

United States Department of Agriculture
Agricultural Marketing Service | National Organic Program
Document Cover Sheet

<https://www.ams.usda.gov/rules-regulations/organic/national-list/petitioned>

Document Type:

National List Petition or Petition Update

A petition is a request to amend the USDA National Organic Program's National List of Allowed and Prohibited Substances (National List).

Any person may submit a petition to have a substance evaluated by the National Organic Standards Board (7 CFR 205.607(a)).

Guidelines for submitting a petition are available in the NOP Handbook as NOP 3011, National List Petition Guidelines.

Petitions are posted for the public on the NOP website for Petitioned Substances.

Technical Report

A technical report is developed in response to a petition to amend the National List. Reports are also developed to assist in the review of substances that are already on the National List.

Technical reports are completed by third-party contractors and are available to the public on the NOP website for Petitioned Substances.

Contractor names and dates completed are available in the report.

Potassium Hypochlorite Solution
Crop Production
Identification of Petitioned Substance

Overview

Potassium Hypochlorite (KOCl) is an EPA-registered and FDA-approved new chemical technology. This chemistry is approved for use in many industrial and agricultural applications but is most beneficial to organic and conventional agriculture. This product is manufactured using two synthetic ingredients which are listed on NOP, 7 CFR § 205.601(a)(2) and 205.601(m)(1) This product is diverse as it addresses; the needs of the farmer for maintenance of their irrigation equipment, the requirements of FSMA to provides sanitation to pre-harvest irrigation water and the nutritional needs of the plant as potassium is necessary for optimal crop growth and vigor.

Item A.1

The Petitioner is requesting Potassium Hypochlorite Solution be included on the following National List:

- Synthetic substances allowed for use in organic crop production (§205.601(2)) Chlorine Materials): Calcium hypochlorite, Chlorine dioxide and Sodium hypochlorite

Potassium Hypochlorite is essentially the same as the existing chlorine chemistries, specifically Sodium hypochlorite (NaOCl). See comparison chart below.

	NaOCl (Sodium hypochlorite)	KOCl (Potassium hypochlorite)
% Active	12.5	12.5
% Available Cl₂	11.9	9.8
Color	Pale Yellow	Pale Yellow
Density	10.1 lb/gal	9.75 lb/gal
Lbs. Na⁺/Gallon	0.78	0
Lbs. K⁺/Gallon	0	0.53
As K₂O	0	13%
EPA Status	Approved	Approved
Disinfection Byproducts (DBPs)	NaCl & Oxidized Organics	KCl & Oxidized Organics
Field Test Kit Available	Yes	Yes

Item A.2- OFPA Category-Crop and Livestock Materials

This petitioned substance, for use in crop or livestock production, contains an active synthetic ingredient in the following OFPA category (7 U.S.C. § 6517(c)(1)(B)(i)):

- Production aids

Item A.3- Inert Ingredients

Not applicable as the petitioned substance is not an inert ingredient.

Item B.1 Substance Name

Potassium hypochlorite (KOCl)

Item B.2 Petitioner and Manufacturer Information

Petitioner:

Enviro Tech Chemical Services, Inc.

EPA Registration Holder

500 Winmoore Way

Modesto, CA 95358

PH: (209) 581-9576

Manufacturer #1:

HASA Inc.

1251 Loveridge Road

Pittsburg, CA 94565

(925) 432-3866

Manufacturer #2:

Hawkins, Inc.

2381 Rosegate

Roseville, MN 55113

PH: (612) 331-6910

Manufacturer #3:

Vertex Chemical

2825 Channel Ave

Memphis, TN 38109

PH: (901) 775-1382

Item B.3 Intended or Current Use

The intended use of the petitioned substance is as a pesticide in irrigation waters.

Item B.4 Intended Activities and Application Rate

IRRIGATION SYSTEMS

This product, when used properly, will control bacterial and algae growth in irrigation water systems, and thereby provide a uniform distribution of water. This product may be applied through irrigation systems such as: sprinkler, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move; flood (basin); furrow; border or drip (trickle) or subsurface irrigation systems.

If the irrigation water has high levels of nutrients causing bacterial, algae, and other biofouling that reduces system performance, continuous chlorination may be necessary. The recommended level of free residual chlorine for continuous feed is 1 to 2 ppm. The available chlorine level should be checked periodically and measured at the end of the farthest lateral point using a good quality test kit for available chlorine. The residual chlorine level must not exceed 4 ppm as declared under the Safe Water Drinking Act (SDWA).

Item B.5 Manufacturing Process

KOCl is a synthetic material manufactured by chemical process. A 3rd party chemical manufacturer produces this product on behalf of Enviro Tech, see Item B.2 for list of manufacturers. Gaseous chlorine is reacted with a solution of potassium hydroxide (KOH) according to the following stoichiometric equation: $\text{Cl}_2 + 2\text{KOH} = \text{KOCl} + \text{KCl} + \text{H}_2\text{O}$. One mole of chlorine reacts with 2 moles of potassium hydroxide to produce 1 mole of potassium hypochlorite and 1 mole of potassium chloride (KCl) while generating 1 mole of water. There is no separation step. Freshly prepared solutions contain equimolar amounts of both potassium hypochlorite and potassium chloride.

The manufacturer utilizes a dedicated 5,000-gallon capacity glass-lined, jacketed reactor equipped with an agitator, sparge tube and headspace scrubber. The reactor is positioned on a weighing load cell to ensure that ingredients are charged in accurate amounts.

1. To the reactor is added softened water (11,027.5 kg) and 45% potassium hydroxide solution (7,032 kg).
2. The agitator is turned on and gas chlorine from the chlorine evaporator (2,016 kg) is introduced through the sparge tube near to the agitator blade.
3. Coolant is passed through the reactor jacket and the addition rate of the chlorine gas is controlled so that the reactor contents do not exceed 21°C.
4. When the addition is complete, the product is stabilized by the addition of 10 g/L of excess potassium hydroxide (378.5 kg of 45% potassium hydroxide solution). The pH of the stabilized solution should be between 13 and 13.3.
5. The product is then transferred to a 10,000-gallon storage tank constructed of high-density polyethylene (HDPE), and a sample is taken for quality control purposes.
6. Provided the sample passes the Quality Control check, the material is released for packaging into closed head 55-gallon drums, 330 gallon tote bins or a 45,000 lb. tanker truck.

Ingredient Name	Ingredient Supplier
Water	Local Supply
Potassium Hydroxide 45%	BCS 525 Seaport Boulevard Redwood City, CA 94063
Chlorine (99.5% min)	Sierra Chemical 2302 Larkin Circle Sparks, NV 89431

Item B.6 Ancillary Substances

KOCl is a standalone product and is not used in conjunction with carriers, emulsifiers, stabilizers or any other adjuvants.

Item B.7 Previous Reviews

This product is currently registered as a pesticide in the following states which have reviewed and approved the product for registration; California (HASA Aura Klor, registration no. 63479), Florida (K-Klor, registration no. 0000033314), Arizona (HASA Aura Klor, registration no. 44451) and Colorado (HASA Aura Klor, registration no. 97435).

Item B.8 Regulatory Authority

KOCl is an EPA registered antimicrobial pesticide. This product was reviewed by the Agency and found to be acceptable for registration on March 3, 2011, under EPA Registration No. 63838-10. The intended use of irrigation water treatment against bacterial and algae growth was approved under the above-mentioned review and can be found on the stamped accepted EPA label (attachment 3).

At our request, the FDA reviewed this product in comparison to NaOCl (see attachment 2). The Agency found the substitution of potassium ions for sodium, in such applications as NaOCl solutions, would not raise new safety concerns. They also stated that a Food Contact Notification (FCN) would not be required to use KOCl in the same manner that NaOCl is permitted.

As an EPA registered pesticide, this product must be registered in the states it is distributed to. Each state reviewed the EPA label, EPA Confidential Statement of Formula (CSF), and Safety Data Sheet (SDS) in addition to any other requested information regarding the product. Since this product is considered a New Active Ingredient (NAI) in some states, additional consideration and scrutiny was given to each review. Please see section **B.7** for a list of current state registrations and their associated registration numbers.

Enviro Tech was issued an exemption from the requirement of a tolerance on January 11, 2011 (see attachment 1). This petition amended 40 CFR part 180 to include KOCl. This exemption was issued after a thorough assessment by the agency of the toxicology, exposure, safety, and residue limits.

Item B.9 CAS Number and Product Labels

KOCl was assigned CAS # 7778-66-7.

The proposed product label is referenced in attachment 5.

Item B.10 Physical and Chemical Properties

KOCl is a synthetic, liquid concentrate with virtually identical properties to NaOCl. The properties listed below may reference either sodium and/or potassium hypochlorite since this information is mostly interchangeable.

- a) Chemical Interaction: This product is incompatible with the following materials: oxidizing agents, acids, nitrogen containing organics, metals, iron, copper, nickel, cobalt, organic materials and ammonia.
- b) Toxicity and environmental persistence: In 1990, the EPA completed their initial review of KOCl and issued a memorandum advising this product does not have any toxicological or environmental fate issues or concerns and would not have any undue adverse effects to man or the Environment. This was based upon the chemicals' similarity with NaOCl and the data waiver on file for this product.
- c) Environmental impacts from use and/or manufacture: According to a Technical Evaluation Report for NaOCl (submitted to the NOP), there is no information from the EPA or FDA to suggest that environmental contamination results from the proper manufacture, use or disposal of NaOCl. In freshwater, all hypochlorite salts break down rapidly into non-toxic compounds when exposed to sunlight. In seawater, chlorine levels decline rapidly; however, hypobromite (which is acutely toxic to aquatic organisms) is formed. Due to the presence of 65 ppm of bromide ion in seawater, hypochlorite salts form hypobromite salts. Hypobromite salts are very unstable to photolysis and rapidly break down back to bromide ion under the influence of ultra violet light [sunlight].

Although this product is low in toxicity to avian wildlife, it can be highly toxic to freshwater fish and invertebrates. The EPA believes the risk of acute exposure is sufficiently mitigated by precautionary labeling and National Pollutant Discharge Elimination System (NPDES) permit requirements to ensure discharged product will not pose a significant adverse effect to wildlife. Additionally, the current NOSB approval is conditional on residual chlorine levels in the water not exceeding the limit set by the Safe Drinking Water Act (4mg/L). The following environmental hazards statement is required to appear on the label to mitigate risk: "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 Eliminations 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."

- d) Effects on human health: The abovementioned Technical Evaluation outlines that potential human health effects, due to NaOCl exposure, occur dermally or via inhalation. Contact with strong solutions may cause burning pain, inflammation and blisters to the skin. Mild solutions may cause mild and transitory irritation if in contact with eyes and stronger solutions may cause severe injuries to the eye. Long-term exposure to low levels of hypochlorite can cause dermal irritation.
- e) Effects on soil organisms, crops, or livestock: 21 CFR, Part 178 lists NaOCl as an approved "indirect" food additive. Both KOCl and NaOCl are exempt from the tolerance requirements and can be used in postharvest, seed, or soil treatment on various fruit and vegetable crops. While NaOCl has the potential to raise soil pH and add sodium to the soil, which may be phytotoxic and cause necrosis to plants, KOCl does not have such effects since it lacks the sodium ion. Potassium ions display no phytotoxicity to plants/crops since it has a much more innocuous

profile. Additionally, NaOCl is authorized for the cleaning and disinfecting of livestock buildings and installations so long as residual chlorine levels do not exceed the maximum residual limit under the Safe Drinking Water Act of 4mg/L.

Item B.11 Safety Information

A substance report from the National Institute of Environmental Health Studies is not necessary for this product. However, like, NaOCl, KOCl is categorized as a severe respiratory irritant. NaOCl is categorized under exposure code 322.10, by the Association of Occupational and Environmental Clinics (AOEC), as both an asthmagen and sensitizer. For further safety and precautionary information, please refer to the product SDS in attachment 4.

Item B.12 Research Information

Research information for KOCl specifically is limited, as it is simply just another chlorite chemistry which there is bountiful research available. However, there is a brief research article for KOCl chemistry available on the website below. It explains the history, uses, safety and toxicology.

Wikipedia contributors. (2018, February 18). Potassium hypochlorite. In *Wikipedia, The Free Encyclopedia*. Retrieved 21:11, October 4, 2018, from https://en.wikipedia.org/w/index.php?title=Potassium_hypochlorite&oldid=826261656

Item B.13 Petition Justification Statement

- **Inclusion of a Synthetic on the National List**
 - **Explain why the synthetic substance is necessary for the production or handling of an organic product.**

Crop farming requires the use of water for pre-harvest irrigation. The irrigation distribution pipework can become plugged with bacterial slimes. When this happens, the irrigation water is unevenly distributed as some crops are over-irrigated while others are under-irrigated. Treatment of the irrigation water with potassium hypochlorite (KOCl) eradicates the slime by oxidation to unplug the water distribution lines. Moreover, KOCl controls problematic bacterial populations in the water. The use of KOCl in pre-harvest irrigation water is only intended to contact the root zone of the plant however and is not intended to be effective against pathogenic diseases that a crop may have.

