UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

February 1, 2008

Mark E. Burt
Regulatory Manager
Arch Chemicals, Inc.
1955 Lake Park Drive
Suite 100
Smyrna, GA 30080

Subject: Pulsar II Dry Chlorinator Tablets 65
EPA Registration No. 1258-1179
Application Date: January 31, 2008
Receipt Date: January 31, 2008

Dear Mr. Burt:

The following amendments, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, are acceptable with the comment below:

- Addition of optional marketing statements
- Addition of optional advisory statements
- Revisions to comply with Container Regulations in subpart H Container Labeling §156.140
- Addition of "responsible care" symbol as advisory statement

Comments

On page 1, revise the statement "Do not mix this product with a small amount of" to read "Do not mix this product with a small amount of water."

General Comments

A stamped copy of the labeling, accepted with comment, is enclosed. Submit 1 copy of your final printed label before distributing or selling the product bearing the revised labeling.

Should you have any questions or comments concerning this letter, please contact Wanda Henson at 703-308-6345.

Sincerely,

Emily H. Mitchell
Product Manager (32)
Regulatory Management Branch II
Antimicrobials Division (7510P)

CONCURRENCES								
SYMBOL	7510P	7510P						
SURNAME	EKBerg	Henson						
DATE	2/1/08	2/1/08						

EPA Form 1320-1A (1/90) Printed on Recycled Paper OFFICIAL FILE COPY

DRAFT EPA MASTER LABEL container regs Nov 07

[All text in square brackets [AAA] is optional and may/may not be included on final label]
{All text in rounded brackets {AAA} is for information purposes and will not appear on final label}.

{Front panel}

PENDING
PULSAR II DRY CHLORINATOR TABLETS 65

[Use Only with [brand] Briquette Chlorinator]

ACTIVE INGREDIENT:
CALCIUM HYPOCHLORITE.....66%
OTHER INGREDIENTS:.....34%
TOTAL.....100%

MINIMUM AVAILABLE CHLORINE...65%

KEEP OUT OF REACH OF CHILDREN

DANGER

ACCEPTED
with COMMENTS
EPA Letter Dated:

FEB 1 - 2008

Under the Federal Insecticide, Fungicide, and Rodenticide Act as amended, for the pesticide, registered under EPA Reg. No. 1258-1179

Contamination or improper use may cause intense fire, explosion, or the release of toxic gases. Do not allow product to contact any foreign matter, including other water treatment products. **If product is exposed to small amounts of water, it can react violently to produce heat and toxic gases and spatter.** {Optional – for use on residential use swimming pool products} **[Do not mix this product with a small amount of. Only add directly to your pool or spa.]**
Do not add water to this product. Add only into water. {Optional – for use on residential use swimming pool and spa products} **[Do not remove floater or other dispensing device from water for more than five minutes if it contains tablets or tablet residue.] Highly corrosive. Causes skin and eye damage. May be fatal if swallowed.**

Read all precautionary statements and first aid statements on [back] [side] panel before use.

NET WT. xx
(xx KG)

EPA REG. NO. 1258-1179
EPA EST. NO.

ARCH CHEMICALS, INC.
1955 Lake Park Drive
Smyrna, GA 30080

[HTH®], [Sock It®], [Super Sock It®] and [pH Plus®][BRAND] are registered trademarks of Arch Chemicals, Inc.

U.S Patent Nos. 5,112,521 & 5,004,549

FIRST AID: {Format consistent with PR Notice 2001-1}
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 a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a 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 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.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.
IN CASE OF EMERGENCY CALL: 1-800-654-6911.

{MARKETING CLAIMS} {claims listed in block format to improve readability when used on front or side panels}
{Statements available to all labels accepted in June 21, 2002 ESL}
[Kills Bacteria]
[Controls Algae]
[Destroys Organic Contaminants]
[Provides steady source of chlorine]

{Pesticidal claims added in April 16, 2003 Amendment}
[Will not over-stabilize your pool]
[Swimming pool sanitizer]
[Sanitizes pool water]
[Lasts up to 3 weeks]
[Treats up to 30,000 gallons]
[Convenient one time use]

{Non-pesticidal label claims Notification sent separately to EPA April 15, 2003}
[Easy to install]
[Easy to use]
[Never touch chlorine]
[Adjustable feed rates]
[Disposable cartridge]
{ICM labels only}
[Use only with [brand] Chlorinator Systems]
[Use only with [brand] Briquette Chlorinator]
[Patented Formulation for Reduced Maintenance]
[Patented formulation for reduced maintenance and improved [brand] [Chlorinator] [Chlorination] System reliability]

[Step 1]

{back or side panels}
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.

