



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

December 27, 2022

Sherri Gray
Authorized Representative of
ChemE Solutions, Inc.
Electronic Transmittal: sherrigray@epaconsultant.net

Subject: Notification per PRN 98-10 – Updating Product Label Language
Product Name: Sodium Chlorate Solution
EPA Registration Number: 92155-1
Received Date: 01/20/2022
Action Case Number: 00338279

Dear Sherri Gray:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Antimicrobials Division (AD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped “Notification” and will be placed in our records.

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) lists 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 Assurance.

If you have any questions, you may contact Jack Hall at (202)566-0731 or via email at hall.john.j@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Demson Fuller".

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

Sodium Chlorate Solution

[Alternate Brand Name: CD-MAX]

A Precursor Chemical Solution for Use Only in the ChemE Generator

This chemical solution is for the use only in the ChemE Generator, a pesticide device that produces CHLORINE DIOXIDE absorbed into water. In addition to this precursor, the ChemE Generator usually requires a feedstock of 78% sulfuric acid. Please refer to the ChemE Maintenance and Operations Manual to ensure proper activation.

FOR INDUSTRIAL USE
KEEP OUT OF REACH OF CHILDREN
DANGER

NOTIFICATION

92155-1

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

12/27/2022

ACTIVE INGREDIENT:

Sodium Chlorate (NaClO₃) 40.0%
OTHER INGREDIENTS:60.0%
TOTAL 100.0%

FIRST AID	
IF IN EYES	Hold eye open and flush with a directed stream of water for 15 – 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice.
IF ON SKIN OR CLOTHING	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor immediately for treatment advice.
IF SWALLOWED	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person
IF INHALED	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
NOTE TO PHYSICIAN: Probable mucosal damage may contraindicate the use of gastric lavage.	

In case of exposure emergency, call (800) 424-9300.

ChemE Solutions Inc.
816 E. Lakeshore Drive
Lake Stevens, WA 98258

EPA Reg. No. 92155-1
EPA Est. No. 73015-OR-1
EPA Est. No. 73015-WA-1

Net Contents: 330 Gallons

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Danger. Corrosive. Causes irreversible eye damage. Harmful if absorbed through the skin or inhaled. Do not get in eyes or on clothing. Avoid contact with skin. Wear goggles or face shield. When contact is likely, wear a PVC or rubber rainsuit and wash down rainsuit after each use. Wear protective gloves, plastic or rubber. Wear plastic or rubber safety toed boots. Leather and cloth impregnated with sodium chlorate are highly flammable and easily ignited with minor friction. Remove and wash contaminated clothing before re-use. Do not allow contaminated clothing to dry before washing clothing on-site. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.

ENVIRONMENTAL HAZARDS

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

CHEMICAL HAZARDS

Sodium Chlorate Solution is a strong oxidizing agent. Do not contaminate with dirt, oils or organic matter of any sort. Contamination may cause violent chemical reactions, fire and explosion. Clean up all chemical spills immediately. Allowing spills to dry or concentrate may cause spontaneous combustion. In case of chemical spills, avoid bodily contact and wear appropriate protective equipment.

USER SAFETY REQUIREMENTS

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry. Change clothing when contaminated and wash on-site. Do not allow contaminated clothing to dry before washing clothing on-site.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate after rinsing them thoroughly. Do not reuse them.

User must wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

User must remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Do not allow contaminated clothing to dry before washing clothing on-site.

User must remove PPE immediately after handling this product. As soon as possible, wash thoroughly and change into clean clothing.

DIRECTIONS FOR USE

General Directions:

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Only for formulation as an antimicrobial for the following uses: Sodium Chlorate Solution is for use only in the ChemE Generator, a pesticide device installed to generate chlorine dioxide for the registered uses listed below. Feed rates for Sodium Chlorate Solution are determined by the operator to achieve the desired production rate for chlorine dioxide. As described below, the appropriate production rate will depend on the severity of

contamination, the degree of control desired, the size of the system and residual necessary for effective control. For all uses, the point of feed of chlorine dioxide must be below the water level to prevent volatilization of the chlorine dioxide. Chlorine dioxide must be added to the water stream at a point where adequate mixing and uniform distribution can occur.