The Food Safety Modernization Act (FSMA) will shortly mandate that all irrigation water which contacts food crops is in “hygienic” condition. The requirement for agricultural water used during growing activities is a microbial water quality profile, based on a rolling 4-year sample data set, that has a geometric mean of 126 or less CFU/100 mL generic E. coli and a statistical threshold value of 410 or less CFU/100 mL generic E. coli. The requirement for agricultural water used during and after harvest is no detectable generic E. coli in 100 mL of water. Treatment of irrigation water with KOCl will provide farmers with the aforementioned sanitation requirements for pre-harvest irrigation water to ensure food safety.

- **Describe any non-synthetic substances, synthetic substances on the National List, or alternative cultural method that could be used in place of the petitioned synthetic substance.**

NaOCl can be used in place of KOCI as it has all of the same EPA and FDA uses, including agriculture, and is on the National List. Additionally, the FDA considers sodium and potassium ions interchangeable. However, there are areas of concern and limitations when using NaOCl chemistry in irrigation as the soil may become sodic if exposed to too much sodium salt. Sodic soil conditions adversely affect the growth of most crop plants and can actually inhibit growth entirely.

- **Describe the beneficial effects to the environment, human health, or farm ecosystem from the use of the synthetic substance that support its use instead of the use of a non-synthetic substance or alternative cultural method.**

When used according to label directions, KOCI represents an essential tool for the crop grower to maintain FSMA compliance of pre-harvest irrigation water. The application of this product adheres to the Federal guidance on safe and sanitary food production and processing which is essential for human health.

Furthermore, because KOCI contains no sodium ions, its use cannot damage the soil to render a “sodic” condition. The potassium ion component of KOCI displays no phytotoxicity to plants as potassium is a “luxury nutrient” in the sense that no amount of potassium is detrimental to crop vitality. This is beneficial to the farm ecosystem and environment as the farmer does not have to apply and expose the soil and/or crop to additional treatments to achieve multiple results (e.g. sanitation, irrigation line cleaner and soil fertility). This cuts down on time, budget, fuel, and stress that a crop may sustain otherwise.

converted into a nursing home; clarifies the provisions for multiple and separate occupancy for nursing homes; enhances door locking provisions based on clinical need or specialized security measures; recognizes the use of aerosol-based alcohol hand rub dispensers; and clarifies latching provisions for certain doors that open into/onto corridors. In the proposed rule, we noted that we were not aware of any significant changes from the 2006 edition to the 2009 edition. The commenter acknowledged that the differences between the two editions are insignificant. Because none of the applicable updates to the 2009 edition of NFPA 101 require costly or significant changes to the facilities governed by this rule, we make no changes based on this comment.

This final rule amends § 51.200 as proposed without changes, and incorporates by reference NFPA 101, in accordance with 5 U.S.C. 552(a) and 1 CFR part 51.

Unfunded Mandates

The Unfunded Mandates Reform Act of 1995 requires, at 2 U.S.C. 1532, that agencies prepare an assessment of anticipated costs and benefits before issuing any rule that may result in expenditure by state, local, and tribal governments, in the aggregate, or by the private sector, of \$100 million or more (adjusted annually for inflation) in any year. This final rule will have no such effect on state, local, and tribal governments, or on the private sector.

Paperwork Reduction Act of 1995

This document contains no new collections of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501–3521).

Executive Order 12866

Executive Order 12866 directs agencies to assess all costs and benefits of available regulatory alternatives and, when regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity). The Executive Order classifies a “significant regulatory action,” requiring review by the Office of Management and Budget (OMB) unless OMB waives such review, as any regulatory action that is likely to result in a rule that may: (1) Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal

governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in the Executive Order.

VA has examined the economic, interagency, budgetary, legal, and policy implications of this final rule and has concluded that it does not constitute a significant regulatory action under the Executive Order.

Regulatory Flexibility Act

The Secretary hereby certifies that this regulatory amendment will not have a significant economic impact on a substantial number of small entities as they are defined in the Regulatory Flexibility Act, 5 U.S.C. 601–612. This rulemaking will affect veterans and State Homes. The State Homes that will be subject to this rulemaking are state government entities under the control of state governments. All State Homes are owned, operated and managed by state governments except for a small number that are operated by entities under contract with state governments. These contractors are not small entities. Therefore, pursuant to 5 U.S.C. 605(b), this amendment is exempt from the initial and final regulatory flexibility analysis requirements of sections 603 and 604.

Catalog of Federal Domestic Assistance

The Catalog of Federal Domestic Assistance numbers and titles for the programs affected by this document are 64.005, Grants to States for Construction of State Home Facilities; 64.007, Blind Rehabilitation Centers; 64.008, Veterans Domiciliary Care; 64.009, Veterans Medical Care Benefits; 64.010, Veterans Nursing Home Care; 64.011, Veterans Dental Care; 64.012, Veterans Prescription Service; 64.013, Veterans Prosthetic Appliances; 64.014, Veterans State Domiciliary Care; 64.015, Veterans State Nursing Home Care; 64.016, Veterans State Hospital Care; 64.018, Sharing Specialized Medical Resources; 64.019, Veterans Rehabilitation Alcohol and Drug Dependence; 64.022, Veterans Home Based Primary Care; and 64.026, Veterans State Adult Day Health Care.

Signing Authority

The Secretary of Veterans Affairs, or designee, approved this document and authorized the undersigned to sign and submit the document to the Office of the

Federal Register for publication electronically as an official document of the Department of Veterans Affairs. John R. Gingrich, Chief of Staff, Department of Veterans Affairs, approved this document on February 8, 2011, for publication.

List of Subjects in 38 CFR Part 51

Administrative practice and procedure, Claims, Day care, Dental health, Government contracts, Grant programs—health, Grant programs—veterans, Health care, Health facilities, Health professions, Health records, Incorporation by reference, Mental health programs, Nursing homes, Reporting and recordkeeping requirements, Travel and transportation expenses, Veterans.

Dated: February 23, 2011.

Robert C. McFetridge,

Director, Regulations Policy and Management, Department of Veterans Affairs.

For the reasons stated above, VA amends 38 CFR part 51 as follows:

PART 51—PER DIEM FOR NURSING HOME CARE OF VETERANS IN STATE HOMES

■ 1. The authority citation for part 51 continues to read as follows:

Authority: 38 U.S.C. 101, 501, 1710, 1741–1743, 1745.

■ 2. Amend § 51.200, by removing the phrase “NFPA 101, Life Safety Code (2006 edition)” each place it appears and adding, in its place, “NFPA 101, Life Safety Code (2009 edition)”.

[FR Doc. 2011–4430 Filed 3–1–11; 8:45 am]

BILLING CODE 8320–01–P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 180

[EPA–HQ–OPP–2009–0996; FRL–8859–5]

Potassium Hypochlorite; Exemption From the Requirement of a Tolerance

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This regulation establishes the exemption from the requirement of a tolerance for residues of Potassium hypochlorite. Enviro Tech Chemical Services, Inc. submitted a petition to EPA under the Federal Food, Drug, and Cosmetic Act (FFDCA), requesting that Potassium hypochlorite in end-use products be eligible for the exemption from the requirement of a tolerance.

DATES: This regulation is effective March 2, 2011. Objections and requests for hearings must be received on or before May 2, 2011, and must be filed in accordance with the instructions provided in 40 CFR part 178 (see also Unit I.C. of the **SUPPLEMENTARY INFORMATION**).

ADDRESSES: EPA has established a docket for this action under docket identification (ID) number EPA-HQ-OPP-2009-0996. All documents in the docket are listed in the docket index available at <http://www.regulations.gov>. Although listed in the index, some information is not publicly available, e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available in the electronic docket at <http://www.regulations.gov>, or, if only available in hard copy, at the OPP Regulatory Public Docket in Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. The Docket Facility is open from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket Facility telephone number is (703) 305-5805.

FOR FURTHER INFORMATION CONTACT: Wanda Henson, Antimicrobials Division (7510P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; *telephone number:* (703) 308-6345; *e-mail address:* henson.wanda@epa.gov.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

You may be potentially affected by this action if you are a dairy cattle milk producer, food manufacturer, or beverage manufacturer. Potentially affected entities may include, but are not limited to:

- Dairy Cattle Milk Production (NAICS code 11212).
- Food manufacturing (NAICS code 311).
- Beverage Manufacturing (NAICS code 31212).

This listing is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by this action. Other types of entities not listed in this unit could also be affected. The North American Industrial Classification System (NAICS) codes have been provided to assist you and others in determining

whether this action might apply to certain entities. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed under **FOR FURTHER INFORMATION CONTACT**.

B. How can I get electronic access to other related information?

You may access a frequently updated electronic version of 40 CFR part 180 through the Government Printing Office's e-CFR site at <http://www.gpoaccess.gov/ecfr>.

C. How can I file an objection or hearing request?

Under FFDCA section 408(g), 21 U.S.C. 346a, any person may file an objection to any aspect of this regulation and may also request a hearing on those objections. You must file your objection or request a hearing on this regulation in accordance with the instructions provided in 40 CFR part 178. To ensure proper receipt by EPA, you must identify docket ID number EPA-HQ-OPP-2009-0996 in the subject line on the first page of your submission. All objections and requests for a hearing must be in writing, and must be received by the Hearing Clerk on or before May 2, 2011. Addresses for mail and hand delivery of objections and hearing requests are provided in 40 CFR 178.25(b).

In addition to filing an objection or hearing request with the Hearing Clerk as described in 40 CFR part 178, please submit a copy of the filing that does not contain any CBI for inclusion in the public docket. Information not marked confidential pursuant to 40 CFR part 2 may be disclosed publicly by EPA without prior notice. Submit a copy of your non-CBI objection or hearing request, identified by docket ID number EPA-HQ-OPP-2009-0996, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.
- *Mail:* Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001.
- *Delivery:* OPP Regulatory Public Docket (7502P), Environmental Protection Agency, Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. Deliveries are only accepted during the Docket Facility's normal hours of operation (8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays). Special arrangements should be made for deliveries of boxed information. The

Docket Facility telephone number is (703) 305-5805.

II. Summary of Petitioned-For Exemption

In the *Federal Register* of Wednesday, January 12, 2011 (76 FR 2110) (FRL-8860-9), EPA issued a notice pursuant to section 408(d)(3) of FFDCA, 21 U.S.C. 346a(d)(3), announcing the filing of a pesticide tolerance petition (PP 0F7767) by Enviro Tech Chemical Services, Inc., Modesto, CA 95358. The petition requested that 40 CFR part 180 be amended to establish an exemption from the requirement of a tolerance for potassium hypochlorite in or on apple; artichoke; asparagus; brussel sprouts; carrot; cauliflower; celery; cherry; cabbage; lettuce; fruits, citrus; cucumber; onion, green; melon; peach; nectarine; plum; pear; pepper, bell; potato; radish; fruit, stone; and tomato. That notice referenced a summary of the petition prepared by Enviro Tech Chemical Services, Inc., the registrant, which is available in the docket, <http://www.regulations.gov>. There were no comments received in response to the notice of filing.

III. Aggregate Risk Assessment and Determination of Safety

Section 408(c)(2)(A)(i) of FFDCA allows EPA to establish an exemption from the requirement for a tolerance (the legal limit for a pesticide chemical residue in or on a food) only if EPA determines that the exemption is "safe." Section 408(c)(2)(A)(ii) of FFDCA defines "safe" to mean that "there is a reasonable certainty that no harm will result from aggregate exposure to the pesticide chemical residue, including all anticipated dietary exposures and all other exposures for which there is reliable information." This includes exposure through drinking water and in residential settings, but does not include occupational exposure. Pursuant to section 408(c)(2)(B) of FFDCA, in establishing or maintaining in effect an exemption from the requirement of a tolerance, EPA must take into account the factors set forth in section 408(b)(2)(C) of FFDCA, which requires EPA to give special consideration to exposure of infants and children to the pesticide chemical residue in establishing a tolerance and to "ensure that there is a reasonable certainty that no harm will result to infants and children from aggregate exposure to the pesticide chemical residue. * * *

Consistent with section 408(c)(2)(A) of FFDCA, and the factors specified in section 408(c)(2)(B) of FFDCA, EPA has reviewed the available scientific data and other relevant information in

support of this action. EPA has sufficient data to assess the hazards of and to make a determination on aggregate exposure for Potassium hypochlorite, including exposure resulting from the exemption established by this action. EPA's assessment of exposures and risks associated with potassium hypochlorite follows.

