#### HTH DRY CHLORINATOR GRANULAR

#### KEEP OUT OF REACH OF CHILDREN

#### DANGER PELIGRO

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

# CONTAMINATION MAY CAUSE FIRE MIX ONLY INTO WATER SEE PRECAUTIONARY STATEMENTS ON BACK PANEL

MINIMUM AVAILABLE CHLORINE..65%

FIRST AID (PRACTICAL TREATMENT): IF ON SKIN: brush off excess chemical and flush skin with cold water for at least 15 minutes. If irritation persists, get medical attention.

IF INHALED: Remove person to fresh air. Call a physician immediately. IF IN EXES: Flush with cold water for at least 15 minutes. Call a physician immediately.

IF SWALLOWED: Drink large quantities of water. Do not induce vomiting. Call a physician immediately.

Kills bacteria, Controls algae, Destroys organic contaminants, No need to predissolve

Net Wt. 100#

Arch Chemicals Inc.
501 MERRITT 7, P.O. Box 5204
NORWALK, CT. 06856
A C C F P T E D

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DIRECTIONS FOR USE: It is a violation of federal law to use this product in a manner inconsistent with its labeling. This product is a concentrated chlorinating agent in a dry, free-flowing form which controls growth of algae, kills bacteria, and destroys organic contaminants in pools, spas and hot tubs.

#### READ THE PRECAUTIONARY STATEMENTS BEFORE USE.

METHOD OF APPLICATION: Measure only with the clean, dry cup provided. Do not use the cup for any other purpose. Add the recommended dosages of this product during evening hours while the filter pump is running. When adding this product to your pool, broadcast the product evenly over a wide area in the deepest part of the pool.

ROUTINE CHLORINATION: Throughout the pool season, adjust pH to 7.2-7.6 and add 6 to 8 oz. of this product per 10,000 gallons pool water daily or as often as needed to maintain chlorine residual at 1-3 ppm. If you have stabilized your pool using HTH Stabilizer/Conditioner (or similar product), add 3 to 4 oz. per 10,000 gallons every other day or as often as needed to maintain chlorine residual at 1-3 ppm. Follow "Method of Application" above.

As a preventative treatment, you should shock treat your pool once per week to prevent pool problems. In addition to weekly shock treatment, you should shock treat to remedy problems which may occur when bathing loads are high, water appears hazy or dull, unpleasant odors or eye irritation occur, after heavy wind and rainsforms, or if algae does develop with resulting green color and slimy feeling.

SHOCK TREATMENT: Adjust pH to 7.2 - 7.4 with HTH pH Plus or HTH pH Minus. Follow label directions. Add 1 lb. (16 oz.) of this product per 10,000 gallons of water (to provide a dosage of 7.5 ppm free available chlorine). Follow 'Method of Application' above. Do not reenter pool until chlorine residual is 1.0 to 3.0 ppm.

ALGAE CONTROL: If the sides or bottom develop algae spots, direct this product as close to the algae as possible. Follow shock treatment directions above. Note: Prolonged contact with pool surfaces may cause staining or bleaching. Immediately after treatment, thoroughly clean pool by scrubbing surface of algae growth, vacuum and cycle through filter. If necessary, repeat the treatment. Pool should not be entered until the chlorine residual is 1 to 3 ppm.

OPENING YOUR POOL: Follow 'Shock Treatment' directions above. Allow 30 minutes for product to disperse and test chlorine residual with a pool test kit. Repeat dosage, as needed, until chlorine residual is 1 to 3 ppm.

#### WINTERIZING:

While the water is still clear and clean, prepare for long periods of disuse by gradually applying 30 oz. of this product per 10,000 gallons of pool water (to provide a dosage of 15 ppm free available chlorine). Follow 'Method of Application' above. Run the filter until completely dissolved. Cover the pool with a plastic pool cover and prepare the heater, pump and filter components for winterizing by following manufacturers directions.

