



SAFETY DATA SHEET

Issue Date: 20-Sep-2013

Revision Date: 02-Apr-2021

Version 1

1. Identification

Product identifier

Product Name: Azone - EPA Reg. No. 7870-1

Other means of identification

Product Code: 41930

Synonyms: Sodium Hypochlorite Solution, Bleach Solution, Bleach Liquor, Hypo-solution, Bleach, Liquid Bleach ; Sodium oxychloride; Sodium chloride oxide

UN/ID No: UN1791

Recommended use of the chemical and restrictions on use

Recommended Use: Industrial, Manufacturing or Laboratory use.

Restrictions on Use: None known

Details of the supplier of the safety data sheet

Manufacturer: Hawkins, Inc.
2381 Rosegate
Roseville, MN 55113
(612) 331-6910

Emergency telephone number

Emergency Telephone: CHEMTREC: 1-800-424-9300 (US) / +1 703-741-5970 (International)

2. Hazard(s) identification

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Corrosive to metals	Category 1

Hazards not otherwise classified (HNOC)

Not applicable

Label elements

Signal word: Danger

Hazard statements:

Causes severe skin burns and eye damage

May cause respiratory irritation

May be corrosive to metals



Precautionary Statements - Prevention:

Do not breathe dusts or mists
 Wash face, hands and any exposed skin thoroughly after handling
 Wear protective gloves/protective clothing/eye protection/face protection
 Use only outdoors or in a well-ventilated area
 Keep only in original container

Precautionary Statements - Response:

Immediately call a POISON CENTER or doctor
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 Immediately call a POISON CENTER or doctor
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
 Wash contaminated clothing before reuse
 IF INHALED: Remove person to fresh air and keep comfortable for breathing
 Immediately call a POISON CENTER or doctor
 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting
 Absorb spillage to prevent material damage

Precautionary Statements - Storage:

Store locked up
 Store in a well-ventilated place. Keep container tightly closed
 Store in corrosion resistant container with a resistant inner liner

Precautionary Statements - Disposal:

Dispose of contents/container to an approved waste disposal plant

Unknown Acute toxicity: Not applicable

Other Information

Not applicable

3. Composition/information on ingredients

Chemical name	CAS No.	Weight-%
Sodium hypochlorite	7681-52-9	10-12.5
Sodium Hydroxide	1310-73-2	<1
Sodium chloride	7647-14-5	7.5-9.5
Water	7732-18-5	Balance

Any concentration shown as a range is due to batch variation or the exact percentage has been withheld as a trade secret.

4. First-aid measures**Description of first aid measures****General advice**

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

Inhalation

Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention. May cause asthma-like (reactive airways) symptoms.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention. Do not attempt to neutralize with chemical agents. Oils and ointments should not be used at this time.

Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention. Irritation may follow an initial latency which may vary by hours for dilute solutions to minutes for more concentrated solutions. If skin feels slippery, the product may be still present in sufficient quantities to cause rash or burn. Continue washing skin until slick feeling is gone. Discard footwear that cannot be decontaminated and any leather articles.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Damage may appear days after exposure. Do not attempt to neutralize.
Self-protection of the first aider	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

Symptoms Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Indication of any immediate medical attention and special treatment needed

Note to physicians Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

5. Fire-fighting measures

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Large Fire	CAUTION: Use of water spray when fighting fire may be inefficient.
Unsuitable extinguishing media	Do not scatter spilled material with high pressure water streams.
Specific hazards arising from the chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. Containers may explode when heated. Cool containers with flooding quantities of water until well after fire is out. Do not allow run-off from fire-fighting to enter drains or water courses.
Hazardous combustion products	Sodium oxides. Disodium oxide. Hydrogen chloride (HCl). Chlorine. On decomposition product releases oxygen which may intensify fire.
Explosion Data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. In the event of fire and/or explosion do not breathe fumes. Overexposure to toxic decomposition products may cause a health hazard.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Personal precautions Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so. Suppress vapors with water spray. Keep out of drains, sewers, ditches and waterways.

Methods for cleaning up Dike far ahead of liquid spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Flush area with flooding quantities of water. Do not attempt to neutralize or mix with other cleaning agents. Clean contaminated surface thoroughly.

7. Handling and storage

Precautions for safe handling

Advice on safe handling

Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. When diluting, always add the product to water. Never add water to the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials. Do not freeze. Do not contaminate food or feed stuffs. Store in accordance with AWWA B300 - Hypochlorites.