A. Toxicological Profile

EPA has evaluated the available toxicity data and considered its validity, completeness, and reliability as well as the relationship of the results of the studies to human risk. EPA has also considered available information concerning the variability of the sensitivities of major identifiable subgroups of consumers, including infants and children. Specific information on the studies received and the nature of the adverse effects caused by potassium hypochlorite is available in the docket, <http://www.regulations.gov>.

The Agency conducted an in-depth review of the similarities between potassium hypochlorite and the existing registered active ingredients, sodium hypochlorite and calcium hypochlorite. Based upon this review, the Agency determined that the data available to support the registrations of these active ingredients are also applicable to potassium hypochlorite. No additional generic or product-specific acute, chronic or subchronic toxicological studies were required to be submitted in support of this application. All toxicology data were bridged from studies on sodium and calcium hypochlorite based on their chemical similarity.

Potassium hypochlorite is corrosive and can cause severe damage to the eyes and skin. Potassium hypochlorite has been assigned a Toxicity Category I, indicating the highest degree of toxicity for these acute effects. In the presence of oxygen, however, these compounds react easily with organic matter and convert readily into potassium chloride due to their simple chemical nature and structure. Exemptions from the requirement of a tolerance have been established for sodium and calcium hypochlorite used both as food contact surface sanitizers (40 CFR 180.940) and as antimicrobials used on raw agricultural commodities (40 CFR 180.1054 and 180.1235). Widely used in disinfecting water supplies for nearly a century, the hypochlorite class of chemicals has proven safe and practical to use provided that necessary precautions are taken by the user to prevent the eye and skin irritation

which are inherent to all strong oxidizing agents. All documents related to this case can be found at <http://www.regulations.gov> in the document "Antimicrobial Pesticide Products; Registration Applications" page 16110 in docket ID number EPA-HQ-OPP-2009-0996.

B. Toxicological Points of Departure/ Levels of Concern for Potassium Hypochlorite

Once a pesticide's toxicological profile is determined, EPA identifies toxicological points of departure (POD) and levels of concern to use in evaluating the risk posed by human exposure to the pesticide. For hazards that have a threshold below which there is no appreciable risk, the toxicological POD is used as the basis for derivation of reference values for risk assessment. PODs are developed based on a careful analysis of the doses in each toxicological study to determine the dose at which no adverse effects are observed (the NOAEL) and the lowest dose at which adverse effects of concern are identified (the LOAEL). Uncertainty/safety factors are used in conjunction with the POD to calculate a safe exposure level—generally referred to as a population-adjusted dose (PAD) or a reference dose (RfD)—and a safe margin of exposure (MOE). For non-threshold risks, the Agency assumes that any amount of exposure will lead to some degree of risk. Thus, the Agency estimates risk in terms of the probability of an occurrence of the adverse effect in a lifetime. For more information on the general principles EPA uses in risk characterization and a complete description of the risk assessment process, see <http://www.epa.gov/pesticides/factsheets/riskassess.htm>.

C. Exposure Assessment

1. *Dietary exposure from food and feed uses.* In evaluating dietary exposure to potassium hypochlorite, EPA considered exposure under the petitioned-for exemption. EPA assessed dietary exposures from potassium hypochlorite in food as follows:

Residues of potassium hypochlorite may remain on certain food crops as a result of their disinfectant uses. However, these residues pose no dietary risks of concern to human health based on data bridged from sodium hypochlorite. Therefore, a dietary risk assessment for potential exposures to residues in food is unwarranted.

2. *Dietary exposure from drinking water.* Residues of potassium hypochlorite that may remain in drinking water as a result of the use of this chemical are not expected to pose

dietary risks of concern to human health based on data bridged from sodium hypochlorite.

3. *Non-dietary exposure.* The term "residential exposure" is used in this document to refer to non-occupational, non-dietary exposure (e.g., textiles (clothing and diapers), carpets, swimming pools, and hard surface disinfection on walls, floors, tables). Potassium hypochlorite is currently registered for the following residential non-dietary sites: Swimming pools, spa and hot tubs, hard, non-porous and porous surfaces, and laundry.

Although residential exposure to mixer/loader/applicators is likely from the proposed uses of potassium hypochlorite, a quantitative risk assessment is not required because adverse systemic effects attributable to the dermal and inhalation routes of exposure to potassium hypochlorite are not expected based on toxicity data bridged from sodium hypochlorite.

Label precautionary statements and the requirement that applicators wear certain personal protective equipment (goggles or face shield and rubber gloves) are sufficient to protect users from the localized, irritation effects of exposure to potassium hypochlorite. In addition, the label states that users of swimming pools may not enter treated water until the residual chlorine is measured to be between 1 ppm and 3 ppm in order to prevent acute irritation effects.

Further information regarding EPA standard assumptions and generic inputs for residential exposures may be found at <http://www.epa.gov/pesticides/trac/science/trac6a05.pdf>.

4. *Cumulative effects from substances with a common mechanism of toxicity.* Section 408(b)(2)(D)(v) of FFDCA requires that, when considering whether to establish, modify, or revoke a tolerance, the Agency consider "available information" concerning the cumulative effects of a particular pesticide's residues and "other substances that have a common mechanism of toxicity."

EPA has not found potassium hypochlorite to share a common mechanism of toxicity with any other substances, and potassium hypochlorite does not appear to produce a toxic metabolite produced by other substances. For the purposes of this tolerance action, therefore, EPA has assumed that Potassium hypochlorite does not have a common mechanism of toxicity with other substances. For information regarding EPA's efforts to determine which chemicals have a common mechanism of toxicity and to evaluate the cumulative effects of such

chemical, see EPA's Web site at <http://www.epa.gov/pesticides/cumulative>.

D. Safety Factor for Infants and Children

Because potassium hypochlorite was of very low systemic toxicity, EPA did not use a safety factor analysis for assessing risk. For similar reasons, the additional safety factor for the protection of infants and children is not necessary.

E. Aggregate Risks and Determination of Safety

Based on the toxicity profile and exposure scenarios for potassium hypochlorite, EPA believes that the risks from dietary exposures to this pesticide would be minimal and without consequence to human health. Although residential use of potassium hypochlorite poses potential risks for acute eye and skin injury, it is not appropriate to aggregate the exposure related to these surface irritation effects with systemic exposure from dietary ingestion. In any event, the Agency believes that these acute risks will be sufficiently mitigated by precautionary labeling requiring protection of eyes and skin while using this pesticide.

Based on the toxicological and exposure data discussed in this preamble, EPA concludes that potassium hypochlorite will not pose a risk under reasonably foreseeable circumstances. Accordingly, EPA finds that there is a reasonable certainty of no harm will result to the general population, or to infants and children, from aggregate exposure to potassium hypochlorite residues.

IV. Other Considerations

A. Analytical Enforcement Methodology

An analytical method is not required for enforcement purposes since the Agency is establishing an exemption from the requirement of a tolerance without any numerical limitation.

B. International Residue Limits

In making its tolerance decisions, EPA seeks to harmonize U.S. tolerances with international standards whenever possible, consistent with U.S. food safety standards and agricultural practices. EPA considers the international maximum residue limits (MRLs) established by the Codex Alimentarius Commission (Codex), as required by FFDCA section 408(b)(4). The Codex Alimentarius is a joint U.N. Food and Agriculture Organization/World Health Organization food standards program, and it is recognized as an international food safety standards-setting organization in trade

agreements to which the United States is a party. EPA may establish a tolerance that is different from a Codex MRL; however, FFDCA section 408(b)(4) requires that EPA explain the reasons for departing from the Codex level. The Codex has not established a MRL for potassium hypochlorite.

V. Conclusion

Therefore, an exemption is established for residues of potassium hypochlorite.

VI. Statutory and Executive Order Reviews

This final rule establishes a tolerance under section 408(d) of FFDCA in response to a petition submitted to the Agency. The Office of Management and Budget (OMB) has exempted these types of actions from review under Executive Order 12866, entitled *Regulatory Planning and Review* (58 FR 51735, October 4, 1993). Because this final rule has been exempted from review under Executive Order 12866, this final rule is not subject to Executive Order 13211, entitled *Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use* (66 FR 28355, May 22, 2001) or Executive Order 13045, entitled *Protection of Children from Environmental Health Risks and Safety Risks* (62 FR 19885, April 23, 1997). This final rule does not contain any information collections subject to OMB approval under the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 *et seq.*, nor does it require any special considerations under Executive Order 12898, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 FR 7629, February 16, 1994).

Since tolerances and exemptions that are established on the basis of a petition under section 408(d) of FFDCA, such as the tolerance in this final rule, do not require the issuance of a proposed rule, the requirements of the Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*) do not apply.

This final rule directly regulates growers, food processors, food handlers, and food retailers, not States or tribes, nor does this action alter the relationships or distribution of power and responsibilities established by Congress in the preemption provisions of section 408(n)(4) of FFDCA. As such, the Agency has determined that this action will not have a substantial direct effect on States or tribal governments, on the relationship between the national government and the States or tribal governments, or on the distribution of power and responsibilities among the

various levels of government or between the Federal Government and Indian tribes. Thus, the Agency has determined that Executive Order 13132, entitled *Federalism* (64 FR 43255, August 10, 1999) and Executive Order 13175, entitled *Consultation and Coordination with Indian Tribal Governments* (65 FR 67249, November 9, 2000) do not apply to this final rule. In addition, this final rule does not impose any enforceable duty or contain any unfunded mandate as described under Title II of the Unfunded Mandates Reform Act of 1995 (UMRA) (Pub. L. 104-4).

This action does not involve any technical standards that would require Agency consideration of voluntary consensus standards pursuant to section 12(d) of the National Technology Transfer and Advancement Act of 1995 (NTTAA), Pub. L. 104-113, section 12(d) (15 U.S.C. 272 note).

VII. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.*, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of this final rule in the **Federal Register**. This final rule is not a "major rule" as defined by 5 U.S.C. 804(2).

List of Subjects in 40 CFR Part 180

Environmental protection, Administrative practice and procedure, Agricultural commodities, Pesticides and pests, Reporting and recordkeeping requirements, Potassium hypochlorite.

Dated: February 23, 2011.

Joan Harrigan Farrelly,

Director, Antimicrobials Division, Office of Pesticide Programs.

Therefore, 40 CFR chapter I is amended as follows:

PART 180—[AMENDED]

■ 1. The authority citation for part 180 continues to read as follows:

Authority: 21 U.S.C. 321(q), 346a and 371.

■ 2. Section 180.1300 is added to subpart D to read as follows:

§ 180.1300 Potassium hypochlorite; exemption from the requirement of a tolerance.

An exemption from the requirement of a tolerance is established for residues

of potassium hypochlorite in or on all commodities.

[FR Doc. 2011-4534 Filed 3-1-11; 8:45 am]

BILLING CODE 6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 180

[EPA-HQ-OPP-2009-0823; FRL-8864-9]

Difenoconazole; Pesticide Tolerances

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This regulation establishes tolerances for residues of difenoconazole in or on mango and wax jambu. Syngenta Crop Protection, Incorporated requested these tolerances under the Federal Food, Drug, and Cosmetic Act (FFDCA).

DATES: This regulation is effective March 2, 2011. Objections and requests for hearings must be received on or before May 2, 2011, and must be filed in accordance with the instructions provided in 40 CFR part 178 (*see also* Unit I.C. of the **SUPPLEMENTARY INFORMATION**).

ADDRESSES: EPA has established a docket for this action under docket identification (ID) number EPA-HQ-OPP-2009-0823. All documents in the docket are listed in the docket index available at <http://www.regulations.gov>. Although listed in the index, some information is not publicly available, *e.g.*, Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available in the electronic docket at <http://www.regulations.gov>, or, if only available in hard copy, at the OPP Regulatory Public Docket in Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. The Docket Facility is open from 8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays. The Docket Facility telephone number is (703) 305-5805.

FOR FURTHER INFORMATION CONTACT: Tony Kish, Registration Division, Office of Pesticide Programs, Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001; telephone number: (703) 308-9443; e-mail address: kish.tony@epa.gov.

SUPPLEMENTARY INFORMATION:

I. General Information

A. Does this action apply to me?

You may be potentially affected by this action if you are an agricultural producer, food manufacturer, or pesticide manufacturer. Potentially affected entities may include, but are not limited to those engaged in the following activities:

- Crop production (NAICS code 111).
- Animal production (NAICS code 112).
- Food manufacturing (NAICS code 311).
- Pesticide manufacturing (NAICS code 32532).