- Open in a well ventilated area. Avoid breathing dust and fumes.
- Do not get in eyes, on skin, or on clothing. Do not handle with bare hands. Wear goggles and use rubber gloves. For additional protection of skin, wear long sleeves and long pants.
- Remove and wash contaminated clothing before reuse.
- Only use utensils that are thoroughly clean and dry.

{back or side panels}

PHYSICAL and CHEMICAL HAZARDS:
If product is exposed to small amounts of water, it can react violently to produce heat and toxic gases and spatter. Do not add water to this product. Add only into water.

- Do not allow to become wet or damp before use.

Can react with other materials, including other water treatment products, to cause intense fire, explosion, and the release of toxic gases.

- Keep all foreign matter, including other water treatment products, away from this product.
- [Do not use this product in a floater or feeder that has been used with any other product.]
- Do not allow this product to contact other water treatment products. If used with a skimmer, make sure skimmer is completely clean and free of residue from other water treatment products before putting this product in a skimmer.

Exposure to heat can cause this product to rapidly decompose, leading to intense fire, explosion, and the release of toxic gases.

- Store in a cool, dry, well ventilated area.

Strong oxidizing agent. This product can increase fire intensity. Keep away from heat and from flame and burning material (like a lighted cigarette).

{Environmental hazards statement for end-use products in containers less than 5 gallons (liquid) or less than 50 pounds (solid, dry weight)}
ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish and aquatic organisms.

{Environmental hazards statement for end-use products in containers ≥ 5 gallons (liquid) or ≥ 50 pounds (solid, dry weight) or all container sizes of technical grade or manufacturing use products registered for industrial/commercial/institutional water treatment or processing uses}
ENVIRONMENTAL HAZARDS: 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.

STORAGE & DISPOSAL: {Optional statements – usage depends on whether or not refillable or nonrefillable containers are used and whether or not product is packaged for household/residential use only}

{Nonrefillable container - household/residential use}
[Keep this product dry in its tightly closed container when not in use. Store in a cool, dry, well-ventilated area. Keep away from heat or open flame. Nonrefillable container. Do not reuse or refill this container. Rinse empty container thoroughly with water to dissolve all material prior to disposal. Offer for recycling if available. Do not contaminate food or feed by storage or disposal or cleaning of equipment. FOR DISPOSAL OF A CONTAMINATED OR DECOMPOSING PRODUCT SEE EMERGENCY HANDLING.]

{Refillable container – household/residential use}
[Keep this product dry in its tightly closed container when not in use. Store in a cool, dry, well-ventilated area. Keep away from heat or open flame. Do not contaminate food or feed by storage or disposal or cleaning of equipment. FOR DISPOSAL OF A CONTAMINATED OR DECOMPOSING PRODUCT SEE EMERGENCY HANDLING. Refillable container. Refill this container with calcium hypochlorite only. Do not use this container for any other purpose. Rinse empty container thoroughly with water to dissolve all material prior to disposal.]

{Nonrefillable container - non-household/residential use}
[Keep this product dry in its tightly closed container when not in use. Store in a cool, dry, well-ventilated area. Keep away from heat or open flame. Do not contaminate food or feed by storage or disposal or cleaning of equipment. FOR DISPOSAL OF A CONTAMINATED OR DECOMPOSING PRODUCT SEE EMERGENCY HANDLING. Nonrefillable container. Do not reuse this container. Offer for recycling if available. Rinse empty container thoroughly with water to dissolve all material prior to disposal.]

{Refillable container – non-household/residential use}
[Keep this product dry in its tightly closed container when not in use. Store in a cool, dry, well-ventilated area. Keep away from heat or open flame. Do not contaminate food or feed by storage or disposal or cleaning of equipment. FOR DISPOSAL OF A CONTAMINATED OR DECOMPOSING PRODUCT SEE EMERGENCY HANDLING. Refillable container. Refill this container with calcium hypochlorite only. Do not use this container for any other purpose. Cleaning of this container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. Rinse empty container thoroughly with water to dissolve all material prior to disposal.]