Incompatible Materials

Oxidizing agent. Acids. Bases. Amines. Reducing agent. Metals. Ammonia. Organic material. Cleaner, detergents/soaps. Peroxides.

8. Exposure controls/personal protection

Control parameters

Exposure Limits

The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Sodium Hydroxide 1310-73-2	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³ (vacated) Ceiling: 2 mg/m ³	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³

Appropriate engineering controls

Engineering controls

Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection

Face protection shield. Tight sealing safety goggles.

Hand protection

Wear suitable gloves. Impervious gloves.

Skin and body protection

Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Product can react with various fabrics usually increasing with concentrations. Reactions vary significantly depending on strength of chemical, material, fabric treatment and dye color.

Respiratory protection

No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Environmental exposure controls

Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

General hygiene considerations

Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this

product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product.

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical State: Liquid
Appearance: Clear
Color: Colorless to yellow
Odor: Chlorine Bleach Odor
Odor Threshold: No information available

pH:
pH Range: >10
Salt Out Point: No information available
Melting Point/Freezing Point: -14 °C / 6 °F
Boiling Point/Boiling Range: No information available
Flash Point: No information available
Evaporation Rate (BuAc=1): No information available
Flammability (solid, gas): No information available
Flammability Limits in Air: No information available
Vapor Pressure (mm Hg): No information available
Vapor density (Air =1): No information available
Specific Gravity (H₂O=1): 1.16
Water Solubility: Soluble
Solubility(ies): No information available
Partition Coefficient (n-octanol/water): No information available
Autoignition Temperature: No information available
Decomposition Temperature: No information available
Kinematic Viscosity: No information available
Dynamic Viscosity: No information available

Other information

Explosive properties No information available
Oxidizing properties No information available
Molecular Weight: 74.44

10. Stability and reactivity

Reactivity Contact with most metals will generate flammable hydrogen gas. Contact with acids liberates toxic gas. May react with oxidizing agents. Violent reactions may occur with some organic compounds. Reacts readily with various reducing sugars to produce carbon monoxide.

Chemical stability Slowly decomposes on contact with air. Rate increases with the concentration and temperature. Sodium hypochlorite becomes less toxic with age.

Possibility of hazardous reactions Contact with water generates heat. Heating causes rise in pressure with risk of bursting. Reacts with acids by giving off heat. Hazardous gases may be generated from contact with acids, ammonium hydroxide (aqua ammonia) or cleaners containing ammonia compounds. Contact with acids, halogenated organics, organic nitro compounds, glycols, or sodium tetrahydroborate may produce flammable gas. Contact with 1,2-dichloroethylene, trichloroethylene, tetrachloroethane or phosphorous can form spontaneously flammable chemicals.

Conditions to avoid Exposure to air or moisture over prolonged periods. Extremes of temperature and direct sunlight.

Incompatible Materials Oxidizing agent. Acids. Bases. Amines. Reducing agent. Metals. Ammonia. Organic

material. Cleaner, detergents/soaps. Peroxides.

Hazardous decomposition products Sodium oxides. Disodium oxides. Chlorine. Hydrogen chloride (HCl). Oxygen.

11. Toxicological information

Information on likely routes of exposure

Product Information

Inhalation

Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

Eye contact

Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

Skin contact

Specific test data for the substance or mixture is not available. Causes severe burns.

Ingestion

Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms

Redness. Burning. May cause blindness. Coughing and/ or wheezing.

Numerical measures of toxicity

Acute Toxicity:

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	21,883.80 mg/kg
ATEmix (dermal)	80,080.00 mg/kg

Component Information

Chemical name	Oral LD ₅₀ :	Dermal LD ₅₀ :	LC ₅₀ (Lethal Concentration):
Sodium hypochlorite 7681-52-9	= 8.91 g/kg (Rat)	> 10000 mg/kg (Rabbit)	-
Sodium Hydroxide 1310-73-2	= 325 mg/kg (Rat)	= 1350 mg/kg (Rabbit)	-
Sodium chloride 7647-14-5	= 3 g/kg (Rat)	-	> 42 g/m ³ (Rat) 1 h
Water 7732-18-5	> 90 mL/kg (Rat)	-	-

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation

Causes severe burns.

Serious eye damage/eye irritation

Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

Respiratory or skin sensitization

No information available.

Germ cell mutagenicity

No information available.