This listing is not intended to be exhaustive, but rather to provide a guide for readers regarding entities likely to be affected by this action. Other types of entities not listed in this unit could also be affected. The North American Industrial Classification System (NAICS) codes have been provided to assist you and others in determining whether this action might apply to certain entities. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed under **FOR FURTHER INFORMATION CONTACT**.

B. How can I get electronic access to other related information?

You may access a frequently updated electronic version of EPA's tolerance regulations at 40 CFR part 180 through the Government Printing Office's e-CFR site at <http://www.gpoaccess.gov/ecfr>.

C. How can I file an objection or hearing request?

Under FFDCA section 408(g), 21 U.S.C. 346a, any person may file an objection to any aspect of this regulation and may also request a hearing on those objections. You must file your objection or request a hearing on this regulation in accordance with the instructions provided in 40 CFR part 178. To ensure proper receipt by EPA, you must identify docket ID number EPA-HQ-OPP-2009-0823 in the subject line on the first page of your submission. All objections and requests for a hearing must be in writing, and must be received by the Hearing Clerk on or before May 2, 2011. Addresses for mail and hand delivery of objections and hearing requests are provided in 40 CFR 178.25(b).

In addition to filing an objection or hearing request with the Hearing Clerk as described in 40 CFR part 178, please submit a copy of the filing that does not contain any CBI for inclusion in the

public docket. Information not marked confidential pursuant to 40 CFR part 2 may be disclosed publicly by EPA without prior notice. Submit a copy of your non-CBI objection or hearing request, identified by docket ID number EPA-HQ-OPP-2009-0823, by one of the following methods:

- *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.

- *Mail:* Office of Pesticide Programs (OPP) Regulatory Public Docket (7502P), Environmental Protection Agency, 1200 Pennsylvania Ave., NW., Washington, DC 20460-0001.

- *Delivery:* OPP Regulatory Public Docket (7502P), Environmental Protection Agency, Rm. S-4400, One Potomac Yard (South Bldg.), 2777 S. Crystal Dr., Arlington, VA. Deliveries are only accepted during the Docket Facility's normal hours of operation (8:30 a.m. to 4 p.m., Monday through Friday, excluding legal holidays). Special arrangements should be made for deliveries of boxed information. The Docket Facility telephone number is (703) 305-5805.

II. Summary of Petitioned-For Tolerances

In the **Federal Register** of January 6, 2010 (75 FR 864) (FRL-8801-5), EPA issued a notice pursuant to section 408(d)(3) of FFDCA, 21 U.S.C. 346a(d)(3), announcing the filing of a pesticide petition (PP 9E7573) by Syngenta Crop Protection, Inc., P. O. Box 18300, Greensboro, NC 27419. The petition requested that 40 CFR 180.475 be amended by establishing tolerances for residues of the fungicide, difenoconazole, [1-[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-ylmethyl]-1H-1,2,4-triazole], in or on mango at 0.09 parts per million (ppm) and waxapple at 1.5 ppm. That notice referenced a summary of the petition prepared by Syngenta Crop Protection, Inc., the registrant, which is available in the docket, <http://www.regulations.gov>.

There were no comments received in response to the notice of filing.

Based upon review of the data supporting the petition, EPA has revised the proposed tolerance for mango, fruit from 0.09 ppm to 0.07 ppm to reflect the Agency's recommended tolerance level. Additionally, EPA corrected commodity definitions from "mango, fruit" to "mango" and "waxapple" to "wax jambu" to reflect prescribed terminology. The reasons for these changes are explained in Unit IV.D.



May 10, 2007

Michael S. Harvey
Enviro Tech Chemical Services
500 Winmoore Way
Modesto, CA 95358

Dear Mr. Harvey:

This responds to your inquiry of April 13, 2007, requesting information regarding the regulatory status, as a food additive, of potassium hypochlorite. Specifically, you state that sodium hypochlorite is listed in Federal food additive regulations for many uses use in contact with food and that you are interested in using potassium hypochlorite where ever sodium hypochlorite is now permitted.

Sodium salts of hypochlorous acid are listed for use in contact with food in Title 21, Code of Federal Regulations (CFR) 172.892 *Food starch modified*, 173.315 *Chemicals used in the washing or to assist in the peeling of fruits and vegetables*, 175.105 *Adhesives*, 176.170 *Components of paper and paperboard in contact with aqueous and fatty food*, and 176.180 *Components of Paper and paperboard in contact with dry food*. FDA has previously stated that the substitution of potassium ions for sodium in such applications of sodium hypochlorite solutions would not raise new safety concerns, and would not require the submission of a Food Contact Substance Notification. We have no reason to change that opinion at this time.

If you have any further questions concerning this matter, please do not hesitate to contact us.

Sincerely,

Mark Hepp
Division of Food Contact Notifications, HFS-275
Office of Food Additive Safety
Center for Food Safety
and Applied Nutrition



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

September 26, 2017

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

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

Dear Ms. Gaarde:

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

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

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

Page 2 of 2
EPA Reg. No. 63838-10
Decision No. 530859

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

Sincerely,

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

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

Enclosure

ENVIRO KLOR™

POTASSIUM HYPOCHLORITE SOLUTION (12.5%)

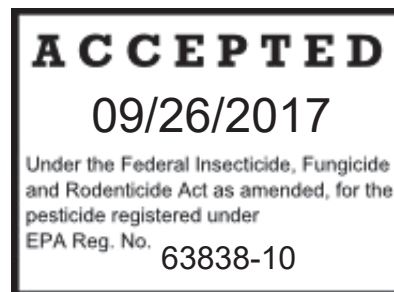
Manufactured by:
Enviro Tech Chemical Services, Inc.
500 Winmoore Way
Modesto, CA 95358
209-581-9576
Emergency: (800) 424-9300 (CHEMTREC)

EPA REG. NO. 63838-10

EPA EST. 63838-CA-01

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

Contains approximately 1.0 lb of Available Chlorine / Gallon



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

DANGER – PELIGRO

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

FIRST AID	
If in eyes:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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.
If inhaled:	<ul style="list-style-type: none">• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.• Do not give anything by mouth to an unconscious person.

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

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes irreversible eye damage and skin burns. May be fatal if swallowed. Do not get in eyes, on skin, or on clothing. Wear goggles or safety glasses and rubber gloves when handling this product. Irritating to nose and throat. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Avoid breathing vapors. Vacate poorly ventilated area as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS

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

PHYSICAL OR CHEMICAL HAZARDS

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

STORAGE AND DISPOSAL

Storage: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water.

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

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

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

DIRECTIONS FOR USE

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

NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine. In relation to the environment, this product can be considered essentially sodium free.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 65 to 130 fl. oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 and 7.6. Adjust and maintain the alkalinity of the pool to between 50 and 100 ppm.

To maintain the pool, add manually or by a feeder device 14 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain a residual of 1.0 to 1.5 ppm available chlorine. Test the pH, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers.

Every 7 days, or as necessary, superchlorinate the pool with 65 to 130 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the levels of available chlorine with a test kit. Reentry into treated pools is prohibited above 4 ppm due to risk of bodily harm.

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

WINTERIZING POOLS – While water is still clear & clean, apply 3.8 oz. of product per 1000 gallons, while filter is running, to obtain a 3 ppm available chlorine residual, as determined by a suitable test kit. Cover pool, prepare heater, filter and heater components for winter by following manufacturers' instructions.

SPAS, HOT-TUBS, IMMERSIONS TANKS, ETC.

SPAS / HOT-TUBS – Apply 6.5 oz. of product per 1,000 gallons of water to obtain a free chlorine concentration of 5 ppm, as determined by a suitable test kit. Adjust and maintain pool water pH to between 7.2 and 7.8. Some oils, lotions, fragrances, cleaners, etc. may cause foaming or cloudy water as well as reduce the efficiency of the product.

To maintain the water, apply 6.5 oz. of product per 1,000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm. (Re)entry into treated spas/hot tubs is prohibited above 5 ppm due to risk of bodily harm.

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

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

HYDROTHERAPY TANKS - Add 1.2 oz. of this product per 1000 gallons of water to obtain a chlorine residual of 1 ppm, as determined by a suitable chlorine test kit. Pool should not be entered until the chlorine residual is below 3 ppm. Adjust and maintain the water pH to between 7.2 and 7.6. Operate pool filter continuously. Drain pool weekly, and clean before refilling.

SANITIZATION OF NONPOROUS FOOD CONTACT SURFACES

RINSE METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.2 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

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

IMMERSION METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to ensure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.2 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

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

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

FLOW/PRESSURE METHOD - Disassemble equipment and thoroughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to ensure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

CLEAN-IN-PLACE METHOD - Thoroughly clean equipment after use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to ensure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

SPRAY METHOD – Pre-clean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient site by thoroughly mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment rinse all surfaces treated with 600 ppm solution with a 200 ppm solution.

SANITIZING OF POROUS FOOD CONTACT SURFACES

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

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

SPRAY METHOD – Pre-clean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water.

SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD – Prepare a sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by thoroughly mixing, in an Immersion tank, 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse with water after treatment.

SPRAY METHOD – Pre-clean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Prior to using equipment, thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a disinfecting solution by thoroughly mixing 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a disinfecting solution by thoroughly mixing, in an Immersion tank, 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES

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

IMMERSION METHOD - Prepare a sanitizing solution by thoroughly mixing, in an Immersion tank, 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY METHOD – After cleaning, sanitize nonfood contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Prior to using equipment, thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

SEWAGE & WASTEWATER EFFLUENT TREATMENT

The disinfection of sewage effluent must be evaluated by determining the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure to ensure that the chlorinated effluent has been reduced to or below the maximum permitted by the controlling regulatory Jurisdiction.

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

The following are critical factors affecting wastewater disinfection:

1. **Mixing:** It is imperative that the product and the wastewater be instantaneously and completely flash mixed to assure reaction with every chemically active soluble and particulate component of the wastewater.
2. **Contacting:** Upon flash mixing, the flow through the system must be maintained.

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

SEWAGE AND WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL – Apply a 100 to 1,000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by mixing 12.5 to 125 oz. of this product with 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution. Prepare this solution by mixing 3.8 oz. of this product with 100 gallons of water.

FILTER BEDS – SLIME CONTROL: Remove filter from service, drain to a depth of 1 ft. above filter sand, and add 100 oz. of this product per 20 sq/ft evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.

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

PUBLIC SYSTEMS – Mix a ratio of 1.2 oz. of this product to 100 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Primary Drinking Water Regulations. Contact your local Health Department for further details.

INDIVIDUAL SYSTEMS: DUG WELLS – Upon completion of the casing (lining), wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by thoroughly mixing 1.2 oz. of this product into 10 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipe sleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution, start pump and pump water until a strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Consult you local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: DRILLED, DRIVEN & BORED WELLS – Run pump until water is as free from turbidity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by thoroughly mixing 1.2 oz. of this product into 10 gallons of water. Add 5 to 10 gallons of clean, chlorinated water to the well in order to force the sanitizer into the rock formation. Wash the exterior of the pump cylinder with the sanitizer. Drop pipeline into the well, start pump and pump water until a strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours, flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer to the well. Consult your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: FLOWING ARTESIAN WELLS – Artesian Wells generally do not require disinfection. If analyses indicate persistent contamination, the well should be disinfected. Consult your local Health Department for further details.

EMERGENCY DISINFECTION – When boiling of water for 1 minute is not practical, water can be made potable by using this product. Prior to addition of the sanitizer, remove all suspended material by filtration or allowing it to settle to the bottom. Decant the clarified, contaminated water to a clean container and add 1 drop of this product to 20 gallons of water. Allow the treated water to stand for 30 minutes. Properly treated water should have a slight chlorine odor, if not, repeat dosage and allow water to stand and additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

PUBLIC WATER SYSTEMS

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

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

NEW TANK, BASIN, ETC – Remove all physical soil from surfaces. Place 25 oz. of this product for each 5 cubic feet of working capacity (500 ppm available chlorine). Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to service.

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

NEW WELLS – Flush the casing with a 50 ppm available chlorine solution of water containing 6.2 oz. of this product for each 100 gallons of water. The solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may then be pumped until a representative raw water sample is obtained. Bacterial examination of the water will indicate whether further treatment is necessary.

EXISTING EQUIPMENT – Remove equipment from service, thoroughly clean surfaces of all physical soil. Sanitize by placing 26 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine). Fill to working capacity and let stand at least 4 hours. Drain and place in service. If the previous treatment is not practical, surfaces may be sprayed with a solution containing 6.2 oz. of this product for each 5 gallons of water (approximately 1,000 ppm available chlorine). After drying, flush with water and return to service.

