irrigation systems if clogged by algae and bacterial slimes. Set the chlorinator to deliver 100 ppm in the drip system and monitor the free chlorine residual at the end of the farthest lateral. As soon as it is established that the free residual reading is between 10 and 20 ppm, shut the system down and leave it undisturbed for up to 24 hours. Then flush all submains and laterals with fresh water. Superchlorination will not dissolve/remove scale or inorganic sediment fouling.

**\*Note:** To correctly establish the dose setting required, it is necessary to measure the free chlorine concentration (ppm) at the end of the treated increment in the field and adjust the dose setting until the desired free chlorine concentration is obtained. This is because contaminants in the water may consume available chlorine resulting in a concentration that is less than the concentration desired as specified above. Only experience can establish the actual chlorinator settings required to provide the amount of free chlorine at the end of the farthest lateral (and consequent treatment of the irrigation system). Normally the treatment level at the end of the farthest lateral will be 1 – 2 ppm free chlorine.

### GENERAL APPLICATION INSTRUCTIONS

Chlorination should be started during irrigation, near the end of the irrigation sequence, but early enough to establish the desired free chlorine concentration throughout the system being treated.

Apply this product upstream of the filter to help keep the filter clean.

Determine the level of free chlorine as described above, using a free chlorine test kit. Allow sufficient time to achieve a steady reading.

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

Shut down the product feed as soon as the irrigation water is switched to the next irrigation sector. Leave the treated water residing in the section that has been shut down.

Refer to the chlorinator use instructions as needed.

### SENSITIVE PLANT SPECIES

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 or use an alternate method to remove bio-fouling from the irrigation system.

## Booklet for Additional Directions for Use

### ECR Calcium Hypochlorite AST

EPA Reg. No. 86460-4

EPA Est. No. 074815-IND-001

#### **SEWAGE AND WASTERWATER 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 bacterial kill must be emphasized. The MPN of the effluent, which is directly related to the water quality standards requirements, should be the final and primary standard and the chlorine residual should be considered an operating standard valid only to the extent verified by the coliform quality of the effluent.

The following are critical factors affecting wastewater disinfection.

**Mixing:** It is imperative that the product and the wastewater be instantaneously and completely flash mixed to assure reaction with every chemically active soluble and particulate component of the wastewater.

**Contacting:** Upon flash mixing, the flow through the system must be maintained.

**Dosage/Residual Control:** Successful disinfection is extremely dependent on response to fluctuating chlorine demand to maintain a predetermined, desirable chlorine level. Secondary effluent should contain 0.2 to 1.0 ppm chlorine residual after a 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.5 ppm after 15 minutes contact time.

#### **SEWAGE AND WASTEWATER TREATMENT:**

**EFFLUENT SLIME CONTROL** – Apply a 100 to 1000 ppm available chlorine solution at location which will allow complete mixing. Prepare this solution by mixing 2 to 20 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 0.3 oz. of this product with 100 gallons of water.

**FILTER BEDS – SLIME CONTROL:** Remove filter from service, drain to a depth of 1ft. above filter sand, and add 16 oz. of product per 20 sq/ft evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.

#### **COOLING TOWER / EVAPORATIVE CONDENSER WATER:**

**Cooling Tower and Heat Exchange Surface** – A clogged or fouled system must be mechanically cleaned to remove all physical soil prior to beginning treatment. Initially, treat by adding enough of this product to provide 10 ppm available chlorine (2 ounces per 1000 gallons) as a shock dosage and circulate this product thoroughly through the system. Then, for continuous preventive control of algae and slime growth, regularly add enough of this product to the recirculation system to maintain a free chlorine residual between 0.5 and 1.0 ppm. Other water condition factors, such as pH, should be controlled as recommended by the equipment manufacturer.

**Slug Feed Method – Initial dose:** When system is noticeably fouled, apply 10 to 20 ounces of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Repeat until control is achieved.