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#### WATER BALANCE:

To provide optimum product performance, swimmer comfort and crystal clear water, always maintain pH in the 7.2-7.6 range, total alkalinity in the 60-100 parts per million (ppm) range and calcium hardness above 200 ppm. Use a reliable test kit that measures all these ranges. Make necessary adjustments with the appropriate HTH Pool Care Products. Follow label directions for these products.

TO DETERMINE YOUR POOL CAPACITY IN U.S. GALLONS, USE THE APPROPRIATE FORMULA BELOW:

POOL SHAPE FORMULA (Use measurements in feet only)

RECTANGULAR: LENGTH X WIDTH X AVERAGE DEPTH X 7.5 = TOTAL GALLONS

ROUND: DIAMETER X DIAMETER X AVERAGE DEPTH X 5.9 = TOTAL GALLONS

OVAL : MAXIMUM LENGTH X MAXIMUM WIDTH X AVERAGE DEPTH X 5.9 = TOTAL GALLONS

FREEFORM SURFACE AREA (SQ. FEET) X AVERAGE DEPTH X 7.5 = TOTAL GALLONS

#### STORAGE & DISPOSAL

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. Do not reuse empty container but place in trash collection. Do not contaminate food or feed by storage or disposal or cleaning of equipment.

#### PRECAUTIONARY STATEMENTS:

HAZARDS TO HUMANS AND DOMESTIC ANIMALS: DANGER. Highly corrosive. Causes skin and eye damage. May be fatal if swallowed. Do not get in eyes, on skin or on clothing. Do not handle with bare hands. Wear goggles or face shield and use rubber gloves and only thoroughly clean dry utensils when handling. Irritating to nose and throat. Avoid breathing dust and fumes. Remove and wash contaminated clothing before reuse.

CHEMICAL HAZARDS: DANGER. Strong oxidizing agent. Mix only into water: Contamination may start a chemical reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion. Avoid any contact with flame or burning material, such as a lighted cigarette.

Do not contaminate with moisture, garbage, dirt, chemicals including other pool chemicals, pool chlorinating compounds, household products, cyanufic acid pool stabilizers, soap products, paint products, solvents, acids, vinegar, beverages, oils, pine oil, dirty rags or any other foreign matter. CCELL

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EMERGENCY HANDLING: In case of contamination or decomposition, if possible, isolate container in open and well-ventilated area. Flood with large volumes of water to dissolve all materials. Dispose of contaminated material in an approved landfill area.

ENVIRONMENTAL HAZARD: This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, ponds, streams, 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.

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#### HTH DRY CHLORINATOR GRANULAR

#### EPA REG. # 1258-427

(Supplemental Labeling for Agricultural Use)

"Agricultural Use Requirements:

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. Refer to supplemental labeling under "Agricultural Use Requirements" in the Directions for use section for information about this standard."

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 area 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 requirements for the protection of agricultural workers on farms, forests, nurseries, and 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 Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12

PPE 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, is:

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

MUSHROOMS: To control bacterial blotch (Pseudomonas tolaasii), use a 100 to 200 ppm solution prior to watering mushroom production surfaces. This solution may be made by mixing 0.2 to 0.4 ounces 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 occurence 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.

Precautionary Statements: Hazards to Humans and Domestic Animals: Danger. Highly Corrosive. Causes skin and eye damage. May be fatal if swallowed. Irritating to nose and throat.

Personal Protective Equipment: Mixers and Loaders of the concentrate product must wear:

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

Applicators and other handlers of the diluted (100 - 200 ppm Solution) must wear:

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

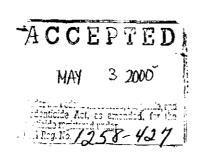
Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate.

CHEMICAL HAZARDS: DANGER. Strong oxidizing agent. Mix only into water. Contamination may start a chemical reaction with generation of heat, liberation of hazardous gases, and possible fire and explosion. Avoid any contact with flame or burning material, such as a lighted cigarette. Do not contaminate with moisture, garbage, dirt, chemicals including other pool chemicals, pool chlorinating compounds, household products, cyanuric acid pool stabilizers, soap products, paint products, solvents, acids, vinegar, beverages, oils, pine oil, dirty rags or any other foreign matter.