EMERGENCY DISINFECTION AFTER FLOODS

(Not for Use in the State of Florida)

WELLS – Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 6.2 oz. of this product with 10 gallons of water. Backwash the well to increase yield and reduce turbidity, adding sufficient chlorinating solution to the backwash to produce a 10 ppm available chlorine residual, as determined by a chlorine test kit. After the turbidity has been reduced and the casing has been treated, add sufficient chlorinating solution to produce a 50 ppm available chlorine residual. Agitate the well water for several hours and take a representative water sample. Retreat well if water samples are biologically unacceptable.

WATER COLLECTION PONDS – In case of contamination by overflowing water inlets, establish hypochlorinating stations upstream of the water collection pond. Chlorinate the inlet water until the entire collection pond obtains a 0.2 ppm available chlorine residual, as determined by a suitable chlorine test kit. In case of contamination from surface drainage, apply sufficient product directly to the water collection pond to obtain a 0.2 ppm available chlorine residual in all parts of the collection pond.

BASINS, TANKS, FLUMES, ETC. – Thoroughly clean all equipment, then apply 25 oz. of product per 5 cu. ft. of water to obtain 500 ppm available chlorine, as determined by a suitable test kit. After 24 hours, drain, flush, and return to service. If the previous method is not suitable, spray or flush the equipment with a solution containing 6.2 oz. of this product for each 5 gallons of water (1,000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

FILTERS – When the sand filter needs replacement, apply 100 oz. of this product for each 150 to 200 cubic feet of sand. When the filter is severely contaminated, additional product should be distributed over the surface at the rate of 100 oz. per 20 sq. ft. Water should stand at a depth of 1 foot above the surface of the filter bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 100 oz. of this product per each 50 sq. ft., allowing the water to stand at a depth of 1 foot above the filter sand. After 30 minutes, drain water to the level of the filter. After 4 to 6 hours, drain, and proceed with normal backwashing.

DISTRIBUTION SYSTEM – Flush repaired or replaced section with water. Establish a hypochlorinating station and apply sufficient product until a consistent available chlorine residual of at least 10 ppm remains after 24-hour retention time. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER FIRES

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

EMERGENCY DISINFECTION AFTER DROUGHTS

SUPPLEMENTARY WATER SUPPLIES – Gravity or mechanical hypochlorite feeders should be set up on a supplementary line to dose the water to a minimum chlorine residual of 0.2 ppm after a 20 minute contact time. Use a chlorine test kit.

WATER SHIPPED IN BY TANKS, TANK CARS, TRUCKS, ETC. – Thoroughly clean all containers and equipment. Spray a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution is made by mixing 6.2 oz. of this product for each 10 gallons of water. During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER MAIN BREAKS

MAINS – Before assembly of the repaired section, flush out mud and soil. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low-pressure end of the new main section for a 24-hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

COOLING TOWER/EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1.2 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

LAUNDRY SANITIZERS

Household Laundry Sanitizers:

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

IN WASHING SUDS – Thoroughly mix 2.5 oz. of this product to 10 gallons of wash water containing clothes to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent and start the wash/rinse cycle.

Commercial Laundry Sanitizers:

Wet fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 2.5 oz. of this product with 10 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the prewash prior to washing fabrics/clothes in the regular wash cycle with a good detergent. Test the level of available chlorine if the solution has been allowed to stand. Add more of this product if the available chlorine level has dropped below 200 ppm.

FARM PREMISES

Remove all animals, poultry, and feed from premises, vehicles, and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or **transversed** by animals or poultry. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with soap or detergent and rinse with water. To disinfect, saturate all surfaces with a solution of at least 1,000 ppm available chlorine for a period of ten minutes. A 1,000 ppm solution can be made by thoroughly mixing 14 oz. of this product with 10 gallons of water. Immerse all halters, ropes, and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels, and scrapers used for removing litter and manure. Ventilate buildings, cars, boats, and other closed spaces. Do not house livestock or poultry or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains, and waterers must be rinsed with potable water before reuse.

PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 1.4 oz. of this product per 1000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

AGRICULTURAL USES

POST-HARVEST PROTECTION - Potatoes can be sanitized after cleaning and prior to storage by spraying with a sanitizing solution at a level of 1 gallon of sanitizing solution per ton of potatoes. Thoroughly mix 1.2 oz. of this product to 2 gallons of water to obtain 500 ppm available chlorine.

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

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

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

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

Disinfect leafcutting bee cells and bee boards by immersion in a solution containing 1 ppm available chlorine for 3 minutes. Allow cells to drain for 2 minutes and dry for 4 to 5 hours or until no chlorine odor can be detected. This solution is made by mixing 1 tsp. of this product to 100 gallons of water. The bee domicile is disinfected by spraying with a 0.1 ppm solution until all surfaces are thoroughly wet. Allow the domicile to dry until all chlorine odor has dissipated.

FOOD EGG SANITIZATION - Thoroughly clean all eggs. Thoroughly mix 2.5 oz. of this product with 10 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130 degrees F. Spray the warm sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughly dry before casing or breaking. Do not apply a potable water rinse. The solution should not be re-used to sanitize eggs.

FRUIT & VEGETABLE WASHING - Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 6.2 oz. of this product in 200 gallons of water to make a sanitizing solution of 25 ppm available chlorine. After draining the tank, submerge fruit or vegetables for 2 minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegetables with the sanitizing solution prior to packaging. Rinse fruit with potable water only prior to packaging.

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

AQUACULTURAL USES

FISH PONDS – Remove fish from ponds prior to treatment. Thoroughly mix 130 oz. of this product to 10,000 gallons of water to obtain 10 ppm available chlorine. Add more product to the water if the available chlorine level is below 1 ppm after 5 minutes. Return fish to pond after the available chlorine level reaches zero.

FISH POND EQUIPMENT – Thoroughly clean all equipment prior to treatment. Thoroughly mix 2.5 oz. of this product to 10 gallons of water to obtain 200 ppm available chlorine. Porous equipment should soak for one hour.

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

CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS – Prepare a solution containing 200 ppm of available chlorine by mixing 2.5 oz. of this product with 10 gallons of water. Pour into drained pond potholes. Repeat if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0 ppm, as determined by a test kit.

IRRIGATION SYSTEMS

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

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

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

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

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

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

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

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

Where I is the injection rate in gallons per hour.

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

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

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

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

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

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

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

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

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

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

Label: V4b 1-2017



HASA AURA KLOR

Safety Data Sheet

12.5% Potassium Hypochlorite




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HASA AURA KLOR
Safety Data Sheet (SDS No. 119)

SECTION 1: IDENTIFICATION

1.1	Product Identification:	
1.1.1	Product Name:	HASA AURA KLOR
1.1.2	CAS # (Chemical Abstracts Service):	7778-66-7
1.1.3	RTECS (Registry of Toxic Effects of Chemical Substances):	Not available.
1.1.4	EINECS (European Inventory of Existing Commercial Substances):	231-909-2
1.1.5	EC Number:	231-668-3
1.1.6	Synonym:	Bleach, Hypo, Hypochlorite, Liquid Chlorine Solution
1.1.7	Chemical Name:	Potassium Hypochlorite
1.1.8	Chemical Formula:	KOCl
1.2	Recommended Uses:	Potassium hypochlorite is a disinfectant used for Drinking Water (Emergency/Public/Individual) Systems, Swimming Pool Water, Sewage & Wastewater Effluent Treatment and Non-Food Contact Surfaces. It may also be used on/in Farm Premises, Cooling Towers, Agricultural (Post-harvest seed or soil treatment) and Aquacultural, etc.
1.3	Company Identification:	Hasa Inc. P. O. Box 802736 Santa Clarita, CA 91355
1.4	Emergency Telephone Number:	CHEMTREC 1-800-424-9300 (24 hour Emergency Telephone)
1.5	Non-Emergency Assistance:	661-259-5848 (8 AM – 5 PM PST / PDT)

SECTION 2: HAZARD(S) IDENTIFICATION			
HEALTH HAZARD	Skin corrosion / irritation:	Category 1	
	Serious Eye damage / Eye Irritation	Category 1	
	Specific target organ toxicity, single exposure	Category 3 (respiratory tract irritation)	
ENVIRONMENTAL HAZARD	Hazardous to the aquatic environment, acute hazard	Category 1	
PHYSICAL HAZARD	Corrosive to metals.	Category 1	
SYMBOLS			
SIGNAL WORD	DANGER		
HAZARD STATEMENT	May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation. Very toxic to aquatic life.		
PRECAUTIONARY STATEMENT	Prevention		
	Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe mist or vapor. Use only outdoors or in a well-ventilated area. Wash thoroughly after handling. Keep only in original container. Avoid release to the environment.		
	Response		
	If swallowed: Rinse mouth. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. 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/doctor. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage. Collect spillage.		
	Storage and Disposal		
Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant container. Dispose of container/contents in accordance with local, regional, national, international regulations as specified.			

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS				
	Ingredient	Synonyms	CAS No.	Weight %
3.1	Potassium Hypochlorite	Bleach	7778-66-7	12.5%
3.2	Potassium Hydroxide	Caustic Potash	1310-58-3	0.2%

SECTION 4: FIRST AID MEASURES

4.1	IF IN EYES	<ul style="list-style-type: none"> • 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.
4.2	IF ON SKIN OR CLOTHING	<ul style="list-style-type: none"> • 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.
4.3	IF INHALED	<ul style="list-style-type: none"> • 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.
4.4	IF SWALLOWED	<ul style="list-style-type: none"> • 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.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.

NOTE TO PHYSICIAN

Probable mucosal damage may contraindicate the use of gastric lavage.

SECTION 5: FIRE FIGHTING MEASURES

5.1	Flash Point:	Not applicable.
5.2	Flammability:	Nonflammable and noncombustible.
5.3	Auto-Ignition Temperature:	Not applicable.
5.4	Products of Combustion:	Not pertinent.
5.5	Fire Hazards:	May decompose, generating irritating chlorine gas.
5.6	Explosion Hazards:	Not explosive.
5.7	Fire Fighting Media and Instructions:	
	5.7.1 Extinguishing Media:	Water fog. Foam. Dry chemical powder. Carbon dioxide.
	5.7.2 Small Fires:	Use carbon dioxide, or water spray.
	5.7.3 Large Fires:	Use flooding quantities of water as fog.
5.8	Special Remarks on Fire Hazards:	Do not use Mono Ammonium Phosphate (MAP) fire extinguishers. Such use may cause explosion with release of toxic gases.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1	Small Spill:	Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.
6.2	Large Spill:	Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.
6.3	Personal Precautions, Protective Equipment & Emergency Procedures:	Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Absorb spillage to prevent material damage. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see Section 8 of the SDS.
6.4	Environmental Precautions:	Do not discharge into drains, water courses or onto the ground. Environmental manager must be informed of all major releases.

SECTION 7: HANDLING AND STORAGE

7.1	Handling:	<ul style="list-style-type: none"> • Avoid contact with skin or eyes. • Do not ingest. • Avoid inhalation of vapor or mist. • Wear protective equipment if necessary. • Mix only with water in accordance with label directions. • Mixing this product with ammonia, acids, detergents, etc or with organic materials, e.g. feces, urine, etc. will release chlorine gas, which is irritating to eyes, lungs, and mucous membranes.
7.2	Hygiene Measures:	<ul style="list-style-type: none"> • Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. • While handling this product, avoid eating, drinking or smoking.
7.3	Storage:	<ul style="list-style-type: none"> • Do not freeze. • Store in a cool, shaded outdoor area. • Inside storage should be in a cool, dry, well-ventilated area. • To maintain hypochlorite strength, do not store in direct or heated indoor areas. • Keep in original vented container. • Keep container closed when not in use. • Do not store adjacent to chemicals that may react if spillage occurs. • If closed containers become heated, vent to release decomposition products (mainly oxygen under normal decomposition).