**Subsequent dose:** When microbial control is evident, add 1 to 2 ounces 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 1.0 ppm. Badly fouled system must be cleaned before treatment is begun. **Intermittent Feed Method – Initial dose:** When system is noticeably fouled, apply 10 to 20 ounces of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. **Subsequent dose:** When microbial control is evident, add 1 to 2 ounces of this product per 10,000 gallons of water in the system to obtain a 1.0 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blowdown. Badly fouled system must be cleaned before treatment is begun. **Continuous Feed Method – Initial dose:** When system is noticeably fouled, apply 10 to 20 ounces 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 ounce of this product per 3,000 gallons of water lost by blowdown to maintain a 1.0 ppm residual. Badly fouled system must be cleaned before treatment is begun.

### **Sanitization of Food Preparation Facilities**

#### **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 ounce of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment and do not soak equipment overnight. Sanitizers used in automated systems may be used for general cleaning but may not be reused for sanitizing purposes.

**IMMERSION METHOD** - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1 ounce of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 1 ounce of this product with 20 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 1 ounce product with 20 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 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 1 ounce product with 20 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/FOG METHOD** - Pre-clean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 1 ounce product with 20 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 3 ounces product with 20 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 200 ppm solution.

#### **SANITIZATION OF POROUS FOOD CONTACT SURFACES:**

**RINSE METHOD** - Prepare a 600 ppm solution by thoroughly mixing 3 ounces of this product with 20 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 1 ounce of this product with 20 gallons of water. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Do not rinse and do not soak equipment overnight.

**IMMERSION METHOD** - Prepare a 600 ppm solution by thoroughly mixing, in an immersion tank, 3 ounces of this product with 20 gallons of water. Clean equipment in the normal manner. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2 ounces of this product with 10 gallons of water. Prior to using, immerse equipment in the 200 ppm sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse and do not soak equipment overnight.

**SPRAY/FOG METHOD** - Pre-clean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 3 ounces product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 1 ounce of this product with 20 gallons of water.

#### **SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES:**

**RINSE METHOD** - Prepare a sanitizing solution by thoroughly mixing 1 ounce of this product with 20 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, 1 ounce of this product with 20 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

**SPRAY/FOG METHOD** - Pre-clean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 1 ounce product with 20 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 3 ounces of this product with 20 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, 3 ounces of this product with 20 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 solution 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 3 ounces of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the 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, 3 ounces of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

**SPRAY/FOG METHOD** - After cleaning, sanitize non-food contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 3 ounces of this product with 20 gallons of water. Use spray or fogging equipment which can resist hypochlorite solutions. Always empty and rinse spray/fog equipment with potable water after use. Prior to using equipment, thoroughly spray or fog all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

## **FOOD PROCESSING**

### **For use in federally inspected meat and poultry plants.**

#### **Chlorine potable water treatment compounds.**

Chlorine may be present in processing water of meat and poultry plants at concentrations up to 5 parts per million 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.

#### **Cooling and retort water treatment compounds.**

Chemical agents may be added to water used to cook and cool containers of meat and poultry products to prevent staining of containers and to control corrosion and deposit formation on surfaces of processing equipment. The amount used should be the minimum sufficient for the purpose. Calcium hypochlorite solutions providing 1% available chlorine should be fed into tanks or channels by an elevated tank to provide a concentration of 2 ppm available chlorine. The flow may be controlled with a noncorroding valve or a pinch-stop on a rubber hose. Feed points should be located to provide uniform distribution of solution throughout the entire system. Long and narrow tanks may require the solution to be fed at two points to insure proper distribution. Test the water for available chlorine. If a residual of 2 ppm is present throughout the system, the water is properly sanitized. Test for available chlorine every hour until dosage requirements are established. Thereafter, check every 2 or 3 hours to ascertain that an available chlorine residual of 2 ppm is maintained throughout the system.

#### **Compounds for treating boilers, steam lines, and/or cooling systems where neither the treated water nor the steam produced may contact edible products. This does not include compounds added to water used to cook and cool containers of meat and poultry products.**

A clogged or fouled system should be mechanically cleaned to remove all physical soil prior to beginning treatment. Initially, treat by adding enough calcium hypochlorite to provide 10 ppm available chlorine (2 ounces per 1000 gallons) as a shock dosage and circulate it thoroughly through the system. Then, for continuous preventative control of algae and slime growth, regularly add enough calcium hypochlorite to the recirculation system to maintain a 1.0 ppm free chlorine residual.

Other water condition factors, such as pH, should be controlled as recommended by the equipment manufacturer.