Sodium Chlorate Solution is for use in generating chlorine dioxide for use as a biocide for the following uses: Drinking water treatment and industrial process water treatment for recirculating and non-recirculating cooling water, textile processing water and pulp and paper process water, pasteurizer, cannery and retort water systems, impounded lake, pond and reservoir water including industrial wastewater, sewage and wastewater systems gas and oil recover injection water; fracturing system fluids, ultrasonic tank water; photo processing washwater; and leather processing solutions, agricultural water uses.

Drinking Water Treatment

This product is approved for use in water treatment facilities that produce potable drinking water in compliance with the Safe Drinking Water Act. A typical dosage of chlorine dioxide for water systems is between 0.5 and 5 ppm on a continuous basis. Sodium Chlorate Solution has been approved by the National Sanitation Foundation for use in drinking water systems.

Industrial Process Water Uses:

This product is approved for the control of microbial, algal and mollusk populations in industrial process or waste water at the sites listed below. The dosage of chlorine dioxide required is dependent on the specific use; see specific directions below. Sodium Chlorate Solution may be used to treat the following aquatic sites:

Recirculating Cooling Water Towers

To control microbial and algal slime in recirculating cooling water systems, an intermittent or continuous application may be used. If using continuous feed, maintain residual chlorine dioxide concentrations between 0.1 – 1.0 ppm. If using intermittent feed, maintain a residual concentration of 0.1 – 5.0 ppm. Chlorine dioxide must be added to drip pan, coldwater well, or other points where adequate mixing and uniform distribution can occur.

Use this product to generate a chlorine dioxide use-solution for controlling bacterial slime, algae and biofilm in industrial recirculating cooling water systems including reverse osmosis systems. Clean badly fouled systems before starting treatment. The required dosages of the chlorine dioxide use-solution will vary depending on the exact application and the degree of contamination present. The required chlorine dioxide residual concentration ran from 0.1 to 5.0 ppm. The chlorine dioxide use-solution can be applied either continuously or intermittently. The typical chlorine dioxide residual concentration range is 0.1 – 1.0 ppm for continuous doses and 0.1 – 5.0 ppm for intermittent doses.

Once-Through Cooling Water Towers

To remove adult mollusks in once-through cooling water systems, and intermittent dose of 0.2-25 ppm necessary; the exact dose is dependent on the infestation present. If a continuous dose is preferred, apply chlorine dioxide at rates that maintain 0.25-2 ppm in the cooling water. To prevent settling and attachment of the free swimming larvae or mollusks (velligers), apply a continuous feed to achieve a residual of 0.1-0.5 ppm. Chlorine dioxide must be added to drip pan, coldwater well, or other points where adequate mixing and uniform distribution can occur.

Use this product to generate a chlorine dioxide use-solution for controlling mollusks and other contaminants (microbiological and macrobiological) in once-through water systems. The required dosages of the chlorine dioxide use-solution will vary depending on the system type, system conditions, degree of water contamination present and the desired level of control. Depending on the extent of infestation, the chlorine dioxide use-solution may be applied either continuously or intermittently. The residual concentration of chlorine dioxide ranges from 0.10-2 ppm for continuous application to 0.1 – 25.0 ppm for intermittent application.

Textile processing water and pulp and paper process water

To control microorganisms that form slime in paper process water and that cause blockages of paper mill equipment, and to oxidize slime buildup already present, chlorine dioxide may be applied in an intermittent or continuous dose. Either method of application must maintain a residual concentration of 0.1 – 5.0 ppm of chlorine dioxide in the paper process water. If the system is badly fouled, it must be cleaned prior to treatment with chlorine dioxide. This product can be used as a slimicide for process water used in the manufacture of food-contact paper and paperboard.

Pasteurizer, cannery and retort water systems:

To control odor and reduce bacterial slime in cooling and warming waters such as canning, retort, and pasteurizer process water, chlorine dioxide may be added intermittently to achieve a dose of 0.4 ppm.

Impounded lake, pond and reservoir water, including industrial waste water

To control microorganisms and algae that cause unacceptable odors and slime, these aquatic sites may be treated with chlorine dioxide on an intermittent basis. Sufficient chlorine dioxide must be added to reach a residual concentration of 5 ppm, in order to achieve adequate control of odor and slime caused by algae and microorganisms.