Carcinogenicity

See section 2 for classified hazards based on component information.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Sodium hypochlorite 7681-52-9	-	Group 3	-	-

IARC (International Agency for Research on Cancer)

Group 3 - Not Classifiable as to Carcinogenicity in Humans

Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.
Other Adverse Effects:	No information available.

12. Ecological information

Ecotoxicity The environmental impact of this product has not been fully investigated.

Chemical name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
Sodium hypochlorite 7681-52-9	-	0.06 - 0.11 mg/L (LC50 96 h flow-through - Pimephales promelas) 4.5 - 7.6 mg/L (LC50 96 h static - Pimephales promelas) 0.4 - 0.8 mg/L (LC50 96 h static - Lepomis macrochirus) 0.28 - 1 mg/L (LC50 96 h flow-through - Lepomis macrochirus) 0.05 - 0.771 mg/L (LC50 96 h flow-through - Oncorhynchus mykiss) 0.03 - 0.19 mg/L (LC50 96 h semi-static - Oncorhynchus mykiss) 0.18 - 0.22 mg/L (LC50 96 h static - Oncorhynchus mykiss)	-	0.033 - 0.044 mg/L (EC50 48 h Static - Daphnia magna)
Sodium Hydroxide 1310-73-2	-	45.4 mg/L (LC50 96 h static - Oncorhynchus mykiss)	-	-
Sodium chloride 7647-14-5	-	5560 - 6080 mg/L (LC50 96 h flow-through - Lepomis macrochirus) 12946 mg/L (LC50 96 h static - Lepomis macrochirus) 6020 - 7070 mg/L (LC50 96 h static - Pimephales promelas) 7050 mg/L (LC50 96 h semi-static - Pimephales promelas) 6420 - 6700	-	1000 mg/L (EC50 48 h - Daphnia magna) 340.7 - 469.2 mg/L (EC50 48 h Static - Daphnia magna)

		mg/L (LC50 96 h static - Pimephales promelas) 4747 - 7824 mg/L (LC50 96 h flow-through - Oncorhynchus mykiss)		
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Persistence and Degradability: No information available.

Bioaccumulation: There is no data for this product.

Mobility: No information available.

Other Adverse Effects: No information available.

13. Disposal considerations

Waste treatment methods

Waste from residues/unused products

Dispose of in accordance with local, state, and national regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging

Do not reuse empty containers.

14. Transport information

DOT

UN/ID No	UN1791
Proper shipping name	HYPOCHLORITE SOLUTIONS (SODIUM HYPOCHLORITE)
Hazard Class	8
Packing Group	III
Description	UN1791, HYPOCHLORITE SOLUTIONS (SODIUM HYPOCHLORITE), 8, PG III, MARINE POLLUTANT



15. Regulatory information

International Inventories

Chemical name	TSCA	AICS	DSL	NDSL	EINECS	ELINCS	ENCS	IECSC	KECL	PICCS
Sodium hypochlorite 7681-52-9	Present ACTIVE	Present	Present	-	Present	-	Present	Present	Present	Present
Sodium Hydroxide 1310-73-2	Present ACTIVE	Present	Present	-	Present	-	Present	Present	Present	Present
Sodium chloride 7647-14-5	Present ACTIVE	Present	Present	-	Present	-	Present	Present	Present	Present
Water 7732-18-5	Present ACTIVE	Present	Present	-	Present	-	Present	Present	Present	Present

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

AICS - Australian Inventory of Chemical Substances

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Under the amended regulations at 40 CFR 370, EPCRA 311/312 Tier II reporting for the 2017 and later calendar years will need to be consistent with updated hazard classifications.

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302).

Chemical name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	SARA Extremely Hazardous Substances TPQ
Sodium hypochlorite 7681-52-9	100 lb	-	
Sodium Hydroxide 1310-73-2	1000 lb	-	

Clean Water Act (CWA)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Sodium hypochlorite 7681-52-9	100 lb	-	-	X
Sodium Hydroxide 1310-73-2	1000 lb	-	-	X

OSHA - Process Safety Management - Highly Hazardous Chemicals

This product does not contain any substances regulated under Process Safety Management (29 CFR 1910.119).

Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS)

This product does not contain any substances regulated under the Chemical Facility Anti-Terrorism Standards (6 CFR 27).

