



U.S. ENVIRONMENTAL PROTECTION AGENCY  
 Office of Pesticide Programs  
 Antimicrobials Division (7510P)  
 1200 Pennsylvania Ave., N.W.  
 Washington, D.C. 20460

EPA Reg. Number:

1706-244

Date of Issuance:

12/12/17

NOTICE OF PESTICIDE:

Registration  
 Reregistration  
 (under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

HYG-25

Name and Address of Registrant (include ZIP Code):

Linda Fane  
 Senior Manager, Regulatory Affairs  
 Nalco Water  
 1601 W. Diehl Road  
 Naperville, IL 60563

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Antimicrobials Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act.

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA section 3(c)(7)(A). You must comply with the following conditions:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product under FIFRA when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official:

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

Date:

12/12/17

2. You are required to comply with the data requirements described in the DCI identified below:
  - a. Sodium chlorite GDCI-020502-29789

You must comply with all of the data requirements within the established deadlines. If you have questions about the Generic DCI listed above, you may contact the Reevaluation Team Leader (Team 36): <http://www2.epa.gov/pesticide-contacts/contacts-office-pesticide-programs-antimicrobial-division>

3. The data requirements for storage stability and corrosion characteristics (Guidelines 830.6317 and 830.6320) are not satisfied. A one year study is required to satisfy these data requirements. You have 18 months from the date of registration to provide these data.
4. Make the following label changes before you release the product for shipment:
  - Revise the EPA Registration Number to read, "EPA Reg. No. 1706-244."
5. Submit one copy of the final printed label for the record before you release the product for shipment.

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.

If you fail to satisfy these data requirements, EPA will consider appropriate regulatory action including, among other things, cancellation under FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 2/20/2017
- Alternate #1 CSF dated 2/20/2017
- Alternate # 2 CSF dated 2/20/2017

If you have any questions, you may contact Donna Kamarei at (703)347-0443 or via email at [Kamarei.donna@epa.gov](mailto:Kamarei.donna@epa.gov).

Sincerely,



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

Enclosure

# HYG-25

[Note to reviewer: The phrase “such as suspended Legionella” will only be used on product brand names that have the suspended Legionella reduction in potable water treatment use site]

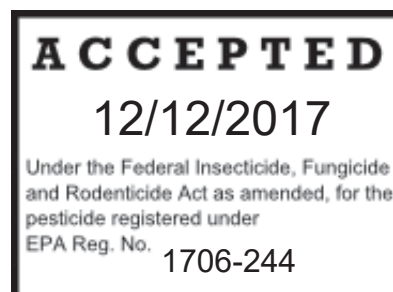
**[CHLORINE DIOXIDE PRECURSOR] [FOR] [MICROBIAL CONTROL] [SUCH AS SUSPENDED LEGIONELLA], [MACROFOULING CONTROL] [MOLLUSK CONTROL] [, AND] [CHEMICAL OXIDATION IN WATER AND WASTEWATER] [AND][ PAPERMILL WATER]**

**ACTIVE INGREDIENTS:**

Sodium Chlorite .....	25%
OTHER INGREDIENTS .....	75%
<b>TOTAL</b> .....	<b>100%</b>

**KEEP OUT OF REACH OF CHILDREN**

**DANGER**



**FIRST AID**

**If in eyes:**

- Hold eye open and rinse slowly and gently with water for 15 – 20 minutes.
- Remove contact lenses, if present after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor immediately for treatment advice.

**If on skin:**

- 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 inhaled:**

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible.
- Call a poison control center or doctor for further treatment advice.

**If swallowed:**

- Call a poison control center or doctor immediately for treatment advice.
- Have a person drink a glass of water immediately if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

**For emergency information call: (800) 424-9300 (24 hours)**

Have the product container or label with you when calling a poison control center or doctor or going to treatment. For general information on product use, etc., call the National Pesticides Information Center at 1-800-858-7378. You may also contact the poison control center at 1-800-222-1222 for emergency medical treatment information.

**NOTE TO PHYSICIAN:**

Probable mucosal damage may contraindicate the use of gastric lavage.

**SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS.**

**EPA Reg. No. 1706-XXXX**  
EPA Est. No. XXXXXXXXX

## **NET CONTENTS SHOWN ELSEWHERE ON CONTAINER**

**Nalco Company LLC**  
**1601 West Diehl Road**  
**Naperville, IL 60563-1198**

## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**Corrosive.** Causes irreversible eye damage and skin burns. May be fatal if inhaled. Harmful if absorbed through skin. Harmful if swallowed. Do not breathe vapor or spray mist. Wear protective eyewear such as splash-proof goggles, face shield, or safety glasses. Wear protective clothing and rubber gloves when handling this product. For product spills or conditions where significant misting or vapors may occur wear a respirator with an organic-vapor removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval number prefix (TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G), or a NIOSH approved respirator with an organic vapor (OV) cartridge or canister with any N, R, P or HE prefilter. Do not get in eyes, on skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove contaminated clothing and wash before reuse.

### **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.

### **PHYSICAL OR CHEMICAL HAZARDS**

Dry sodium chlorite is a strong oxidizing agent. This product becomes a fire or explosive hazard if allowed to dry. Mix only into water. Contamination may start a chemical reaction with generation of heat, liberation of hazardous gases (chlorine dioxide a poisonous, explosive gas), and possible fire and explosion. Do not contaminate with garbage, dirt, organic matter, household products, chemicals, soap products, paint products, solvents, acids, vinegar, beverages, oils, pine oil, dirty rags, or any other foreign matter.

### **STORAGE AND DISPOSAL**

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

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

**PESTICIDE WASTES:** 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 the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**CONTAINER DISPOSAL: Refillable Container.**

Refill this container with HYG-25 only. Do not reuse this container for any other purpose.

Cleaning or pressure rinsing 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 a 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 process two more times.

To pressure rinse the container before final disposal, 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.

**CONTAINER DISPOSAL: Nonrefillable container.**

Do not reuse or refill this container. Offer for recycling if available. Offer for reconditioning if appropriate. Triple Rinse or Pressure Rinse container promptly after emptying.

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

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 about 40 PSI for at least 30 seconds. Drain for 10 seconds, after the flow begins to drip.

**CONTAINER DISPOSAL: Nonrefillable container 5 gallons or less.**

Do not reuse or refill this container. Offer for recycling if available. Offer for reconditioning if appropriate. Triple Rinse or Pressure Rinse container promptly after emptying.

Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Pressure Rinse 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.

**DIRECTIONS FOR USE**

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

**For use in a closed feeding system.**

**Directions for Use in the Mechanical or Electrolytic Generation of Chlorine Dioxide:**

HYG-25 may be used in the mechanical or electrolytic generation of chlorine dioxide. HYG-25 is fed to chlorine dioxide generation equipment, which produces an aqueous solution of chlorine dioxide by one of the following methods of generation:

- (1) The chlorine method, which uses HYG-25 and chlorine gas;
- (2) The hypochlorite method, which uses HYG-25 and a combination of a hypochlorite solution, and an acid;
- (3) The acid-chlorite method, which uses HYG-25 and an acid as the activating agent; or,
- (4) The electrolytic method which uses HYG-25 with sodium chloride added as needed.

Your Nalco Sales Engineer can guide you in the selection, installation and operation of generation systems. Consult the instructions on the chlorine dioxide generation system before using HYG-25.

**[DIRECTIONS FOR USE (continued)]**

**FEED REQUIREMENTS**

Feed rates of HYG-25 will depend on the severity of contamination and the degree of control desired. The exact dosage will depend on the size of the system and residual necessary for effective control. Depending on the generator type, HYG-25 may be diluted at the point of use to prepare a 3% to 7.5% active aqueous solution for use in chlorine dioxide generators.

In all cases, generated chlorine dioxide solution should be applied in such a manner to ensure adequate mixing and minimal volatilization. The water stream to be treated may either be passed directly through the chlorine dioxide generator or treated via side stream injection point. The generation system employed should be in good working order and capable of achieving chlorine dioxide solutions free from chlorine contamination.

Because of the variability of demand in water and process systems, the dosage of chlorine dioxide required to achieve the target residuals is normally lower for continuous feed systems than for slug or timed feed applications. The minimum acceptable residual for chlorine dioxide, as determined by a verified procedure, is 0.1 ppm for a minimum one minute contact time.

Residual determination procedures should be substantiated methods and should also be specific for chlorine dioxide or used in systems where no chlorine contamination is possible. Do not add HYG-25 directly to process water.

Your Nalco Sales Engineer can guide you in the application techniques.