Sewage and wastewater systems

Use this product to generate a chlorine dioxide use-solution for use as an oxidant and disinfectant for odor control or as an oxidant and/or a disinfectant in wastewater treatment. The required dosages will vary with water conditions and the degree of contamination present. For most municipal and other wastewater systems, a chlorine dioxide residual concentration of up to 5 ppm is sufficient to provide adequate disinfection. In odor control and wastewater oxidant application, the applied dosage will depend on process water loading and conditions to achieve results and be in compliance with local and state permits.

For (disinfection/sanitization) of sewage and wastewater, add chlorine dioxide to achieve a residual of up to 5 ppm. To control odors caused by sulfides associated with sewage and wastewater, a minimum of 5.2 ppm chlorine dioxide must be applied to oxidize 1 ppm sulfide (measured as sulfide ion) if the pH is between 5-9. A minimum of 1.5 ppm chlorine dioxide will oxidize 1 ppm phenol if the pH is less than 8; if the pH is greater than 10, a minimum of 3.5 ppm chlorine dioxide is required.

**Gas and oil recovery injection water; fracturing system fluids
(NOT APPROVED FOR USE IN CALIFORNIA)**

Use this product to generate a chlorine dioxide use-solution for use in the remediation of bacterial and sulfide contamination in oilfield production, injection and disposal fluids. Apply the chlorine dioxide use-solution at a level in order to achieve a residual chlorine dioxide concentration of 0.25-5.0 ppm. The chlorine dioxide use-solution can be applied either continuously or intermittently to oil production water as it is separated from the oil and before it is re- injected into the well. For continuous feeds, the chlorine dioxide use-solution may be applied at dosages slightly higher than sulfide's oxidative demand, as determined by

a demand study. For intermittent treatment, the chlorine dioxide use- solution must be applied at shock dosage of 200-3000 ppm.

**Ultrasonic tank water; photo processing wash water; and leather processing solutions
(NOT APPROVED FOR USE IN CALIFORNIA)**

To control slime caused by microbial populations in these liquid systems, a residual chlorine dioxide concentration between 0.25 to 5.0 ppm is necessary. Chlorine dioxide may be added intermittently, or on a continuous basis to achieve the desired residual; the concentration maintained is dependent on individual systems.

Agricultural Water Uses (Non-Food Contact)

Sodium Chlorate Solution is approved for use in the control of microbial populations in water for the following agricultural non-food contact uses: Drinking water treatment for animals not meant for human consumption (e.g., show and research animals, animals raised for fur to wool; horses, mules or donkeys). Treatment of drinking water tanks for livestock not meant for human consumption can be achieved by intermittent or continuous application of chloride dioxide. Either method must be monitored, to achieve a residual concentration between 1.0 – 2.0 ppm chlorine dioxide.

This product also may be used to generate chlorine dioxide for non-pesticidal uses such as:	
Oxidizing nutrients	Reducing sludge
Eliminating odors	Clarifying/precipitating organic and inorganic particles
Controlling scale & deposits	Reducing TOC (Total Organic Carbon)
Controlling iron & manganese	Reducing color
Controlling corrosion	Destruction of odors caused by phenolic simple cyanides and sulfides by chemical oxidation

Food-Processing Water Systems and Brewery Water

Use chlorine dioxide generated from this product for microbial control in food-processing water systems and brewery water systems, such as flume transport, chill water systems, hydrocoolers, jetter water, pasteurizers, brewery influent or make-up water and bottle rinsing systems.

1. From this product, generate a chlorine dioxide use-solution from 0.4 ppm.
2. Apply the use-solution to the target water system at a level that will result in a residual concentration of 0.4 ppm. The required dosage will vary with process conditions and the degree of contamination present.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE: Store in the original container. Store at ambient temperatures from 40°F to 100°F. Store separately from sulfuric acid precursor and all other acids. Store in fire-resistant area separate from incompatible materials such as acids, powdered metals, organic chemicals, combustible materials and dirt. Clean up spills immediately.

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 the label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

CONTAINER HANDLING: Non-refillable container. Do not reuse or refill this container. Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment

or a mix tank. Fill the container ¼ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Alternatively, pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling or reconditioning. If recycling is unavailable, puncture and dispose of container in a sanitary landfill, or by incineration.