16. Other information

NSF/ANSI 60 Certification



Certified to
NSF/ANSI 60

Maximum Use (mg/L unless otherwise indicated): 50

Prepared By: HSE Department
Issue Date: 20-Sep-2013
Revision Date: 02-Apr-2021
Revision Note: Reviewed and Re-issued. Format change.

Disclaimer:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

HYPOCHLORITE SOLUTION

AZONE

(Reg. U.S. Pat. Off.)

DISINFECTANT
GERMICIDE
SANITIZER
UN 1791

ACTIVE INGREDIENT:
 Sodium Hypochlorite..... 10.0%
 INERT INGREDIENTS:..... 90.0%
 TOTAL..... 100.0%
Available Chlorine: 9.5%

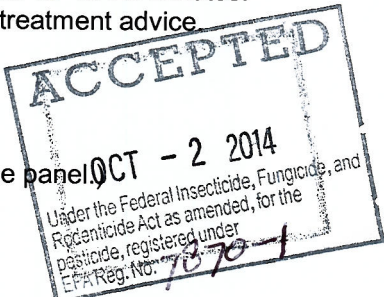
KEEP OUT OF REACH OF CHILDREN

DANGER

FIRST AID

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

- 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.
- If swallowed** Call a poison control center or doctor 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.
- If inhaled** Do not give anything by mouth to an unconscious person. Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
- 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.



(See additional precautions on side panel)

Net Contents:

HAWKINS, INC.
3100 East Hennepin Ave. Minneapolis, MN 55413

EPA. Reg. No. 7870-1 EPA Est. 7870-MN-1
EPA Est. 7870-MN-3

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

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

ENVIRONMENTAL HAZARDS

This product is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the U.S. Environmental Protection Agency.

PHYSICAL OR CHEMICAL HAZARDS

STRONG OXIDIZING AGENT: Mix only with water according to label directions. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas, which is irritating to eyes, lungs and mucous membranes.

DIRECTIONS FOR USE

This product may be applied only by the methods specified on the labeling.

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

This product is not to be used as a terminal sterilant/high level disinfectant on any surface or instrument that (1) is introduced directly into the human body, either into or in contact with the bloodstream or normally sterile areas of the body, or (2) contacts intact mucous membranes but which does not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to pre-clean or decontaminate critical or semi-critical medical devices prior to sterilization or high level disinfection.

STORAGE AND DISPOSAL

PESTICIDE STORAGE: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. Do not contaminate food or feed by storage, disposal, or cleaning of equipment. In case of spill, flood areas with large quantities of water. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer.

PESTICIDE DISPOSAL: Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes can not be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING: APPROPRIATE BOX MUST BE CHECKED BY REFILLER.

NON-REFILLABLE CONTAINER: Do not reuse or refill this container. Offer for recycling if available or place in trash collection.

REFILLABLE CONTAINER: Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before refilling is the responsibility of the refiller. Cleaning the container according to label instructions before final disposal is the responsibility of the person disposing of the container. If disposing refillable container, offer for recycling if available or place in trash collection.

CONTAINER CLEANING:

Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple Rinse: If container has a capacity greater than five (5) gallons, triple rinse as follows: Empty remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

If the container has a capacity of five (5) gallons or less, triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure Rinse: Pressure rinse as follows: Empty the remaining contents into application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine.

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. Solution 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 1.5 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. If solution contains less than 50 ppm of available chlorine, as determined by an available 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 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 1.5 oz. of this product with 10 gallons water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. If solution contains less than 50 ppm available chlorine, as determined by a suitable test kit, either discard the solution or add sufficient product to reestablish a 200 ppm residual. Do not rinse equipment with water after treatment.

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

FLOW/PRESSURE METHOD: Disassemble equipment and thoroughly clean after use.

Assemble equipment in operating position prior to use. Prepare a volume of 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 3 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to insure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

CLEAN IN PLACE METHOD: Thoroughly clean equipment after use. Prepare a volume of 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ration of 3 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to 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.

SANITIZATION OF POROUS FOOD CONTACT SURFACES

RINSE METHOD: Prepare a 600 ppm solution by thoroughly mixing 8 oz. of this product with 10 gallons of water. Clean surfaces in the normal manner. Rinse all surfaces thoroughly with the 600 ppm solution, maintaining contact with the sanitizer for at least 2 minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water, Prior to using equipment; rinse all surfaces with a 200 ppm available chlorine solution. Do not rinse and do not soak equipment overnight.