{Redundant statements to be removed} ~~Keep this product dry in its tightly closed container when not in use. Store in a cool, dry, well-ventilated area. Keep away from heat or open flame. Rinse empty container thoroughly with water to~~

~~dissolve all material and discard container in trash. For disposal of a contaminated or decomposing product, see Emergency Handling.~~

EMERGENCY HANDLING: In case of contamination or decomposition – Do not reseal container. Immediately remove container to an open and well-ventilated outdoor area by itself. Flood with large amounts of water. Dispose of the container and any remaining contaminated material in an approved landfill area.

[WHY YOU SHOULD USE THIS PRODUCT:
The [brand] is a disposable, easy to use cartridge that sanitizes pool water and can last up to 3 weeks with 8 hours of pool pump operation per day. The briquettes inside the cartridge will not over-stabilize your pool and will leave your water crystal clear for complete swimming pool enjoyment. [For crystal [clean] [clear] pool water, follow our 4 step pool care program: Step 1: Test and adjust pool water balance, Step 2: Chlorinate and clarify, Step 3: Shock treat your pool at least once a week, and Step 4: Add algaecide regularly [where needed]]. [Take a pool water sample to your authorized [brand] dealer regularly for a detailed water analysis.]

{Following statements replaced by above optional statements} ~~For best results, follow our 4 step pool care program: Step 1: Test and adjust pool water balance, Step 2: Chlorinate and clarify, Step 3: Shock treat at least once a week, Step 4: Add algaecide regularly.~~

Additional shocking to keep water clean and clear is recommended after rain and heavy winds, a high number of swimmers, increased water temperature and increased frequency of pool usage.]

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

READ ALL PRECAUTIONARY STATEMENTS BEFORE USE.

{Use 1}{~~Pulsar~~[brand] Feeder for Swimming Pools}
[HOW TO USE: **Do not allow this product to contact other water treatment products.** Easy to use [brand] ~~Pulsar II Dry Chlorinator~~ ~~Tablets~~Briquettes are designed for use only with [brand] ~~Pulsar~~Feeders. Used according to the instructions provided with the feeder, a ~~Pulsar~~[brand] Feeder provides a steady supply of available chlorine while the pool's filter pump is in operation. Used according to the instructions provided with a feeder, this product controls the growth of algae, kills bacteria and destroys organic contaminants. Four briquettes~~pellets~~ weigh approximately one ounce. One pound (16 oz.) of this product per 10,000 gallons of water will provide a dosage of 7.5 ppm free available chlorine. **[Do not pre-mix this product.] [Only add this product directly to your pool.]**

1. Before use, read the appropriate installation instructions and operating manual for your ~~Pulsar~~[brand] Pool Feeder.
2. Start the filter pump and check chlorine residual with a reliable test kit.
3. Fill the tablet container with this product only. Adjust chlorine feed rate setting according to the operating instructions in the feeder manual.
4. After 24 hours, check the chlorine residual. If 1 to 4 ppm, leave the feed rate setting, if below 1.0 ppm, increase the feed rate. Allow sufficient time (e.g. one day) after changing the feed rate setting for the chlorine residual to readjust. The pool should not be re-entered until the 1 to 4 ppm chlorine residual is established.
5. Always maintain pH between 7.2 and 7.6 by using a suitable pH adjuster according to directions on the label for such products.
6. If cyanuric acid is used to stabilize available chlorine, follow label directions for this product and maintain the chlorine residual at 1 to 4 ppm as determined by the test kit.
7. Refer to operating manuals for feed rate information.]

{Use 2}{Directions for use in "Brand Name"* Feeder (Chlorinator) for Swimming Pools}
[Easy to use "Brand Name"* Feeder (Chlorinator) is designed for use only with the "Brand Name"* Feeder (Chlorinator). Used according to the instructions provided with the feeder, the "Brand Name"* Pool Feeder (Chlorinator) provides a steady supply of available chlorine while the pool or spa's filter pump is in operation. Used according to the instructions provided with a feeder, this product controls the growth of algae, kills bacteria and destroys organic contaminants.