**Cannery Cooling Water** – Solutions of this product containing 1% available chlorine will sanitize cooling water, protect canned goods from contamination and spoilage and prevent staining of cans. The solution should be fed into cooling tanks or channels to reach a concentration of 2-PPM available chlorine. Check every two to three hours to be sure that an available chlorine residual of 2-PPM is maintained throughout the cooling system. To make a 1% solution, mix 10-oz of this product into 5-gallons of water.

**Pecan cracking and bleaching** – Prepare 1,000-PPM available chlorine soaking solution by adding 1-oz of this product for each 5-gallons of water to obtain a 1,000-PPM available chlorine content. Soak for a minimum of 10-minutes. After removal, age pecans for 24-hours. Before bleaching, pecans are placed in a rotary cleaner where they are washed, drained, and soaked in a 2% sulfuric acid bath at 80 to 90°F for 1-minute. Transfer to a solution containing 100-oz of this product for each 100-gallons of water (5,000-PPM). After 4 to 8-minutes, they are drained and washed in a 1% sulfuric acid bath at 80 to 90°F. The pecans are then dried.

**Poultry Drinking Water:** Spray or flush with a solution containing 1-oz of this product for every gallon of water (5000 ppm). Treat poultry drinking water to a dosage of 1 to 5-PPM available chlorine by adding 0.2 to 1-oz of this product per 1,000-gallons of water.

#### **Food Egg Sanitization:**

Thoroughly clean all eggs. Thoroughly mix 0.8 oz. of this product with 20 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130°F. Spray the warm sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughly dry before casing or breaking. Do not apply a potable water rinse. The solution should not be re-used to sanitize eggs.

**Fish Filleting:** Eviscerated and degilled fish removed from the fishing vessel are placed in a wash tank of sea-water or fresh water which has been treated with enough product to produce a chlorine residual of 25 ppm, as determined by a test kit. Remove fish from treated water 24 to 48 hours before filleting. After scaling, the fish are again washed in a 25 ppm solution, and are ready for filleting.

**POST HARVEST FRUIT & VEGETABLE**

**Fruit & Vegetable Washing:** Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 1 ounce 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 two minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegetables with the sanitizing solution prior to packaging

**Commodity Fruit & Vegetable Treatment:** Wash fruits and vegetables to remove organic matter; then treat as noted below.

**Table of Recommended Levels and Use Dilutions for Available Chlorine**

| Commodity                     | Usage Dilution dry oz. added to 250 gal. of water | (ppm) Available Chlorine        | Contact Time   |
|-------------------------------|---|---------------------------------|--|
| Apple                         | 7.7 - 10.3  | 150 - 200                       | 45-90 sec. (dump tank)<br>5-15 sec. (spray)  |
| Artichoke                     | 5.1 - 7.7   | 100 - 150                       | 5-15 sec. (spray)  |
| Asparagus                     | 6.4 - 7.7   | 125 - 150                       | 5-15 sec. (spray)<br>20-30 min. (hydrocooler)  |
| Brussels Sprouts              | 5.1 - 7.7   | 100 - 150                       | 5-15 sec. (spray)  |
| Carrots                       | 5.1 - 10.3  | 100 - 200                       | 1-5 min (dump tank)<br>1-5 min. (flume)  |
| Cauliflower                   | 15.4 - 20.5                                       | 300 - 400                       | 5-15 sec. (spray)  |
| Celery                        | 5.1 - 5.7   | 100 - 110                       | 5-15 sec. (spray)  |
| Cherry                        | 3.9 - 5.1   | 75 - 100                        | 5-15 sec. (spray)  |
| Chopped Cabbage <sup>1</sup>  | 4.1 - 5.1   | 80 - 100                        | 5-15 sec. (spray)  |
| Chopped Lettuce <sup>1</sup>  | 4.1 - 5.1   | 80 - 100                        | 5-15 sec. (spray)  |
| Citrus Fruits                 | 1.3 - 10.3  | 40 - 75<br>30 - 50<br>100 - 200 | 5-15 sec. (spray)<br>2-3 min. (dump tank)<br>3-5 min. (drench)                                   |
| Cucumbers                     | 15.4 - 18.0                                       | 300 - 350                       | 5-15 sec. (spray)  |
| Green Onions                  | 3.9 - 6.2   | 75 - 120                        | 5-15 sec. (spray)  |
| Melons                        | 5.1 - 7.7   | 100 - 150<br>30 - 75            | 5-15 sec. (spray)<br>20-30 min. (hydrocooler)  |
| Peaches, Nectarines and Plums | 2.6 - 5.1   | 50 - 100                        | 5-15 sec. (spray)  |
| Pears (without buffer)        | 10.3 - 15.4                                       | 200 - 300                       | 2-3 min. (dump tank)   |
| Peppers                       | 15.4 - 20.5<br>5.1 - 6.9                          | 300 - 400<br>100 - 135          | 5-15 sec. (spray)<br>2-5 min. (dump tank)  |
| Potatoes                      | 3.3 - 6.4   | 65 - 125                        | 2-5 min.(dump tank)(30-100ppm)<br>2-5 min. (flume) (200-300ppm)<br>5-30 sec. (spray)(100-200ppm) |
| Radishes                      | 5.1 - 7.7   | 100 - 150                       | 5-15 sec. (spray)  |
| Stonefruit                    | 1.5 - 3.9   | 30 - 75                         | 20-30 min. (hydrocooler)   |
| Tomatoes                      | 15.4 - 18.0                                       | 300 - 350                       | 2-3 min (tank)(200-350 ppm)<br>5-15 sec.( spray)(100-150ppm)                                     |