CONTAINER HANDLING: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

{Note to reviewer: The following is considered optional marketing language:}

Chlorine dioxide is an effective biocide against microbial and algal slime in challenging water conditions in recirculating cooling water towers.

Chlorine dioxide is an effective biocide against adult mollusks in challenging water conditions in once-through cooling water towers.

Chlorine dioxide is an effective biocide against microorganisms that form slime in challenging water conditions in textile processing water.

Chlorine dioxide is an effective biocide against microorganisms that form slime in challenging water conditions in paper process water.

Chlorine dioxide is an effective biocide against bacterial slime in challenging water conditions in pasteurizer [, cannery] [and] [, retort water systems].

Chlorine dioxide is an effective biocide against microorganisms and algae that cause unacceptable odors and slime in challenging water conditions in [impound lake water] [,] [pond water] [reservoir water] [industrial waste water].

Chlorine dioxide is an effective biocide against slime caused by microbial populations in challenging water conditions in [gas and oil recovery injection water] [and] [fracturing system fluids].

Chlorine dioxide generated from Sodium Chlorate Solution is effective at pH greater than 7.

Chlorine dioxide generated from Sodium Chlorate Solution is effective at pH between 3-10.

Chlorine dioxide generated from Sodium Chlorate Solution efficacy is not impacted in the pH range of 3-10.

The efficacy of chlorine dioxide generated from Sodium Chlorate Solution is unaffected by ammonia, oil or organic contamination in cooling water or drinking water systems.

Because the use of chlorine dioxide generated from Sodium Chlorate Solution allows for lower usage rates to maintain control of the system, it reduces the copper corrosion rates.

Copper corrosion potential can be reduced by using chlorine dioxide generated from Sodium Chlorate Solution.

Chlorine dioxide generated from Sodium Chlorate Solution reduces corrosion potentials, helping to expand the life of assets such as condensers and cooling towers.

Chlorine dioxide generated from Sodium Chlorate Solution penetrates, removes, controls or prevents microbial slime in recirculating cooling towers, pasteurizer, cannery or retort water, textile or pulp and paper water, impound lakes, ponds or reservoir water including industrial waste water.

Chlorine dioxide generated from Sodium Chlorate Solution can help remove, control or prevent microbial slime in recirculating cooling towers, pasteurizer, cannery or retort water, textile or pulp and paper water, impound lakes, ponds or reservoir water including industrial waste water.

As a dissolved gas, chlorine dioxide penetrates and removes microbial slime, helping to recover the performance of your heat exchangers (condenser and cooling tower).

Replacing Cl₂ with chlorine dioxide generated from Sodium Chlorate Solution can decrease the micro-fouling and increase the flow rate through the condenser.

Replacing Cl₂ with chlorine dioxide generated from Sodium Chlorate Solution can decrease the micro-fouling and improve the pressure drop in the condenser.

Chlorine dioxide generated from Sodium Chlorate Solution helps clean and loosen slime debris from recirculating cooling tower surfaces, pasteurizer, cannery or retort water surfaces, textile or pulp and paper water surfaces, impound lakes, ponds or reservoir water including industrial waste water.

Chlorine dioxide generated from Sodium Chlorate Solution reduces the need for corrosion inhibiting chemicals in cooling water applications.

Chlorine dioxide generated from Sodium Chlorate Solution improves filter operation.

Chlorine dioxide generated from Sodium Chlorate Solution is effective against adult and veliger forms of mussels including zebra mussels.

Addition of chlorine dioxide generated from Sodium Chlorate Solution to the cooling water does not form corrosive byproducts. Corrosion of copper metal surfaces is not accelerated by biocide treatment.

When used as directed, chlorine dioxide generated from Sodium Chlorate Solution is available for microbiological control in cooling water rather than being consumed by inorganic-reducing substances in the cooling water.

When used as directed, chlorine dioxide generated from Sodium Chlorate Solution is available for microbiological control in drinking water rather than being consumed by inorganic-reducing substances in the drinking water.

Surface-active properties of Chlorine dioxide generated from Sodium Chlorate Solution provide a cleansing action that minimizes under-deposit corrosion. This means improved heat transfer and lower operating costs.

Effective for use in hard waters at low use concentrations, which means that chlorine dioxide generated from Sodium Chlorate Solution is a cost-effective microbiological treatment in cooling water to complement water and cost savings associated with operating at high cycles of concentration.