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION			
8.1	Engineering Controls:	Local exhaust ventilation to maintain levels below STEL (Short Term Exposure Limit) of 1 ppm as chlorine.	
8.2	Personal Protection:		
8.2.1	Eye / Face Protection:	Wear safety glasses, goggles or face shield to prevent eye contact.	
8.2.2	Skin Protection:	Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Butyl rubber, Neoprene, or Nitrile Gloves should be worn when handling this material. Wear chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing promptly and wash before reuse. Clean protective equipment before reuse.	
8.2.3	Respiratory Protection:	Avoid breathing vapor or mist. When airborne exposure limits are exceeded (see below), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and chemical goggles. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus.	
8.2.4	Other Safety Equipment:	Eye wash facility and emergency shower should be in close proximity.	
8.3	Exposure Limits:	Potassium Hypochlorite	Chlorine*
8.3.1	AIHA (American Industrial Hygiene Association) / WEEL (Workplace Environmental Exposure Level guides) 2010	Not established. <i>(Short-term time weighted average data for sodium hypochlorite: 2 mg/m³: 15 minute.)</i>	Not established.
8.3.2	ACGIH (American Conference of Governmental Industrial Hygienists) TWA (Time Weighted Average)	Not established.	0.5 ppm
8.3.3	ACGIH STEL (Short Term Exposure Limit)	Not established.	1 ppm
8.3.4	OSHA PEL (Permissible Exposure Limit)	Not established.	0.5 ppm
8.3.5	ACGIH Ceiling	Not established.	Not established.
8.3.6	NIOSH (National Institute for Occupational Safety & Health) IDLH (Immediate Danger to Life & Health)	Not established.	10 ppm
8.3.7	OSHA STEL (Short Term Exposure Limit)	Not established.	1 ppm as Cl ₂
8.3.8	NIOSH (15 min. ceiling)	Not established.	0.5 ppm
* Chlorine is unlikely to be present as a decomposition product, but may be present in incidents of accidental mixing with other chemicals.			

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1	Appearance:	Greenish yellow liquid.
9.2	Odor:	Pungent.
9.3	Odor Threshold:	0.9 mg/m ³ .
9.4	pH:	11.2 – 11.4 (1% solution)
9.5	Melting Point:	Not pertinent.
9.6	Freezing point:	-23.3 °C (-10 °F)
9.7	Boiling Point & Boiling Range:	Decomposes @ 110 °C (230 °F)
9.8	Flash Point:	No information available.
9.9	Evaporation Rate:	No information available.
9.10	Flammability (solid, gas):	Not flammable.
9.11	Upper / Lower Flammability or Explosive Limits:	No information available.
9.12	Vapor Pressure:	12.1 mm Hg @ 20 °C (68 °F)
9.13	Vapor Density:	2.61 (air=1)
9.14	Relative Density (Specific Gravity):	1.17 g/mL or 9.75 lb/gallon @ 20 °C (68 °F)
9.15	Solubility in Water:	Mixes infinitely with water.
9.16	Partition Coefficient: (n-octanol / water):	No information available.
9.17	Auto-ignition Temperature:	No information available.
9.18	Decomposition Temperature:	Decomposes @ 110 °C (230 °F)
9.19	Molecular Weight:	90.6 g/mole
9.20	Viscosity:	1.75 - 2.50 centipoises (varies with temperature)

SECTION 10: STABILITY AND REACTIVITY

10.1	Stability:	Stable under normal conditions of storage, handling, and use.
10.2	Instability / Decomposition Temperature:	All bleach decomposition is dependant on temperature. For any given temperature, the higher the strength, the faster it decomposes. In summary, for every 10°C increase in storage temperature, the sodium hypochlorite will decompose at an increased rate factor of approximately 3.5.
10.3	Conditions of Instability:	High heat, ultraviolet light.
10.4	Incompatibility with Various Substances:	Oxidizing agents, acids, nitrogen containing organics, metals, iron, copper, nickel, cobalt, organic materials, and ammonia.
10.5	Corrosivity:	Corrosive to metals.
10.6	Special Remarks on Reactivity:	Rate of decomposition increases with heat. May develop chlorine if mixed with acidic solutions.
10.7	Special Remarks on Corrosivity:	None.
10.8	Hazardous Polymerization:	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1	Routes of Entry:	Eyes, skin, ingestion, dermal absorption.
11.2	Acute Toxicity: (According to EPA, potassium hypochlorite behaves chemically and toxicologically like its sister salt of sodium hypochlorite; all of the toxicology data were derived from sodium hypochlorite).	
	11.2.1 Oral Toxicity (LD₅₀):	3-5 g/kg (rat)
	11.2.2 Dermal Toxicity (LD₅₀):	>2 g/kg (rabbit)
	11.2.3 Primary Eye Irritation:	Corrosive
	11.2.4 Primary Skin Irritation:	Corrosive
	11.2.5 Inhalation Toxicity (LC₅₀):	No data available.
11.3	Chronic Effects (Human Risk Assessment):	Based on the toxicity profile and exposure scenarios for sodium hypochlorite, EPA concludes that the risks from chronic and subchronic exposure to low levels of these pesticides are minimal and without consequence to human health.
11.4	Tolerance Requirement:	Exempt (EPA document "Index to Pesticide Chemical Names, Part 180 Tolerance Information, and Food and Feed Commodities (by Commodity)" July 2010

SECTION 12: ECOLOGICAL INFORMATION

12.1	Ecotoxicity:	Since potassium hypochlorite behaves chemically and toxicologically like its sister salt of sodium hypochlorite; all of the toxicology data requirement were waived by EPA. Moreover, according to EPA; sodium hypochlorite is low in toxicity to avian wildlife, but it is highly toxic to freshwater fish and invertebrates. All of the toxicology data were derived from sodium hypochlorite.
	12.1.1 Freshwater Fish Toxicity:	Fat Head Minnow (pimephales promelas) LC ₅₀ = 0.22 - 0.62 mg/l/96 hr, flow through bioassay (pH: 7)
	12.1.2 Invertebrate Toxicity:	Water Flea (daphnia magna) LC ₅₀ = 2.1 mg/l/96 hr Fresh Water Shrimp (gammarus fasciatus) LC ₅₀ = 0.4 mg/l/96 hr Grass Shrimp (palaemonetes pugio) LC ₅₀ = 0.52 mg/l/96 hr
12.2	Persistence:	No data available.
12.3	Environmental Fate:	In fresh water, potassium hypochlorite breaks down rapidly into non-toxic compounds when exposed to sunlight. In seawater, chlorine levels decline rapidly; however, hypobromite (which is acutely toxic to aquatic organisms) is formed. EPA believes that the risk of acute exposure to aquatic organisms is sufficiently mitigated by precautionary labeling and National Pollutant Discharge Elimination System (NPDES) permit requirements.
12.4	Bioconcentration:	This material is not expected to bioconcentrate in organisms.
12.5	Biodegradation:	This material is inorganic and not subject to biodegradation.

SECTION 13: DISPOSAL CONSIDERATIONS

Do not contaminate food or feed by storage, disposal, or cleaning of equipment. Product or rinsates that cannot be used should be diluted with water before disposal in a sanitary sewer. This product can be neutralized with sodium bisulfite, sodium thiosulfate, sodium sulfite. Do not confuse these products with sulfates or bisulfates. 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 contaminate water 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. Dispose of in accordance with all applicable local, County, State, and Federal regulations.

SECTION 14: TRANSPORT INFORMATION

14.1	Inside containers 1.3 gallons or less.	
	14.1.1 DOT Classification:	Consumer Commodity.
	14.1.2 DOT Hazard Class:	ORM-D.
	14.1.3 Marking:	Consumer Commodity, ORM-D.
	14.1.4 Marine Pollutant:	Not listed in Appendix B of the Hazardous Material Table.
	14.1.5 Deposit Container Returns:	RESIDUE: LAST CONTAINED CONSUMER COMMODITY ORM-D.
14.2	Inside containers or single containers exceeding 1.3 gallons.	
	14.2.1 DOT Classification:	Hypochlorite Solutions.
	14.2.2 DOT Hazard Class:	8, UN1791, P.G. III.
	14.2.3 Label:	Corrosive 8.
	14.2.4 Deposit Container Returns:	RESIDUE: LAST CONTAINED, UN 1791, HYPOCHLORITE SOLUTIONS, 8, PGIII,
14.3	Reportable Quantity (RQ):	100 lb (45.4 kg) or 80 gallons (based on 12.5% active ingredient)
14.4	Materials of Trade (MOT) Exceptions.	
	Certain hazardous materials transported in small quantities as part of a business are subject to less regulation, because of the limited hazard they pose. These materials are known as Materials of Trade. The regulations that apply to MOTs are found in 49 CFR § 173.6.	
<i>This information is not intended to convey all specific regulatory or operational requirements / information relating to this product. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.</i>		

SECTION 15: REGULATORY INFORMATION

15.1 U.S. Regulations:		
15.1.1	OSHA HAZCOM (Hazard Communication)	This material is considered hazardous under the HAZCOM Standard (29 CFR 1910.1200)
15.1.2	OSHA PSM (Process Safety Management)	Not regulated under PSM Standard (29 CFR 1910.119)
15.1.3	EPA FIFRA (Federal Insecticide, Fungicide and Rodenticide Act)	EPA Reg. No. : 63838-10-10897 (Registered pesticide under 40 CFR 152.10)
15.1.4	EPA TSCA (Toxic Substance Control Act)	All components are listed or exempted. TSCA 12(b): This product is not subject to export notification.
15.1.5	EPA CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act)	Reportable Quantity (RQ): 45.4 kg (100 lbs) or 80 gallons (based on 12.5% active ingredient).
15.1.6	EPA RMP (Risk Management Plan)	Not listed. (40 CFR 68.130)
15.2 State of California Regulations:		
15.2.1	Safe Drinking Water and Toxic Enforcement Act of 1986 [Proposition 65, California only]: Small quantities – less than 100 ppm (parts per million) – of impurities, including bromates, may be found in all chlorinating products, including this product. Bromates are derived from bromides, which are present in sodium chloride (table salt) from which chlorine is manufactured. Additional small quantities of bromates may be generated during the disinfection process. Bromates are known by the State of California to cause cancer when administered by the oral (drinking or ingesting) route. Read and follow label directions and use care when handling or using this product. The US Environmental Protection Agency has established a maximum contaminant level (MCL) for bromates in drinking water at 10 ppb (parts per billion). Application of this product in accordance with label directions at use dilution will not exceed this level. This warning is provided pursuant to Proposition 65, Chapter 6.6 of the California Health and Safety Code, which requires the Governor of California to publish a list of chemicals “known to the State to cause cancer or reproductive toxicity.” This list is compiled in accordance with the procedures established under the proposition, and can be obtained on the internet from California’s Office of Environmental Health Hazard Assessment at http://www.oehha.ca.gov .	
15.2.2	CDPR (California Department of Pesticide Regulation)	Registration No: 63838-10-10897
15.2.3	CalARP (California Accidental Release Prevention Program)	Not regulated.
15.3 Canada Regulations:		
15.3.1	WHMIS (Workplace Hazardous Materials Information System)	<ul style="list-style-type: none"> • Classification: E (Corrosive Materials) • Health Effects Criteria Met by this Chemical: <ul style="list-style-type: none"> ▪ E - Corrosive to skin ▪ E - TDG class 8 - corrosive substance • Ingredient Disclosure List: Included for disclosure at 1% or greater.
15.3.2	DSL (Domestic Substances List)	All components of this product are on the DSL.
15.4 International Inventory:		
15.4.1	AICS (Australian Inventory of Chemical Substances)	On inventory or in compliance with inventory.
15.4.2	KECI (Korean Existing Chemicals Inventory)	On inventory or in compliance with inventory.
15.4.3	PICCS (Philippine Inventory of Chemicals and Chemical Substances)	On inventory or in compliance with inventory.
15.4.4	IECSC (Inventory of Existing Chemical Substances in China)	On inventory or in compliance with inventory.
15.4.5	NZIoC (New Zealand Inventory of Chemicals)	On inventory or in compliance with inventory.

SECTION 16: OTHER INFORMATION			
16.1	HMIS III (Hazardous Materials Identification System):		
	16.1.1	HEALTH	2
	16.1.2	FLAMMABILITY	0
	16.1.3	PHYSICAL HAZARD	1
	16.1.4	PERSONAL PROTECTION	See Section 8.
16.2	NFPA 704 (National Fire Protection Association):		
	16.2.1	HEALTH	2
	16.2.2	FLAMMABILITY	0
	16.2.3	INSTABILITY	0
	16.2.4	SPECIAL	None
16.3	International Fire Code / International Building Code:		Irritant.
16.4	ANSI (American National Standards Institute):		
	16.4.1	Hazardous Industrial Chemicals - SDS-Preparation:	Complies with ANSI Z400.1 – 2004.
	16.4.2	Hazardous Industrial Chemicals - Precautionary Labeling:	Complies with ANSI Z129.1 – 2006.