1. Before use, read the appropriate installation instructions and operating manual for your "Brand Name"* Pool Feeder.
2. Start the filter pump and check chlorine residual with a reliable test kit.
3. Load the "Brand Name"* Feeder (Chlorinator) cartridge into the "Brand Name"* Feeder (Chlorinator) and adjust chlorine feed rate setting according to the operating instructions in the manual.
4. After 24 hours, check the chlorine residual. If 1.0 to 4.0 ppm, leave the feed rate setting, if below 1.0 ppm, increase the feed rate. Allow sufficient time (e.g. one day) after changing the feed rate setting for the chlorine residual to readjust. The pool/spa should not be used until the 1.0 to 4.0 ppm chlorine residual is established.
5. Always maintain pH between 7.2 and 7.6 by using suitable pH adjuster according to directions on the label for such products.
6. If cyanuric acid is used to stabilize available chlorine, follow label directions for this product and maintain the chlorine residual at 1.0 to 4.0 ppm as determined by a test kit.
7. Refer to Operating Manuals for feed rate information.

* "Brand Name" of Feeder will be ~~Pulsar~~[brand]®, newly developed brands and/or a Supplemental Registrant's brand.]

[NOTE: Adjust and maintain pH to 7.2-7.6 with [HTH pH Plus®] or [HTH pH Minus] (brand name). Follow label directions. Add 1 lb. (16 oz.) of this product per 10,000 gallons of water. This will provide a dosage of 7.5ppm free available chlorine. Maintain 5.0 to 10.0 ppm free available chlorine residual for at least 4 hours. DO NOT re-enter pool until the free available chlorine residual is between 1.0 to 4.0 parts per million (ppm). Thoroughly clean pool by brushing surface of algae growth, vacuum and cycle through filter. Monitor chlorine residual until chlorine levels are as indicated in instructions 4 through 7.]

{Alternate} [Note: If algae develops, adjust pH to 7.2 to 7.6, with [HTH pH Plus®] or [HTH pH Minus] (brand name). Follow label directions. Add [HTH Super Sock It®] (brand name), following label directions. Maintain 5-10 ppm free available chlorine residual for at least four hours. Pool should not be entered until the chlorine residual is between 1 and 4 ppm. Thoroughly clean pool by scrubbing surface of algae growth, vacuum and cycle through filter. Monitor chlorine residual until chlorine levels are as indicated in instructions 4 through 7.]

[WATER BALANCE: For best product performance, swimmer comfort and crystal clear water, maintain pH in the 7.2-7.6 range. Maintain total alkalinity in the 60-100 parts per million (ppm ranges). Maintain calcium hardness above 200 ppm. Use a reliable test kit that measures all these ranges. Use the [HTH] (brand name) Pool Care Products to make adjustments. Follow label directions for each product.]

[For best results [during the season], follow [our] [the [HTH] (brand name)] 4 step pool care program]

[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.

FREE FORM - Surface area (Sq. Feet) x Average Depth x 7.5 = Total Gallons]

[[HTH] [HTH POOLIFE] (Brand Name) HELPLINE
[866-HTH-POOL] [866-4-POOL-FUN]
Toll Free
Call 7 days a week with your questions concerning pool water care. 8:00 a.m. - 10:00 p.m. Eastern Time

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{Optional}
[

}

[[HTH] [HTH POOLIFE] (Brand Name) HELPLINE
[866-HTH-POOL] [866-4-POOL-FUN]
Toll Free
Call 7 days a week with your questions concerning pool water care. 8:00 a.m. - 10:00 p.m. Eastern Time

[Visit [brand] : www.xxx.com]

{Optional}
[

]

Arch Chemicals, Inc.
Smyrna, GA 30080

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[TO OBTAIN PROPER FEED RATES FOR AUTOMATIC CHLORINATORS: When used in an automatic (hypo-) chlorinator, this product will effectively provide required available chlorine dosages for the treatment of potable and process water, sanitary or waste flows, etc. Using the Flow Rate and Required Dosage for your application, obtain the proper Feed Rate for this product, and refer to the instructions for adjusting feed rates in the Operating Manual for your feeder to obtain the appropriate setting.

Feed rate of ~~Pulsar~~[brand]~~II Dry Chlorinator~~ Tablets for ~~Pulsar~~[brand]~~II Dry Chlorinator~~ Chlorinator ~~Tablets 65 Chlorinator~~

	oz./hr.		lb./hr.		lb./min.	
Flow Rate	Required Dosage, (ppm)					
gph	gpm	1	3	5	10	20	50
30	0.5	0.4	1.1	1.8	3.6	7.3	1.1
60	1	0.7	2.2	3.6	7.3	14.6	2.3
300	5	3.6	10.9	1.1	2.3	4.6	11.4
600	10	7.3	1.4	2.3	4.6	9.1	22.8
3000	50	2.3	6.8	11.4	22.8	45.5	1.9
4500	75	3.4	10.2	17.1	34.2	1.1	2.8
6000	100	4.6	13.7	22.8	0.8	1.5	3.8
15000	250	11.4	34.2	0.9	1.9	3.8	9.5
30000	500	22.8	1.1	1.9	3.8	7.6	19.0

Note: 1 lb./hr = 16 oz./hr. and 1 lb./min. = 60 lbs./hr. = 960 oz./hr.]