EMERGENCY HANDLING: In case of contamination or decomposition, if possible, isolate container in open and well-ventilated area. Flood with large volumes of water to dissolve all materials. Dispose of contaminated material in an approved landfill area.

ENVIRONMENTAL HAZARD: This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, ponds, streams, estuaries, oceans or 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.



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### DRY CHLORINATOR GRANULAR EPA REG. #1258-427

(Supplemental Labeling for Agricultural Use)

FOR USE ON SEEDS FOR SPROUTING AS FOOD FOR HUMAN CONSUMPTION While this treatment may reduce populations of E coli O157:H7, 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. In addition to these directions, follow the Food & Drug Administration "Guidance for Industry: Reducing Microbial Food Safety Hazards for Sprouted Seeds" and "Guidance for Industry: Sampling and Microbial Testing of Spent Irrigation Water During Sprout Production."

Dosage: Preparation of Calcium Hypochlorite Solution

In a well ventilated area, prepare a 2% (20,000 ppm, available chlorine) solution by dissolving 4.1 ounces of product which contain 65% available chlorine into 1 gallon of potable water (see table below for preparing various amounts of treatment solution).

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

Frequency/Timing of Application:

Pre-wash seeds with potable water for at least 5 minutes. Treat pre-washed seeds once by soaking 5 pounds of seed in 1 gallon of a 2% (20,000 ppm, available chlorine) calcium hypochlorite solution for 15 minutes at room temperature with continuous agitation. After treatment, drain solution and rinse treated seeds thoroughly with potable water for 10 minutes (Changing the water several times, as necessary). Prepare fresh solution for each batch of seed.

#### 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 disinfectant 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)].



SPAS/HOT-TUBS - Apply 0.5 oz. of 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 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 0.5 oz. of product per 500 gallons of water over the surface to maintain a chlorine concentration of 5 ppm. Do not enter spa until chlorine residual is 1-3 ppm.

After each use, shock 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 product daily per 500 gallons of water to maintain a 3 ppm chlorine concentration.

HUBBARD AND IMMERSION TANKS - Add 0.5 oz. of this product per 100 gallons of water before patient use to obtain a chlorine residual of 25 ppm, as determined by a suitable test kit. Adjust and maintain the water pH to between 7.2 and 7.6. After each use drain the tank. Add 0.5 oz. to a bucket of water and circulate this solution through the agitator of the tank for 15 minutes and then rinse out the solution. Clean tank thoroughly and dry with clean cloths.

HYDROTHERAPY TANKS - Add I oz. of this product per 1000 gallons of water to obtain a chlorine residual of I 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 0z. of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly

mixing 1 oz. 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 oz. of this product with 40 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 1 oz. 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.

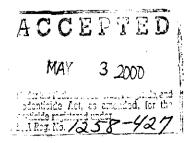
Sanitizers used in automated systems may be used for general cleaning but may not be reused for sanitizing purposes.

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 oz.

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 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 oz. 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 insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

SPRAY METHOD - Preclean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 1 oz. product with on gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 3 oz. product with 20 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 a 600 ppm solution with a 200 ppm solution.





#### SANITIZATION OF POROUS FOOD CONTACT SURFACES

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

IMMERSION METHOD - Prepare a 600 ppm solution by thoroughly mixing, in an immersion tank, 3 oz. of this product with 20 gallons of water. Clean equipment in the normal manner. Prepare a 200 ppm sanitizing solution by thoroughly mixing 1 oz. of this product with 20 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 METHOD - Preclean 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 oz. product with 20 gallons of water, Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Throughly 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 1 oz. 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 oz. 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 sanitizing of a 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 a immersion tank, 1 oz. of this product with on 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 METHOD - Preclean 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 oz. product with 20 gallons of water. Use spray equipment which can resist hypochlorite solutions. Prior to using equipment, thoroughly spray all surfaces until wit, 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 oz. 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.

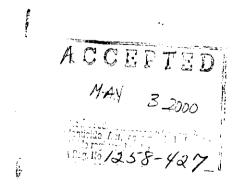
IMMERSION METHOD - Prepare a disinfecting solution by thoroughly mixing, in an immersion tank, 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the 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 3 oz. o this product with 20 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, 3 oz. 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 rinsc equipment with water after treatment.