IMMERSION METHOD: Prepare a 600 ppm solution by thoroughly mixing, in an immersion tank, 8 oz. of this product with 10 gallons of water. Clean equipment in the normal manner. Immerse equipment in the 600 ppm solution for at least 2 minutes. Prepare a 200 ppm sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water. Prior to using equipment, immerse all surfaces with a 200 ppm available chlorine solution. Do not rinse and do not soak equipment overnight.

SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD: Prepare a sanitizing solution by thoroughly mixing 3 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD: Prepare a sanitizing solution by thoroughly mixing, in an immersion tank, 3 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. 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.

DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD: Prepare a disinfecting solution by thoroughly mixing 8 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak overnight.

IMMERSION METHOD: Prepare a disinfecting solution by thoroughly mixing, in an immersion tank, 8 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. 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 8 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean surfaces in the normal matter. Prior to use, rinse 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, 8 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight.

Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

AGRICULTURAL USES

FOOD EGG SANITIZATION: Thoroughly clean all eggs. Thoroughly mix 3 oz. of this product with 10 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130° 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 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 5 7 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 re-circulating sanitizing solution prior to packaging. Rinse fruit with potable water only prior to packaging.

PROCESSING AND CHILL WATER FOR POULTRY PROCESSING: Follow guidelines of local water authority for water pot ability treatment.

Continuous feed: Using automatic metering device, continuously feed this product into the water to obtain and/or maintain a level of available chlorine that is in accordance with the USDA guidelines. Confirm target chlorine level with either a chlorine test kit or an automatic testing device. When the chlorine level reaches 20 ppm, notify the USDA plant inspector.

Intermittent feed: Start up by adding 1.2 1.5 oz. of this product per 1000 gallons of water for each 1 ppm of available chlorine needed. For subsequent doses, check chlorine level with a chlorine test kit, and add enough of this product to maintain the target chlorine level, and confirm this level with a chlorine test kit. Do not pour this product directly on poultry product in water.

HAND SANITIZING DIP: Dip previously washed and thoroughly rinsed hands into a 200 ppm (1.5 oz. per 5 gallons water) solution of this product. The hands do not need to be rinsed following this procedure.

FARM PREMISES

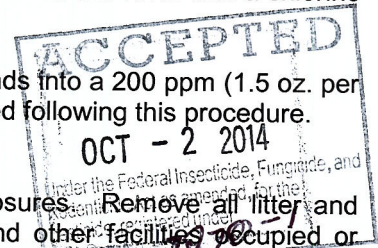
Remove all animals, poultry and feed from premises, vehicles and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or traversed by animals or poultry. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with soap or detergent and rinse with water. To disinfect, saturate all surfaces with a solution of at least 1000 ppm available chlorine for a period of 10 minutes. A 1000 ppm solution can be made by thoroughly mixing 12 14 oz. of this product with 10 gallons of water. Immerse all halters, ropes and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels and scrapers used for removing litter and manure. Ventilate 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 re-use.

AQUACULTURAL USES

FISH PONDS: Remove fish from ponds prior to treatment. Thoroughly mix 408 135 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 3 oz. of this product to 10 gallons of water to obtain 200 ppm available chlorine. Porous equipment should soak for 1 hour.

MAINE LOBSTER PONDS: Remove lobsters, seaweed, etc. from ponds prior to treatment. Drain the pond. Thoroughly mix 7,750 oz. 63 gallons of this product to 10,000 gallons of water to obtain at least 600 ppm available chlorine. Apply so that all barrows, gates, rocks and dams are treated with product. Permit high tide to fill the pond and then close 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 OYSTER: Thoroughly mix 6.5 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 level so that it does not fall below 0.05 ppm. Repeat the 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 3 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 zero, as determined by a test kit.

BOAT BOTTOMS

To control slime on boat bottoms, sling plastic tarp under boat, retaining enough water to cover the fouled bottom but not allowing water to enter enclosed area. This envelope should contain approximately 500 gallons of water for a 14-foot boat. Add 22.5 oz. of this product to this water to obtain a 35ppm 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 zero, as determined by a swimming pool test kit.

ARTIFICIAL SAND BEACHES

To sanitize the sand, spray a 500 ppm available chlorine solution containing 6.5 oz. of this product per 10 gallons of water at frequent intervals. Small areas can be sprinkled with a watering can.

ASPHALT OR WOOD ROOFS AND SIDING

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 6.5 oz. of this product per gallon of water and brush or spray roof or siding. After 30 minutes, rinse by hosing with clean water.