**Note:** 1. After treatment the adhering water must be removed by a centrifugation process.

**AGRICULTURAL USES**

**BEES – Disinfect leaf cutting bee cells and bee boards** by immersion in a solution containing 1-PPM available chlorine for 3-minutes. Allow cells to drain for 2-minutes and dry for 4 to 5 hours or until no chlorine odor can be detected. This solution is made by thoroughly mixing ¼ Tsp. of this product to 200-gallons of water. The bee domicile is disinfected by spraying with 0.1-PPM solution until all surfaces are thoroughly wet. Allow the domicile to dry and do not let bees re-enter until all chlorine odors have dissipated.

**Mushrooms –** To control bacteria blotch (*Pseudomonas toloasi*), use a 100 to 200-PPM solution of this product prior to watering mushroom production surfaces. This solution may be made by mixing 0.2 to 0.4-oz of this product with 10-gallons of water. First application should begin when pins form, and thereafter, between breaks on a need basis depending on the occurrence of bacterial blotch. This product may be applied directly to pins to control small infection foci. Apply 1.5 to 2.0-oz per square foot of growing space.

**SEEDS:** To control bacterial spot on Pimento seeds, initially remove moist seeds from ripe fruits. To control surface fungi and bacteria on tomato seeds initially wash seeds. Immediately soak seeds in 39,000 ppm solution for 15 minutes with continuous agitation. After treatment, rinse seeds in potable water for 15 minutes. Dry seeds to normal moisture. The solution may be made by mixing 8 oz. of this product with 1 gallon of water.

**HARVESTED SWEET POTATOES:** To control and reduce the spread of soft rot causing organisms in water and on sweet potatoes (*Pomoea batatas*), spray or dip the potatoes with a 150 to 500 ppm solution for 2 to 5 minutes. Thoroughly mix 0.3 to 1.0 oz. of this product per 10 gallons of water to obtain this solution. Monitor the chlorine concentration and change the solution after one hour or as needed.

**FISH PONDS:** Remove fish from ponds prior to treatment. Thoroughly mix 20oz, 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 1 oz. of this product to 20 gallons of water to obtain 200 ppm available chlorine.. Porous equipment should soak for one hour.

**CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS:** Prepare a solution containing 200 ppm of available chlorine by mixing 0.5 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.

**LABELING FOR AGRICULTURAL USE**

**DIRECTIONS FOR USE:** It is a violation of federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the areas during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

**AGRICULTURAL USE REQUIREMENTS:**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirement for the protection of agricultural workers on farms, forests, nurseries, greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Workers Protection Standard.

Do not enter or allow worker entry into treated areas during the Restricted-Entry Interval (REI) of 12 hours.

**Personal Protective Equipment (PPE):**

The following PPE is required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil or water.

Applicators and other handlers of the diluted (20,000 ppm solution) must wear the following.