SPRAY METHOD - After cleaning, sanitize non-food contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 3 oz. of this product with 20 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, of the chlorinated effluent has been reduced to or below the maximum permitted by the controlling regulatory jurisdiction. On the average, satisfactory disinfection of secondary waste water 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 waste water disinfection.

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

EFFLUENT SLIME CONTROL - Apply a 100 to 1000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by mixing 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 1 ft. 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.

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

PUBLIC SYSTEMS: Mix a ratio of 1 oz. 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 oz. 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 it 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. 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 oz, 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. 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 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.

#### PUBLIC WATER SYSTEMS

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

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

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

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(PUBLIC WATER SYSTEMS CONTINUED)

NEW FILTER SAND - Apply 16 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 1 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 dr 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 4 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 1 oz. of this product for each 5 gallons of water (approximately 1000 ppm available chlorine). After drying, flush with water and return to service.

#### EMERGENCY DISINFECTION AFTER FLOODS

WELLS - Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 1 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.

RESERVOIRS—In case of contamination by overflowing streams, establish hypochlorinating stations upstream of the reservoir. Chlorinate the inlet water until the entire reservoir obtains a 0.2 ppm available chlorine

residual, as determined by a suitable chlorine test kit. In case of contamination from surface drainage, apply sufficient product directly to the reservoir to obtain a 0.2 ppm available chlorine residual in all parts of the reservoir.

BASINS, TANKS, FLUMES, ETC. - Thoroughly clean all equipment, then apply 4 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 1 oz. of this product for each 5 gallons of water (1000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

FILTERS - when the sand filter needs replacement, apply 16 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 16 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 back washed of mud and silt, apply 16 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 back washing.

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 Jeast 10 ppm remains after a 24 hour retention time. Use a chlorine test kit.

#### **EMERGENCY DISINFECTION AFTER FIRES**

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

### 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 1 oz. of this product for each 5 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 after 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 10 to 20 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 2 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.

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### (COOLING TOWER/EVAPORATIVE CONDENSER WATER CONTINUED)

INTERMITTENT FEED METHOD - Initial Dose: When system is noticeably fouled, apply 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blow down.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system to obtain a 1ppm 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 blow down. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD - Initial dose: when system is noticeably fouled, apply 10 to 20 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 3,000 gallons of water lost by blow down to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

Initially slug dose the system with 10 oz. of this product per 10,000 gallons of water in the system. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 2 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.

LAUNDRY SANITIZERS
Household Laundry Sanitizers

IN SOAKING SUPS - Thoroughly mix 1 Tbs. of this product to 10 gallors of wash water to provide 200 ppm available chlorine. Wait 4 minutes, then add soap or

detergent. Immerse laundry for at least 11 minutes prior starting the wash/rinse cycle.

IN WASHING SUDS - Thoroughly mix 1 Tbs. 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.

#### **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 1000 ppm available chlorine for a period of 10 minutes. A 1000 ppm solution can be made by thoroughly mixing 2 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, foundains, and waterers must be rinsed with potable water before rease.

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### PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD - Initial Dose: When system is noticeably fouled, apply 10 to 20. 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 2 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 10 to 20 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blow down.

Subsequent Dose: When microbial control is evident, add 2 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or 1/3, 1/4, or 1/5) of this initial dose when half (or 1/3, 1/4, or 1/5) of the water in the system has been lost by blow down. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD - Initial dose: When system is noticeably fouled, apply 10 to 20 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 tons of potatoes. Thoroughly mix 1 oz. of this product to 10 gallons of water to obtain 500 ppm available chlorine.

#### (AGRICULTURAL USES CONTINUED)

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 mix 1/4 Tsp. of this product to 200 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.

eggs. Thoroughly mix 1 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 reused to sanitize eggs.

FRUIT & VEGETABLE WASHING - Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 1 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.

SEEDS - To control bacterial spot (Xanthomonas vesticatoris) 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 ozr of this product with 1 gallon of water.