DISINFECTION OF DRINKING WATER (PUBLIC/INDIVIDUAL SYSTEMS)

PUBLIC SYSTEMS: Mix a ratio of 1 oz. of this product to 100 gallons of water. Begin feeding solution with a hypo chlorinator 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 1.5 oz. of this product with 20 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 water is noted. Stop pump and wait at least 24 hours. After 24 hours, flush well until all traces of chlorine have been removed from the water. Consult your local Health Department for further details.

INDIVIDUAL SYSTEMS: DRILLED, DRIVEN & BORED WELLS: Run pump until water is free from turbidity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by thoroughly mixing 1.5 oz. of this product with 10 gallons of water. Add 5 to 10 gallons of clean, chlorinated water to the well in order to force the sanitizer into the rock formation. Wash the exterior of the pump cylinder with the sanitizer. Drop the 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 SYSTEMS: FLOWING ARTESIAN WELLS – Artesian wells generally do not require disinfections. If analysis indicates persistent contamination, the well should be disinfected. Consult your local Health Department for further details.

PUBLIC WATER SYSTEMS

RESERVOIRS: ALGAE CONTROL – Hypo chlorinate 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 hydrants. Permit a flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypo chlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low pressure end of the 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 25 oz. of this product for each 5 cubic feet of working capacity (500 ppm available chlorine). Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to surface.

NEW FILTER SAND: Apply 100 oz. of this product for each 150 to 200 cubic feet of sand. The action of the product dissolving as the water passes through the bed will aid in sanitizing the new sand.

NEW WELLS: Flush the casing with 50 ppm available chlorine solution of water containing 5 oz. of this product for each 100 gallons of water. The solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may 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 and thoroughly clean surfaces of all physical soil. Sanitize by placing 26 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine). Fill to working capacity and let stand at least 4 hours. Drain and place in service. If the previous treatment is not practical, surfaces may be sprayed with a solution containing 6 oz. of this product for each 5 gallons of water (approximately 1000 ppm available chlorine). After drying, flush with water and return to service.

COOLING TOWER/EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD: Initial dose: When system is noticeably fouled, apply 54 to 108 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 12 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 54 to 108 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 12 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.

CONTINUOUS FEED METHOD: Initial Dose: When system is noticeably fouled, apply 54 to 108 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 blow down to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

EMERGENCY DISINFECTION AFTER FLOODS

WELLS: Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 6.5 oz. of this product with 10,000 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 hypo-chlorinating stations upstream of reservoir. Chlorinate the inlet water until the entire reservoir obtains a 0.2 ppm available chlorine residual, as determined by a 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 25 oz. of product per cu. Ft. of water to obtain a 500 ppm available chlorine, as determined by a suitable test kit. After 24 hours, drain, flush, and return to service. If the previous method is not suitable, spray or flush the equipment with a solution containing 6.5 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 100 oz. of this product for each 150 to 200 cubic feet of sand. When the filter is severely contaminated, additional product should be distributed over the surface at the rate of 100 oz. per 20 sq. feet. Water should stand at a depth of 1 foot above the surface of the filter bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 100 oz. of this product per each 50 sq. ft., allowing the water to stand at a depth of 1 foot above the filter sand.

DISTRIBUTION SYSTEM: Flush repaired or replaced section with water. Establish a hypo chlorinating station and apply sufficient product until consistent available chlorine residual of at least 100 ppm remains after a 24-hour retention time. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER FIRES

CROSS CONNECTIONS OR EMERGENCY CONNECTIONS: Hypo chlorination 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 hypo chlorite 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 with a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution is made by mixing 6 oz. of this product for each 10 gallons of water. During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER MAIN BREAKS

MAINS: Before assembly of the repaired section, flush out mud and soil. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypo chlorinator. 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.

PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD: Initial Dose: When system is noticeably fouled, apply 54 to 108 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 12 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 54 to 108 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 12 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.

CONTINUOUS FEED METHOD: Initial Dose: When system is noticeably fouled, apply 54 to 108 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 blow down to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

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 that has been reduced to or below the maximum permitted by the controlling regulatory jurisdiction.

On the average, satisfactory disinfection of secondary wastewater effluent can be obtained when the chlorine residual is 0.5 ppm after 15 minutes contact. Although the chlorine residual is the critical factor in disinfection, the importance of correlating chlorine residual with bacterial kill must be emphasized. The MPN of the effluent, which is directly related to the water quality standards requirements, should be the final and primary standard and the chlorine residual should be considered an operating standard valid only to the extent verified by the coliform quality of the effluent.