User is responsible for compliance with applicable federal, state and local laws regarding proper use and disposal of the chlorine dioxide generated.

[Note to reviewer: The following label language will be used on product brand names that are marketed for suspended *Legionella* reduction in potable water treatment]

#### **SECONDARY TREATMENT OF POTABLE WATER SYSTEMS:**

Chlorine dioxide is used as an antimicrobial agent in drinking water treatment and can be used as part of an overall program for the reduction of suspended *Legionella pneumophila*. The required dosages will vary depending on application conditions and the degree of contamination present. For secondary treatment of potable water systems, a chlorine dioxide residual concentration of 0.09 – 0.75 ppm must be monitored and maintained through the system for antimicrobial treatment and suspended *Legionella pneumophila* reduction. Monitor the system to ensure that the chlorite concentration does not exceed its maximum contaminant level (MCL) of 1 ppm and that chlorine dioxide does not exceed its maximum residual disinfection level (MRDL) of 0.8 ppm. Residual chemistry and byproducts must be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141), EPA Safe Drinking Water Act, and state drinking water standards.

Chlorine dioxide can serve as an important part of the program for the reduction of *Legionella* bacteria in potable water systems. A residual concentration of 0.09 ppm chlorine dioxide has been shown in laboratory testing to reduce *Legionella pneumophila* ATCC 33152 (strain Philadelphia-1) bacteria within 30 minutes following intermittent dosage. The use of this product is one component of a *Legionella* risk reduction strategy that may be included as part of an overall strategy for managing *Legionella* risk in building water systems, which is recommended by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 188-2015, a practice standard that establishes minimum legionellosis risk management requirements for building water systems. Under actual operating conditions, chemical treatment alone may not be an effective approach for *Legionella* control, risk mitigation from LDB or for the prevention of Legionnaires' disease.

[Note to reviewer: The following label language will be used on product brand names that are NOT marketed for suspended *Legionella* reduction in potable water treatment]

#### **POTABLE WATER TREATMENT:**

Chlorine dioxide is used as a disinfectant in drinking water treatment. The required dosages will vary depending on water conditions and the degree of contamination present. For most municipal and public potable water systems, a chlorine dioxide residual concentration of 0.09 – 0.75 ppm must be monitored and maintained through the system to provide disinfection. Typically a dose of up to 2 ppm is needed to obtain the target residual chlorine dioxide levels in the water system. Monitor the distribution system to ensure that the chlorite concentration does not exceed its maximum contaminant level (MCL) of 1 ppm and that chlorine dioxide does not exceed its maximum residual disinfection level (MRDL) of 0.8 ppm. Residual disinfectant and disinfection byproducts must

be monitored as required by the National Primary Drinking Water Regulations (40 CFR Part 141) and state drinking water standards.

#### **GENERAL INDUSTRIAL COOLING AND PROCESS WATER TREATMENT:**

For control of non-pathogenic bacteria, microbial slime and algae in General Industrial Cooling and Process Water Treatment Systems, such as Raw Water, Recirculating Closed Loop Cooling Systems, One-Pass Cooling Systems, In-Line Reverse Osmosis Membrane Pre-treatment, Industrial Process Water, Recirculating Cooling Towers, the required dosages will vary depending on the exact application and the degree of contamination present. The required chlorine dioxide residual concentrations range between 0.1 and 5.0 ppm. Chlorine dioxide may 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. The minimum acceptable residual concentration of chlorine dioxide is 0.1 ppm for a minimum one minute contact time. Intermittent treatments should be repeated as often as necessary to maintain control.

#### **Bacterial Slime and Fungal Control in Paper Mills**

Chlorine dioxide generated from sodium chlorite is effective for use in controlling microbiological and fungal growth in paper mill raw water and white water systems. The required dosages will vary with the degree of microbiological and process contamination present. Depending on the specific requirements of the system, HYG-25 should be applied continuously or intermittently through a chlorine dioxide generating system to achieve a chlorine dioxide residual concentration between 0.1 and 5.0 ppm. Intermittent treatments should be repeated as often as necessary to maintain control.

#### **CONTROLLING MICROBIAL POPULATION IN POULTRY PROCESSING WATER:**

Chlorine dioxide generated from HYG-25 may be used as a non-pathogenic antimicrobial agent in water used in poultry processing, provided that the residual concentration of chlorine dioxide does not exceed 3 ppm, as determined by an appropriate method in accordance with 21CFR§173.300.