- Coveralls over long-sleeved shirt and long pants.
- Waterproof gloves.
- Chemical-resistant footwear plus socks.
- Protective eyewear.
- Chemical-resistant headgear for overhead exposure.

Mixers and Loaders of the concentrate product must wear:

- Coveralls over long-sleeved shirt and long pants.
- Waterproof gloves.
- Chemical-resistant footwear plus socks.
- Protective eyewear.
- Chemical-resistant headgear for overhead exposure.
- Chemical resistant apron when cleaning equipment, mixing or loading.
- Dust/mist filtering respirator (MSHA/NIOSH...D/M approval # prefix TC-21C).

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

**FOR USE ON SEEDS FOR SPROUTING AS FOOD FOR HUMAN CONSUMPTION:** While this treatment may reduce populations of E coli O157, *Salmonella* spp.& *B.cereus* (food poisoning) on seeds intended for sprout production, it may not eliminate these organisms on the seeds. Additionally, treatment may not reduce or eliminate these organisms on the final sprouts.

**Dosage:** In a well-ventilated area, prepare a 2% calcium hypochlorite solution (20,000 ppm available chlorine) by dissolving 4.1 ounces of product into 1 gallon of potable water. Below is a table for preparing various amounts of calcium hypochlorite treatment solutions.

| Available Chlorine | Gallons of Water |         |              |               |               |                |                 |     |
|--------------------|------------------|---------|--------------|---------------|---------------|----------------|-----------------|-----|
|                    | %                | ppm     | 1            | 5             | 15            | 30             | 50              | 100 |
| 2.0                | 20,000           | 4.1ozs. | 1lb.& 5 ozs. | 3lbs.& 13ozs. | 7lbs.& 11ozs. | 12lbs.& 13ozs. | 25lbs. & 10ozs. |     |

**Frequency/Timing of Application:** Prewash seeds with potable water for at least 5 minutes. Treat pre-washed seeds once by soaking 5 pounds of seeds in 1 gallon of a 2% calcium hypochlorite solution for 15 minutes at room temperature with continuous agitation. After treatment, drain the solution and rinse the treated seeds thoroughly with potable water for 10 minutes (changing the water several times as necessary). Prepare fresh solution for each batch of seeds.

**Restricted Entry Interval (REI):** 12 hours

The USEPA has determined that this REI applies when the calcium hypochlorite is sprayed on the benches or areas around the soaking containers. Note, the REI is not applicable when the solution is applied directly to the raw commodity (seeds) by soaking in a container/bin. There are no re-entry interval concerns when treating pests in this manner (soaking).

**LAUNDRY SANITIZERS**

**Household Laundry Sanitizers -** In Soaking Suds - thoroughly mix 1 tbsp. of this product to 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 prior to starting the wash/rinse cycle. - In Washing Suds - thoroughly mix 1 tbsp. 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 1 oz. of this product with 20 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 solution has been allowed to stand. Add more of this product if the available chlorine level has dropped below 200 ppm.

**SANITIZATION OF DIALYSIS MACHINES:**

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 7 oz. of this product to 60 gallons of water to obtain at least 600 ppm available chlorine. Immediately use this product in the hemodialysate system allowing for a minimum contact time of 15 minutes at 20° C. Drain system of the sanitizing solution and thoroughly rinse with water. Discard and DO NOT reuse the spent sanitizer. Rinsate must be monitored with a suitable test kit to ensure no available chlorine remains in the system.

This product is recommended for decontaminating single and multipatient hemodialysate systems. This product has been shown to be an effective disinfectant (virucide, bactericide, pseudomonicide) when tested by AOAC and EPA test methods. This product may not totally eliminate all vegetative microorganisms in hemodialysate delivery systems due to their construction and/or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when used as directed. This product must be used in a disinfectant program which includes bacteriological monitoring of hemodialysate or reverse osmosis (RO) membranes. Consult the guidelines for hemodialysate systems which are available from the Hepatitis Laboratories, CDC, Phoenix, AZ 85021

**Booklet for Additional Directions for Use**

**ECR Calcium Hypochlorite AST**

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Environmental Compliance Resources, LLC  
1903 South Greeley Highway Suite 307  
Cheyenne, Wyoming 82007  
(307) 256-5044 FAX (888)482-5044  
www.ecr-world.com