The following are critical factors affecting wastewater disinfection.

1. **Mixing:** It is imperative that the product and the wastewater be instantaneously and completely flash mixed to assure reaction with every chemically active soluble and particulate component of the wastewater.
2. **Contacting:** Upon flash mixing, the flow through the system must be maintained.
3. **Dosage/Residual Control:** Successful disinfection is extremely dependent on response to fluctuating chlorine demand to maintain a predetermined desirable chlorine level. Secondary effluent should contain 0.2 to 1.0 ppm chlorine residual after a 15 to 30 minute contact time. A reasonable average of residual chlorine is 0.5 ppm after 15 minutes contact time.

SEWAGE & WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL: Apply a 100 – 1000 ppm available chlorine solution at a location, which will allow complete mixing. Prepare this solution by mixing 11 to 109 oz. of this product with 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution by mixing 4 oz. of this product with 100 gallons of water.

FILTER BEDS SLIME CONTROL: Remove filter from service, drain to a depth of 1 foot above filter, and add 90 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 back washing filter.

SWIMMING POOL WATER DISINFECTION

For a new pool, or spring start-up, super chlorinate with 54 to 108oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test

kit. Adjust and maintain pool water ph to between 7.2 to 7.6. Adjust and maintain the alkalinity of the pool to between 50 to 100 ppm.

To maintain the pool, add manually or by a feeder device 12 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain residual of 1.0 to 1.5 ppm available chlorine. Test the ph, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers.

Every 7 days, or as necessary, super chlorinate the pool with 54 to 108 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Do not reenter pool until the chlorine residual is between 1.0 and 3.0 ppm.

At the end of the swimming pool season or when water is to be drained from the pool, chlorine must be allowed to dissipate from treated pool water before discharge. Do not chlorinate pool within 24 hours prior to discharge.

WINTERIZING POOLS: While water is still clear and clean, apply 4 oz. of product per 1000 gallons of water while filter is running, to obtain a 3 ppm available chlorine residual, as determined by a suitable test kit. Cover pool, prepare heater, filter and heater components for winter by following manufactures' instructions.

SPAS, HOT-TUBS, IMMERSION TANKS, ETC

SPAS/HOT TUBS: Apply 6.5 oz. of this product per 1000 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 6.5 oz. of product per 1000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm.

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

During extended periods of disuse, add 4 oz. of product daily per 1000 gallons of water to maintain a 3 ppm chlorine concentration.

HUBBARD AND IMMERSION TANKS: Add 6.5 oz. of this product per 200 gallons of water before patient use to obtain a chlorine residual of 25 ppm, as determined by a suitable test kit. Adjust and maintain the water ph to between 7.2 and 7.6. After each use drain the tank. Add 6.5 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 2 oz. of this product per 1000 gallons of water to obtain a chlorine residual of 1 ppm, as determined by suitable chlorine test kit. Pool should not be entered until the chlorine residual is below 3.0 ppm. Adjust and maintain the water ph to between 7.2 and 7.6. Operate pool.

LAUNDRY SANITIZERS

Household Laundry Sanitizers

IN SOAKING SUDS: Thoroughly mix 3 oz. of this product to 10 gallons of water to provide 200 ppm available chlorine. Wait 5 minutes then add soap or detergent. Immerse laundry for at least 11 minutes prior to starting the wash/rinse cycle.

IN WASHING SUDS: Thoroughly mix 3 oz. of this product to 10 gallons of wash water containing clothes to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent and start wash/rinse cycle.

Commercial Laundry Sanitizers

Wet fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 3 oz. of this product with 10 gallons of water to provide a 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution to 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 product if the available chlorine level has dropped below 200 ppm.

SANITIZATION OF DIALYSIS MACHINE

Flush equipment thoroughly with water prior to using this product. Thoroughly mix 8 oz. of this product to 10 gallons of water to obtain at least 600 ppm available chlorine. Immediately use this product in the hemodialysate system allowing for a minimum contact time of 15 minutes at 20°C. Drain system of sanitizing solution and thoroughly rinse with water. Discard and do not re-use 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 multi patient 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 hemodialysate 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 Hepatitis Laboratories, CDC, Phoenix, AZ 85021.