For treatment of poultry chill water, apply HYG-25 as necessary through a chlorine dioxide generation system to maintain a residual concentration of up to 3 parts per million (ppm) chlorine dioxide in the chiller water.

#### **FOOD PROCESSING PLANTS, DAIRIES, BOTTLING PLANTS, AND BREWERIES:**

Chlorine dioxide generated from sodium chlorite is effective for use in controlling non-pathogenic microbiological growth in flume water, plant process water, food processing water, and food processing systems such as chill water systems, beverage and brewery pasteurizers, bottle rinsing and hydrocoolers. The required dosages will vary with process conditions and the degree of contamination present. Depending on the requirements of the specific water system, sodium chlorite should be applied continuously or intermittently through a chlorine dioxide generating system to achieve a chlorine dioxide residual concentration between 0.25 and 5.0 ppm.

Water, containing up to 3 ppm residual chlorine dioxide may be used for washing fruits and vegetables that are not raw agricultural commodities in accordance with 21CFR§173.300. Treatment of the fruits and vegetables with chlorine dioxide must be followed by a potable water rinse, or by blanching, cooking or canning.

#### **MACROFOULING CONTROL IN WATER SYSTEMS (SUCH AS CLAMS, BARNACLES AND MUSSELS):**

Chlorine dioxide generated from sodium chlorite may be used for macrofouling control in commercial and industrial raw, recirculating, and one-pass water systems. The required dosages will vary with system type, system conditions, degree of water contamination present and desired level of control. Depending on the extent of the infestation, sodium chlorite may be applied either continuously or intermittently through a chlorine dioxide generating system to achieve the necessary chlorine dioxide residual concentration.

Veliger Control: Maintain a continuous chlorine dioxide residual of 0.1 – 0.5 ppm.

Intermittent Dose: Apply chlorine dioxide to obtain a chlorine dioxide residual concentration of 0.2 – 25 ppm. Repeat as necessary to maintain control.

Continuous Dose: Maintain a chlorine dioxide residual concentration of up to 2 ppm.

## **AIR AND GAS WASHERS, AND INDUSTRIAL AIR SCRUBBING SYSTEMS**

When used as directed, this product effectively removes volatile organic compounds, inorganic vapors, odors, hydrogen sulfide, mercaptans, aromatics, aldehydes, and NOx. Controls algal, bacterial, and fungal slimes in air washing systems equipped with a mist eliminator and industrial air scrubbing systems. Add this product at a point of uniform mixing.

Initial Dose: When the system is noticeably fouled, add 0.1-5.0 ppm for intermittent dosing. Repeat until control is achieved.

Subsequent Dose: When microbial control is evident, typical chlorine dioxide residual concentration range is 0.1-1.0 ppm for continuous doses Repeat as needed to maintain control.

Heavily fouled systems must be cleaned before treatment is begun.

## **WASTEWATER TREATMENT AND CHEMICAL OXIDATION FOR AQUATIC SYSTEMS:**

Chlorine dioxide is effective as both a microbiocide and an oxidant 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 microbial control.

For sulfide odor control, between pH 5 – 9, a minimum of 5.2 ppm (wt) of chlorine dioxide should be applied to oxidize 1 ppm of sulfide (measured as sulfide ion). For phenol destruction, at pH less than 8, 1.5 ppm chlorine dioxide will oxidize 1 ppm phenol; at pH greater than 10, 3.3 ppm chlorine dioxide will oxidize 1 ppm phenol.

### **THIS PRODUCT MAY BE USED FOR THE FOLLOWING NON-PESTICIDAL USES SUCH AS:**

Oxidizing nutrients	Reducing sludge
Eliminating odors	Clarifying/precipitation organic and inorganic particles
Controlling scale & deposits	Reducing Total Organic Carbon (TOC)
Controlling iron & manganese	Reducing and removing color
Controlling corrosion	Destruction of odors caused by phenolics, simple cyanides and sulfides by chemical oxidation
Taste control	

### **[Note to reviewer – the following is optional marketing language:]**

1. Chlorine dioxide is an effective biocide against non-pathogenic microbial and algal slime in challenging water conditions in recirculating cooling water towers.
2. Chlorine dioxide is an effective biocide against adult mollusks in challenging water conditions in once-through cooling water towers.
3. Chlorine dioxide is an effective biocide against non-pathogenic microorganisms that form slime in challenging water conditions in textile processing water.
4. Chlorine dioxide is an effective biocide against non-pathogenic microorganisms that form slime in challenging water conditions in paper process water.
5. Chlorine dioxide is an effective biocide against bacterial slime in challenging water conditions in pasteurizer [, cannery] [and] [, retort water systems].