[Available Chlorine, ppm

Nominal	Actual	Number of Tablets	Volume in Gallons
1	1.2	1	1000
5	4.8	1	250
10	9.6	1	125
25	24.0	1	50
50	48.0	1	25
100	120.0	1	10
200	192.0	4	25
500	480.1	2	5
600	600.1	5	10
1000	960.2	4	5
4000	4080.8	17	5]

{Use 3} **[SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES: RINSE METHOD** – {Following revision made to clarify use and for product stewardship reasons – use rate remains unchanged. Applicable to this secton and all others below where text change indicated.} Using a suitable chemical feed dispenser and test kit, dissolve and dose with the chlorinated solution until a concentration of 200 ppm is achieved. ~~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. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Using a suitable chemical feed dispenser and test kit, dissolve and dose the chlorinated solution until a concentration of 200 ppm is achieved.. ~~Prepare a sanitizing solution by thoroughly mixing, in a immersion tank, 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. Do not rinse equipment with water after treatment.

[COARSE] SPRAY METHOD - Preclean all surfaces after use. Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 200 ppm is achieved..~~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 wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.]

{Use 4} **[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~~. Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 600 ppm is achieved. 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

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minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 600 ppm is achieved. ~~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.]

{Use 5} **[SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES: RINSE METHOD** ~~– Prepare a sanitizing solution by thoroughly mixing 3 oz. of this product with 20 gallons of water to provide approximately 600 ppm available chlorine by weight.~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 600 ppm is achieved. 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~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 600 ppm is achieved.. 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.

[COARSE] SPRAY METHOD - - Cleaning and sanitize non-food contact surfaces with 600 ppm available chlorine solution. Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 600 ppm is achieved. ~~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.]

{Use 6} **[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.]

{Use 7} **[SEWAGE AND WASTEWATER TREATMENT: EFFLUENT SLIME CONTROL** - Apply a 100 to 1000 ppm available chlorine solution at a location which will allow complete mixing. ~~Using a suitable chemical feed dispenser, dissolve and dose the chlorinated solution until a concentration of 100 to 1000 ppm is achieved..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. . Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 15 ppm is achieved.~~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.~~ 1 tablet of this product per 20 sq. ft. evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.]

{Use 8} - **DISINFECTION OF DRINKING WATER (EMERGENCY/PUBLIC/INDIVIDUAL SYSTEMS: PUBLIC SYSTEMS -** Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 0.2 – 0.6 ppm is achieved. ~~[Mix a ratio of 1 oz. of this product to 6000 gallons of water.] [or] [Mix a ratio of 10 oz. to 30 oz. of this product into 10 gallons of water to make a 0.5% to 1.5% solution.]~~ 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~~Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 100 ppm is achieved .After covering the well, pour the sanitizing solution into the well through both the pipe sleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution. Start pump and pump water until strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces

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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. Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 100 ppm is achieved. ~~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.

{Use 9} [**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).~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 500 ppm is achieved. Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to surface.

NEW FILTER SAND - Apply 16 oz. or [1 tablet} 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.~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 50 ppm is achieved. The solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may then be pumped until a representative raw water sample is obtained. Bacterial examination of the water will indicate whether further treatment is necessary.

EXISTING EQUIPMENT - Remove equipment from service, thoroughly clean surfaces of all physical soil. ~~Sanitize by placing 4 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine).~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 500 ppm is achieved. 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 chlorinated solution. Using a suitable chemical feed dispenser, dissolve and dose the chlorinated solution until a concentration of 1000 ppm is achieved. ~~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.]

{Use 10} [**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~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 500 ppm is achieved. 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] [Treat well again] 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 using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 500 ppm is achieved~~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~~

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~~for each 5 gallons of water (1000 ppm available chlorine)~~ Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 1000 ppm is achieved. Allow to stand for 2 to 4 hours, flush and return to service.]

[FILTERS - when the sand filter needs replacement, apply 16 oz. or [1 tablet] 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. or [1 tablet] 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. or [1 tablet] 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 least 10 ppm remains after a 24 hour retention time. Use a chlorine test kit.]