MUSHROOMS - To control pacterial blotch (Pseudomonas tolassii); use a 100 to 200 ppm solution 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.

POST-HARVEST ROOTS - To control and reduce the spread of soft rot causing organisms in water and on sweet potatoes (<u>Ipomoea batatas</u>), 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.

#### AQUACULTURAL USES

FISH PONDS - Remove fish from ponds prior to treatment. Thoroughly mix 20 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 1 oz. of this product to 20 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 1200 oz. of this product to 10,000 gallons of water to obtain at least 600 ppm available chlorine. Apply so that all barrows, gates, rock and dam are treated with product. Permit high tide to fill the pond and then close gates. Allow water to stand for 2 to 3 days until the available chlorine level reaches zero. Open gates and allow 2 tidal cycles to flush the pond before returning lobsters to pond.

CONDITIONING LIVE OYSTERS - Thoroughly mix 1 oz. of this product to 10,000 gallons of water at 50 to 70°F to obtain 0.5 ppm available chlorine. Expose oysters to this solution for at least 15 minutes, monitoring the available chlorine level so that it does not

fall below 0.05 ppm. Repeat entire process if the available chlorine level drops below 0.05 ppm or the temperature falls below 50°F.

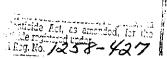
CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS - Prepare a solution containing 200 ppm of available chlorine by mixing 0.5 oz. of product with 10 gallons of water. Pour into drained pond potholes. Repeat if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0 ppm, as determined by a test kit.

#### SANITIZATION OF DIALYSIS MACHINES

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 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°F C. Drain system of the sanitizing solution and thoroughly rinse with water. Discard and DO NOT reuse the spent sanitizer. Rinsate must be monitored with a suitable test kit to insure that no available chlorine remains in the system.

This product is recommended for decontaminating single and multipatient hemodialysate systems. This product has been shown to be an effective disinfectant (virucide, fungicide, 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 should be used in a disinfectant program which includes bacteriological monitoring of the homodialysate delivery system. This product is NOT recommended for use in hemodialysate or reverse osmosis (RO) membranes. Consult the guidelines for hemodialysate systems which are available From the Hepititis Laboratories, CDC, Phoenix, AZ 85021.

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#### ASPHALT OR WOOD ROOFS AND SIDINGS

To control fungus and mildew, first remove all physical soil by brushing and hosing with clean water, and apply a 5000 ppm available chlorine solution. Mix 1 oz. of this product per gallon of water and brush or spray roof or siding. After 30 minutes, rinse by hosing with clean water.

#### BOAT BOTTOMS

To control slime on boat bottoms, sling a plastic tarp under boat, retaining enough water to cover the fouled bottom area, but not allowing water to enter enclosed area. This envelope should contain approximately 500 gallons of water for a 14 foot boat. Add 3.5 oz. of this product to this water to obtain a 35 ppm available chlorine concentration. Leave immersed for 8 to 12 hours. Repeat if necessary. Do not discharge the solution until the free chlorine level has dropped to 0 ppm, as determined by a swimming pool test kit.

#### ARTIFICIAL SAND BEACHES

To sanitize the sand, spray a 500 ppm available chlorine solution containing 0.1 oz, of this product per gallon of water at frequent intervals. Small areas can be sprinkled with a watering can.

#### FOOD PROCESSING PLANTS

**POULTRY DRINKING WATER** - Spray or flush with a solution containing 1 oz. of this product for every gallon of water. Treat poultry drinking water to a dosage of 1 to 5 ppm available chlorine by adding 1 to 5 oz. of this product per 1000 gallons of water.

FISH FILLETING - Eviscerated and degilled fish removed from the fishing vessel are placed in a wash tank of seawater or fresh water which has been treated with anough 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.

ppm available chlorine soaking solution by adding 1 oz. of this product for each 5 gallons of water to obtain a 1000 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% sulphuric 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 (5000 ppm). After 4 to 8 minutes, they are drained and washed in a 1% sulphuric acid bath at 80 to 90°F. They are then dried.

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