Note: The information contained herein, while not guaranteed, was prepared by competent technical personnel and is true and accurate to the best of our knowledge and belief. NO WARRANTY OR GUARANTEE, express or implied, is made regarding the product performance, product stability, or as to any other condition of use, handling, transportation, and storage. Customer use, handling, transportation, and storage may involve additional safety and/or performance considerations. Our technical personnel will be happy to respond to questions regarding safe handling, storage, transportation, and use procedures. The safe handling, storage, transportation, and use procedures remain the sole responsibility of the customer. No suggestions for handling, storage, transportation, or use are intended as or to be construed as recommendations which may infringe on any existing patents or violate any Federal, State, and/or local law and/or regulation, ordinance, standard, etc. This Safety Data Sheet has been prepared by HASA, Inc. staff from test reports and other information available in the public domain.

K-KLOR

POTASSIUM HYPOCHLORITE SOLUTION (12.5%)

Manufactured By:

500 Winmoore Way Modesto, CA 95358

209-581-9576

www.envirotech.com

24 hr. Emergency Contact Phone: (800) 424-9300 (CHEMTREC)

EPA REG. NO. 63838-10

EPA EST. 63838-CA-01

Active Ingredients:

Potassium Hypochlorite.....	12.5%
Other Ingredients	87.5%
TOTAL.....	100.0%

Contains approximately 1.0 lb of Available Chlorine / Gallon

KEEP OUT OF REACH OF CHILDREN

DANGER – PELIGRO

If you do not understand the label, find someone to explain it to you in detail.

(Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.)

FIRST AID

If in eyes:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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.
If inhaled:	<ul style="list-style-type: none">• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.• Do not give anything by mouth to an unconscious person.

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

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Corrosive. May cause severe skin or chemical burns to broken skin. Causes eye damage. May be fatal if swallowed. Avoid breathing vapors. Do not get in eyes, on skin, or on clothing. Wear goggles or face shield and use rubber gloves when handling this product. Wash hands after handling and before eating, drinking, chewing gum, using tobacco or using the restroom. Vacate poorly ventilated areas as soon as possible. Do not return until odors have dissipated. Remove contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS

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

PHYSICAL OR CHEMICAL HAZARDS

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

STORAGE AND DISPOSAL

Storage: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water.

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

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

DIRECTIONS FOR USE

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

NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine. In relation to the environment, this product can be considered essentially sodium free.

IRRIGATION SYSTEMS

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

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

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

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

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

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

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

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

Where I is the injection rate in gallons per hour.

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

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

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

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

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

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

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

product can impact the growth, appearance, and health of the plants.

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

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

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

Label: V4 03-2019

ENVIRO KLOR™

POTASSIUM HYPOCHLORITE SOLUTION (12.5%)

Manufactured by:

Enviro Tech Chemical Services, Inc.

500 Winmoore Way

Modesto, CA 95358

209-581-9576

Emergency: (800) 424-9300 (CHEMTREC)

EPA REG. NO. 63838-10

EPA EST. 63838-CA-01

Active Ingredients:

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

Contains approximately 1.0 lb of Available Chlorine / Gallon

(Placed on Front Panel)

KEEP OUT OF REACH OF CHILDREN

DANGER – PELIGRO

If you do not understand the label, find someone to explain it to you in detail.

(Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.)

FIRST AID

If in eyes:	x	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.
	x	Call a poison control center or doctor for treatment advice.
If on skin or clothing:	x	Take off contaminated clothing.
	x	Rinse skin immediately with plenty of water for 15-20 minutes.
	x	Call a poison control center or doctor for treatment advice.
If swallowed:	x	Call a poison control center or doctor immediately for treatment advice.
	x	Have person sip a glass of water if able to swallow.
	x	Do not induce vomiting unless told to do so by a poison control center or doctor.
If inhaled:	x	If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
	x	Do not give anything by mouth to an unconscious person.

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

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

DANGER: Corrosive. Causes irreversible eye damage and skin burns. May be fatal if swallowed. Do not get in eyes, on skin, or on clothing. Wear goggles or safety glasses and rubber gloves when handling this product. Irritating to nose and throat. Avoid breathing dust. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse. Avoid breathing vapors. Vacate poorly ventilated area as soon as possible. Do not return until strong odors have dissipated.

ENVIRONMENTAL HAZARDS

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

PHYSICAL OR CHEMICAL HAZARDS

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

STORAGE AND DISPOSAL

Storage: Store this product in a cool dry area, away from direct sunlight and heat to avoid deterioration. In case of spill, flood areas with large quantities of water.

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

regulatory agencies should be contacted prior to disposal. Enviro Klor, which is to be discarded, should be disposed of as hazardous waste after contacting the appropriate Local, State or Federal agency to determine proper procedures. **Container Disposal, Plastic Containers:** Nonrefillable container. Do not use this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state. Clean container promptly after emptying. Offer for recycling if available. Do not reuse or refill this container. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

DIRECTIONS FOR USE

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

NOTE: This product degrades with age. Use a chlorine test kit and increase dosage, as necessary, to obtain the required level of available chlorine. In relation to the environment, this product can be considered essentially sodium free.

SWIMMING POOL WATER DISINFECTION

For a new pool or spring start-up, superchlorinate with 65 to 130 fl. oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the level of available chlorine with a test kit. Adjust and maintain pool water pH to between 7.2 and 7.6. Adjust and maintain the alkalinity of the pool to between 50 and 100 ppm.

To maintain the pool, add manually or by a feeder device 14 oz. of this product for each 10,000 gallons of water to yield an available chlorine residual between 0.6 to 1.0 ppm by weight. Stabilized pools should maintain a residual of 1.0 to 1.5 ppm available chlorine. Test the pH, available chlorine residual and alkalinity of the water frequently with appropriate test kits. Frequency of water treatment will depend upon temperature and number of swimmers.

Every 7 days, or as necessary, superchlorinate the pool with 65 to 130 oz. of product for each 10,000 gallons of water to yield 5 to 10 ppm available chlorine by weight. Check the levels of available chlorine with a test kit. Reentry into treated pools is prohibited above 4 ppm due to risk of bodily harm.

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

WINTERIZING POOLS – While water is still clear & clean, apply 3.8 oz. of product per 1000 gallons, while filter is running, to obtain a 3 ppm available chlorine residual, as determined by a suitable test kit. Cover pool, prepare heater, filter and heater components for winter by following manufacturers' instructions.

SPAS, HOT-TUBS, IMMERSIONS TANKS, ETC.

SPAS / HOT-TUBS – Apply 6.5 oz. of product per 1,000 gallons of water to obtain a free chlorine concentration of 5 ppm, as determined by a suitable test kit. Adjust and maintain pool water pH to between 7.2 and 7.8. Some oils, lotions, fragrances, cleaners, etc. may cause foaming or cloudy water as well as reduce the efficiency of the product.

To maintain the water, apply 6.5 oz. of product per 1,000 gallons of water over the surface to maintain a chlorine concentration of 5 ppm. (Re)entry into treated spas/hot tubs is prohibited above 5 ppm due to risk of bodily harm.

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

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

HYDROTHERAPY TANKS - Add 1.2 oz. of this product per 1000 gallons of water to obtain a chlorine residual of 1 ppm, as determined by a suitable chlorine test kit. Pool should not be entered until the chlorine residual is below 3 ppm. Adjust and maintain the water pH to between 7.2 and 7.6. Operate pool filter continuously. Drain pool weekly, and clean before refilling.

SANITIZATION OF NONPOROUS FOOD CONTACT SURFACES

RINSE METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to insure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.2 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

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

IMMERSION METHOD - A solution of 100 ppm available chlorine may be used in the sanitizing solution if a chlorine test kit is available. Solutions containing an initial concentration of 100 ppm available chlorine must be tested and adjusted periodically to ensure that the available chlorine does not drop below 50 ppm. Prepare a 100 ppm sanitizing solution by thoroughly mixing 1.2 oz. of this product with 10 gallons of water. If no test kit is available, prepare a sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight.

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

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

FLOW/PRESSURE METHOD - Disassemble equipment and thoroughly clean after use. Assemble equipment in operating position prior to use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 2 minutes to ensure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

CLEAN-IN-PLACE METHOD - Thoroughly clean equipment after use. Prepare a volume of a 200 ppm available chlorine sanitizing solution equal to 110% of volume capacity of the equipment by mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Pump solution through the system until full flow is obtained at all extremities, the system is completely filled with the sanitizer and all air is removed from the system. Close drain valves and hold under pressure for at least 10 minutes to ensure contact with all internal surfaces. Remove some cleaning solution from drain valve and test with a chlorine test kit. Repeat entire cleaning/sanitizing process if effluent contains less than 50 ppm available chlorine.

SPRAY METHOD – Pre-clean all surfaces after use. Use a 200 ppm available chlorine solution to control bacteria, mold or fungi and a 600 ppm solution to control bacteriophage. Prepare a 200 ppm sanitizing solution of sufficient site by thoroughly mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Prepare a 600 ppm solution by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment rinse all surfaces treated with 600 ppm solution with a 200 ppm solution.

SANITIZING OF POROUS FOOD CONTACT SURFACES

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

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

SPRAY METHOD – Pre-clean all surfaces after use. Prepare a 600 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours. Prior to using equipment, rinse all surfaces with a 200 ppm available chlorine solution. Prepare a 200 ppm sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water.

SANITIZATION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD – Prepare a sanitizing solution by thoroughly mixing 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the sanitizing solution, maintaining contact with the sanitizer for at least 2 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a sanitizing solution by thoroughly mixing, in an Immersion tank, 2.5 oz. of this product with 10 gallons of water to provide approximately 200 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse with water after treatment.

SPRAY METHOD – Pre-clean all surfaces after use. Prepare a 200 ppm available chlorine sanitizing solution of sufficient size by thoroughly mixing the product in a ratio of 2.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Prior to using equipment, thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

DISINFECTION OF NONPOROUS NON-FOOD CONTACT SURFACES

RINSE METHOD - Prepare a disinfecting solution by thoroughly mixing 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment surfaces in the normal manner. Prior to use, rinse all surfaces thoroughly with the disinfecting solution, maintaining contact with the solution for at least 10 minutes. Do not rinse equipment with water after treatment and do not soak equipment overnight.

IMMERSION METHOD - Prepare a disinfecting solution by thoroughly mixing, in an Immersion tank, 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the disinfecting solution for at least 10 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SANITIZATION OF POROUS NON-FOOD CONTACT SURFACES

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

IMMERSION METHOD - Prepare a sanitizing solution by thoroughly mixing, in an Immersion tank, 7.5 oz. of this product with 10 gallons of water to provide approximately 600 ppm available chlorine by weight. Clean equipment in the normal manner. Prior to use, immerse equipment in the sanitizing solution for at least 2 minutes and allow the sanitizer to drain. Do not rinse equipment with water after treatment.

SPRAY METHOD – After cleaning, sanitize nonfood contact surfaces with 600 ppm available chlorine by thoroughly mixing the product in a ratio of 7.5 oz. product with 10 gallons of water. Use spray equipment which can resist hypochlorite solutions. Always empty and rinse spray equipment with potable water after use. Prior to using equipment, thoroughly spray all surfaces until wet, allowing excess sanitizer to drain. Vacate area for at least 2 hours.

SEWAGE & WASTEWATER EFFLUENT TREATMENT

The disinfection of sewage effluent must be evaluated by determining the total number of coliform bacteria and/or fecal coliform bacteria, as determined by the Most Probable Number (MPN) procedure to ensure that the chlorinated effluent has been reduced to or below the maximum permitted by the controlling regulatory Jurisdiction.

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

The following are critical factors affecting wastewater disinfection:

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

SEWAGE AND WASTEWATER TREATMENT

EFFLUENT SLIME CONTROL – Apply a 100 to 1,000 ppm available chlorine solution at a location which will allow complete mixing. Prepare this solution by mixing 12.5 to 125 oz. of this product with 100 gallons of water. Once control is evident, apply a 15 ppm available chlorine solution. Prepare this solution by mixing 3.8 oz. of this product with 100 gallons of water.

FILTER BEDS – SLIME CONTROL: Remove filter from service, drain to a depth of 1 ft. above filter sand, and add 100 oz. of this product per 20 sq/ft evenly over the surface. Wait 30 minutes before draining water to a level that is even with the top of the filter. Wait for 4 to 6 hours before completely draining and backwashing filter.

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

PUBLIC SYSTEMS – Mix a ratio of 1.2 oz. of this product to 100 gallons of water. Begin feeding this solution with a hypochlorinator until a free available chlorine residual of at least 0.2 ppm and no more than 0.6 ppm is attained throughout the distribution system. Check water frequently with a chlorine test kit. Bacteriological sampling must be conducted at a frequency no less than that prescribed by the National Primary Drinking Water Regulations. Contact your local Health Department for further details.