{Use 11} [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.]

{Use 12} [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. Using a suitable chemical feed dispenser and test kit,, dissolve and dose the chlorinated solution until a concentration of 500 ppm is achieved. ~~This solution is made by mixing 1 oz. of this product for each 10 gallons of water.~~ During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.]

{Use 13} **[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.]

{Use 14} **[COOLING TOWER/EVAPORATIVE CONDENSER WATER: SLUG FEED METHOD** - Initial dose: When system is noticeably fouled, use a suitable chemical feed dispenser and test kit, to dissolve and dose the chlorinated solution until a concentration of 5 to 10 ppm is achieved. Repeat until control is achieved. Subsequent dose: When microbial control is evident, Use a suitable chemical feed dispenser, and dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved. Add to 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.]
~~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, use a suitable chemical feed dispenser and test kit, to dissolve and dose the chlorinated solution until a concentration of 5 to 10 ppm is achieved. ~~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, use a suitable chemical feed dispenser and test kit,, and dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved. ~~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.~~, use a suitable chemical feed dispenser and test kit, to dissolve and dose the chlorinated solution until a concentration of 5 to 10 ppm is achieved. [Subsequent Dose: Maintain this treatment level by ~~starting a continuous feed of 2 oz. of this product per 10,000 gallons of water lost by blow down to maintain a 1 ppm residual.~~ , using a suitable chemical feed dispenser, and dissolve and dose the chlorinated solution until a concentration of ppm is achieved. Badly fouled systems must be cleaned before treatment is begun.] {2 oz/10,000 g 66% CH provides 1 ppm chlorine} {1 oz/3,000g provides less than 1 ppm FAC }

[BRIQUETTES OR TABLETS: Initially slug dose the system,using a suitable chemical feed dispenser and test kit,, to dissolve and dose the chlorinated solution until a concentration of 5 ppm is achieved. ~~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~~ use a suitable chemical feed dispenser and test kit,, and dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved. Control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.]

{Use 15} **[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

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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 Using a suitable chemical feed dispenser, and dissolve and dose the chlorinated solution until a concentration of 1000 ppm is achieved.~~ Immerse all halters, ropes and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels and scrapers used for removing litter and manure. Ventilate buildings, cars, boats and other closed spaces. Do not house livestock or poultry or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains and waterers must be rinsed with potable water before reuse.]

{Use 16} [**PULP AND PAPER MILL PROCESS WATER SYSTEMS: SLUG FEED METHOD** - Initial Dose: When system is noticeably fouled, use a suitable chemical feed dispenser and test kit,, to dissolve and dose the chlorinated solution until a concentration of 5 to 10 ppm is achieved. ~~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, use a suitable chemical feed dispenser and test kit, to dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved. Maintain ~~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, use a suitable chemical feed dispenser and test kit to dissolve and dose the chlorinated solution until a concentration of 5 to 10 ppm is achieved. ~~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, use a suitable chemical feed dispenser to dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved. ~~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, use a suitable chemical feed dispenser and test kit to dissolve and dose the chlorinated solution until a concentration of 5 to 10 ppm is achieved.
~~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 2 oz. of this product per 10,000 gallons of water lost by blow down to maintain a 1 ppm residual.~~ using a suitable chemical feed dispenser and test kit to dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved. Badly fouled systems must be cleaned before treatment is begun.]
~~{2 oz./10,000g provides 1 ppm FAC} {1 oz/1,000 g provides 5 ppm FAC, not 1~~

[**BRIQUETTES OR TABLETS:** Initially slug dose the system using a suitable chemical feed dispenser and test kit to dissolve and dose the chlorinated solution until a concentration of 5 ppm is achieved. ~~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~~ by using a suitable chemical feed dispenser and test kit, dissolve and dose the chlorinated solution until a concentration of 1 ppm is achieved.. Badly fouled systems must be cleaned before treatment is begun.]

{Use 17} [**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. by using~~ Use a suitable chemical feed dispenser and test kit to dissolve and dose the chlorinated solution until a concentration of 10 ppm is achieved. 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. Use a suitable chemical feed dispenser and test kit to dissolve and dose the chlorinated solution until a concentration of 200 ppm is achieved. ~~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.~~ and, using a suitable chemical feed dispenser and test kit, dissolve and dose the chlorinated solution until a concentration of 600 ppm is achieved. 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.]

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