6. Chlorine dioxide is an effective biocide against non-pathogenic microorganisms and algae that cause unacceptable odors and slime in challenging water conditions in [impound lake water] [,] [pond water] [reservoir water] [industrial waste water]
7. 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]
8. Because the use of chlorine dioxide generated from HYG-25 allows for lower usage rates to maintain control of the system, it reduces the copper corrosion rates
9. Copper corrosion potential can be reduced by using chlorine dioxide generated from HYG-25
10. Chlorine dioxide generated from HYG-25 reduces corrosion potentials, helping to expand the life of assets such as condensers and cooling towers.
11. Chlorine dioxide generated from HYG-25 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.
12. Chlorine dioxide generated from HYG-25 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.
13. As a dissolved gas, chlorine dioxide penetrates and removes microbial slime, helping to recover the performance of your heat exchangers (condenser and cooling tower).
14. Replacing Cl<sub>2</sub> with chlorine dioxide generated from HYG-25 can decrease the micro-fouling and increase the flow rate through the condenser
15. Replacing Cl<sub>2</sub> with chlorine dioxide generated from HYG-25 can decrease the micro-fouling and improve the pressure drop in the condenser
16. Chlorine dioxide generated from HYG-25 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.
17. Chlorine dioxide generated from HYG-25 reduces the need for corrosion inhibiting chemicals in cooling water applications
18. Chlorine dioxide generated from HYG-25 improves filter operation.
19. Chlorine dioxide generated from HYG-25 is effective against adult and veliger forms of mussels including zebra mussels.
20. Chlorine dioxide generated from HYG-25 effectively eliminates odors.
21. Chlorine dioxide generated from HYG-25 effectively reduces and removes color
22. Chlorine dioxide generated from HYG-25 effectively eliminates odors in air and gas washers.
23. Chlorine dioxide generated from HYG-25 effectively eliminates odors in industrial air scrubbing systems.
24. Addition of chlorine dioxide generated from HYG-25 to the cooling water does not form corrosive by-products. Corrosion of copper metal surfaces is not accelerated by biocide treatment.
25. When used as directed, chlorine dioxide generated from HYG-25 is available for non-pathogenic microbiological control in cooling water rather than being consumed by inorganic-reducing substances in the cooling water.
26. When used as directed, chlorine dioxide generated from HYG-25 is available for non-pathogenic microbiological control in drinking water rather than being consumed by inorganic-reducing substances in the drinking water.
27. Surface-active properties of Chlorine dioxide generated from HYG-25 provide a cleansing action that minimizes under-deposit corrosion. This means improved heat transfer and lower operating costs.
28. Effective for use in hard waters at low use concentrations, which means that chlorine dioxide generated from HYG-25 is a cost-effective non-pathogenic microbiological treatment in cooling water to complement water and cost savings associated with operating at high cycles of concentration.
29. Chlorine dioxide from HYG-25 can be used for small scale pulp bleaching, removal of color, and removal of optical brightening agents
30. Some examples of industrial applications of chlorine dioxide include:
  - Removal of sulfide.
  - Control of non-pathogenic bacterial slime and algae and mollusks in industrial recirculating and one-pass cooling systems.

- Non-pathogenic biocontrol in food processing flumes, water-using equipment, cooling water, and recycled waters.
- Microbiological control in sewage and plant wastes.
- Destruction of phenolics, simple cyanides and sulfides by chemical oxidation.

**[Note to reviewer: The following optional marketing language will be used for product brand names that are marketed for suspended Legionella reduction in secondary treatment of potable water systems:]**

- Reduces suspended *Legionella pneumophila* in potable or drinking water systems.
- Effective in reducing suspended *Legionella* in water systems
- Effective in reducing suspended *Legionella* in domestic water distribution systems.

**[Note to reviewer – the following is optional marketing text to be used on product labels that are certified by NSF/ANSI 60 by NSF International]**



[Insert MUL ]  
[Insert Chemical Name]  
[Insert NSF language]