INDIVIDUAL SYSTEMS: DUG WELLS – Upon completion of the casing (lining), wash the interior of the casing (lining) with a 100 ppm available chlorine solution using a stiff brush. This solution can be made by thoroughly mixing 1.2 oz. of this product into 10 gallons of water. After covering the well, pour the sanitizing solution into the well through both the pipe sleeve opening and the pipeline. Wash the exterior of the pump cylinder also with the sanitizing solution, start pump and pump water until a strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours flush well until all traces of chlorine have been removed from the water. Consult you local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: DRILLED, DRIVEN & BORED WELLS – Run pump until water is as free from turbidity as possible. Pour a 100 ppm available chlorine sanitizing solution into the well. This solution can be made by thoroughly mixing 1.2 oz. of this product into 10 gallons of water. Add 5 to 10 gallons of clean, chlorinated water to the well in order to force the sanitizer into the rock formation. Wash the exterior of the pump cylinder with the sanitizer. Drop pipeline into the well, start pump and pump water until a strong odor of chlorine in water is noted. Stop pump and wait at least 24 hours. After 24 hours, flush well until all traces of chlorine have been removed from the water. Deep wells with high water levels may necessitate the use of special methods for introduction of the sanitizer to the well. Consult your local Health Department for further details.

INDIVIDUAL WATER SYSTEMS: FLOWING ARTESIAN WELLS – Artesian Wells generally do not require disinfection. If analyses indicate persistent contamination, the well should be disinfected. Consult your local Health Department for further details.

EMERGENCY DISINFECTION – When boiling of water for 1 minute is not practical, water can be made potable by using this product. Prior to addition of the sanitizer, remove all suspended material by filtration or allowing it to settle to the bottom. Decant the clarified, contaminated water to a clean container and add 1 drop of this product to 20 gallons of water. Allow the treated water to stand for 30 minutes. Properly treated water should have a slight chlorine odor, if not, repeat dosage and allow water to stand an additional 15 minutes. The treated water can then be made palatable by pouring it between clean containers for several times.

PUBLIC WATER SYSTEMS

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

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

NEW TANK, BASIN, ETC – Remove all physical soil from surfaces. Place 25 oz. of this product for each 5 cubic feet of working capacity (500 ppm available chlorine). Fill to working capacity and allow to stand for at least 4 hours. Drain and flush with potable water and return to service.

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

NEW WELLS – Flush the casing with a 50 ppm available chlorine solution of water containing 6.2 oz. of this product for each 100 gallons of water. The solution should be pumped or fed by gravity into the well after thorough mixing with agitation. The well should stand for several hours or overnight under chlorination. It may then be pumped until a representative raw water sample is obtained. Bacterial examination of the water will indicate whether further treatment is necessary.

EXISTING EQUIPMENT – Remove equipment from service, thoroughly clean surfaces of all physical soil. Sanitize by placing 26 oz. of this product for each 5 cubic feet capacity (approximately 500 ppm available chlorine). Fill to working capacity and let stand at least 4 hours. Drain and place in service. If the previous treatment is not practical, surfaces may be sprayed with a solution containing 6.2 oz. of this product for each 5 gallons of water (approximately 1,000 ppm available chlorine). After drying, flush with water and return to service.

EMERGENCY DISINFECTION AFTER FLOODS

(Not for Use in the State of Florida)

WELLS – Thoroughly flush contaminated casing with a 500 ppm available chlorine solution. Prepare this solution by mixing 6.2 oz. of this product with 10 gallons of water. Backwash the well to increase yield and reduce turbidity, adding sufficient chlorinating solution to the backwash to produce a 10 ppm available chlorine residual, as determined by a chlorine test kit. After the turbidity has been reduced and the casing has been treated, add sufficient chlorinating solution to produce a 50 ppm available chlorine residual. Agitate the well water for several hours and take a representative water sample. Retreat well if water samples are biologically unacceptable.

WATER COLLECTION PONDS – In case of contamination by overflowing water inlets, establish hypochlorinating stations upstream of the water collection pond. Chlorinate the inlet water until the entire collection pond obtains a 0.2 ppm available chlorine residual, as determined by a suitable chlorine test kit. In case of contamination from surface drainage, apply sufficient product directly to the water collection pond to obtain a 0.2 ppm available chlorine residual in all parts of the collection pond.

BASINS, TANKS, FLUMES, ETC. – Thoroughly clean all equipment, then apply 25 oz. of product per 5 cu. ft. of water to obtain 500 ppm available chlorine, as determined by a suitable test kit. After 24 hours, drain, flush, and return to service. If the previous method is not suitable, spray or flush the equipment with a solution containing 6.2 oz. of this product for each 5 gallons of water (1,000 ppm available chlorine). Allow to stand for 2 to 4 hours, flush and return to service.

FILTERS – When the sand filter needs replacement, apply 100 oz. of this product for each 150 to 200 cubic feet of sand. When the filter is severely contaminated, additional product should be distributed over the surface at the rate of 100 oz. per 20 sq. ft. Water should stand at a depth of 1 foot above the surface of the filter bed for 4 to 24 hours. When filter beds can be backwashed of mud and silt, apply 100 oz. of this product per each 50 sq. ft., allowing the water to stand at a depth of 1 foot above the filter sand. After 30 minutes, drain water to the level of the filter. After 4 to 6 hours, drain, and proceed with normal backwashing.

DISTRIBUTION SYSTEM – Flush repaired or replaced section with water. Establish a hypochlorinating station and apply sufficient product until a consistent available chlorine residual of at least 10 ppm remains after 24-hour retention time. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER FIRES

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

EMERGENCY DISINFECTION AFTER DROUGHTS

SUPPLEMENTARY WATER SUPPLIES – Gravity or mechanical hypochlorite feeders should be set up on a supplementary line to dose the water to a minimum chlorine residual of 0.2 ppm after a 20 minute contact time. Use a chlorine test kit.

WATER SHIPPED IN BY TANKS, TANK CARS, TRUCKS, ETC. – Thoroughly clean all containers and equipment. Spray a 500 ppm available chlorine solution and rinse with potable water after 5 minutes. This solution is made by mixing 6.2 oz. of this product for each 10 gallons of water. During the filling of the containers, dose with sufficient amounts of this product to provide at least a 0.2 ppm chlorine residual. Use a chlorine test kit.

EMERGENCY DISINFECTION AFTER MAIN BREAKS

MAINS – Before assembly of the repaired section, flush out mud and soil. Permit a water flow of at least 2.5 feet per minute to continue under pressure while injecting this product by means of a hypochlorinator. Stop water flow when a chlorine residual test of 50 ppm is obtained at the low-pressure end of the new main section for a 24-hour retention time. When chlorination is completed, the system must be flushed free of all heavily chlorinated water.

COOLING TOWER/EVAPORATIVE CONDENSER WATER

SLUG FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1.2 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

LAUNDRY SANITIZERS

Household Laundry Sanitizers:

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

IN WASHING SUDS – Thoroughly mix 2.5 oz. of this product to 10 gallons of wash water containing clothes to provide 200 ppm available chlorine. Wait 5 minutes, then add soap or detergent and start the wash/rinse cycle.

Commercial Laundry Sanitizers:

Wet fabrics or clothes should be spun dry prior to sanitization. Thoroughly mix 2.5 oz. of this product with 10 gallons of water to yield 200 ppm available chlorine. Promptly after mixing the sanitizer, add the solution into the prewash prior to washing fabrics/clothes in the regular wash cycle with a good detergent. Test the level of available chlorine if the solution has been allowed to stand. Add more of this product if the available chlorine level has dropped below 200 ppm.

FARM PREMISES

Remove all animals, poultry, and feed from premises, vehicles, and enclosures. Remove all litter and manure from floors, walls and surfaces of barns, pens, stalls, chutes and other facilities occupied or **transversed** by animals or poultry. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with soap or detergent and rinse with water. To disinfect, saturate all surfaces with a solution of at least 1,000 ppm available chlorine for a period of ten minutes. A 1,000 ppm solution can be made by thoroughly mixing 14 oz. of this product with 10 gallons of water. Immerse all halters, ropes, and other types of equipment used in handling and restraining animals or poultry, as well as the cleaned forks, shovels, and scrapers used for removing litter and manure. Ventilate buildings, cars, boats, and other closed spaces. Do not house livestock or poultry or employ equipment until chlorine has been dissipated. All treated feed racks, mangers, troughs, automatic feeders, fountains, and waterers must be rinsed with potable water before reuse.

PULP AND PAPER MILL PROCESS WATER SYSTEMS

SLUG FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain from 5 to 10 ppm available chlorine. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, add 14 oz. of this product per 10,000 gallons of water in the system daily, or as needed to maintain control and keep the chlorine residual at 1 ppm. Badly fouled systems must be cleaned before treatment is begun.

INTERMITTENT FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

Subsequent Dose: When microbial control is evident, add 1.4 oz. of this product per 1000 gallons of water in the system to obtain a 1 ppm residual. Apply half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of this initial dose when half (or $\frac{1}{3}$, $\frac{1}{4}$, or $\frac{1}{5}$) of the water in the system has been lost by blowdown. Badly fouled systems must be cleaned before treatment is begun.

CONTINUOUS FEED METHOD – Initial Dose: When system is noticeably fouled, apply 65 to 130 oz. of this product per 10,000 gallons of water in the system to obtain 5 to 10 ppm available chlorine.

Subsequent Dose: Maintain this treatment level by starting a continuous feed of 1 oz. of this product per 1,000 gallons of water lost by blowdown to maintain a 1 ppm residual. Badly fouled systems must be cleaned before treatment is begun.

AGRICULTURAL USES

POST-HARVEST PROTECTION - Potatoes can be sanitized after cleaning and prior to storage by spraying with a sanitizing solution at a level of 1 gallon of sanitizing solution per ton of potatoes. Thoroughly mix 1.2 oz. of this product to 2 gallons of water to obtain 500 ppm available chlorine.

This product may be used for sanitizing fresh fruits and vegetables after harvest. The fruit or vegetable should be cleaned with appropriate methods prior to using this product. Use the chart below to apply product at the recommended concentration for various fruits and vegetables. As a general starting point, to obtain a 100 ppm treatment solution of

available chlorine, add 31 fl. oz. of this product to 250 gallons of water. Maintain pH values of 7.0-7.8 using the appropriate food-grade buffer to assure maximum activity of this product. The commodity may be submersed or drenched with this product, followed by a potable water rinse.

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

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

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

Disinfect leafcutting bee cells and bee boards by immersion in a solution containing 1 ppm available chlorine for 3 minutes. Allow cells to drain for 2 minutes and dry for 4 to 5 hours or until no chlorine odor can be detected. This solution is made by mixing 1 tsp. of this product to 100 gallons of water. The bee domicile is disinfected by spraying with a 0.1 ppm solution until all surfaces are thoroughly wet. Allow the domicile to dry until all chlorine odor has dissipated.

FOOD EGG SANITIZATION - Thoroughly clean all eggs. Thoroughly mix 2.5 oz. of this product with 10 gallons of warm water to produce a 200 ppm available chlorine solution. The sanitizer temperature should not exceed 130 degrees F. Spray the warm sanitizer so that the eggs are thoroughly wetted. Allow the eggs to thoroughly dry before casing or breaking. Do not apply a potable water rinse. The solution should not be re-used to sanitize eggs.

FRUIT & VEGETABLE WASHING - Thoroughly clean all fruits and vegetables in a wash tank. Thoroughly mix 6.2 oz. of this product in 200 gallons of water to make a sanitizing solution of 25 ppm available chlorine. After draining the tank, submerge fruit or vegetables for 2 minutes in a second wash tank containing the recirculating sanitizing solution. Spray rinse vegetables with the sanitizing solution prior to packaging. Rinse fruit with potable water only prior to packaging.

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

AQUACULTURAL USES

FISH PONDS – Remove fish from ponds prior to treatment. Thoroughly mix 130 oz. of this product to 10,000 gallons of water to obtain 10 ppm available chlorine. Add more product to the water if the available chlorine level is below 1 ppm after 5 minutes. Return fish to pond after the available chlorine level reaches zero.

FISH POND EQUIPMENT – Thoroughly clean all equipment prior to treatment. Thoroughly mix 2.5 oz. of this product to 10 gallons of water to obtain 200 ppm available chlorine. Porous equipment should soak for one hour.

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

CONTROL OF SCAVENGERS IN FISH HATCHERY PONDS – Prepare a solution containing 200 ppm of available chlorine by mixing 2.5 oz. of this product with 10 gallons of water. Pour into drained pond potholes. Repeat if necessary. Do not put desirable fish back into refilled ponds until chlorine residual has dropped to 0 ppm, as determined by a test kit.

IRRIGATION SYSTEMS

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

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

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

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

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

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

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

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

Where I is the injection rate in gallons per hour.

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

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

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

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

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

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

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

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

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

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

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