

# PeroxySan X15

EPA Reg. No. 68660-12-93741

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## DIRECTIONS FOR USE BOOKLET

Version Date: May 23, 2019

### **DANGER** **STRONG OXIDIZING AGENT** **KEEP OUT OF REACH OF CHILDREN**

<p style="text-align: center;"><b>FIRST AID</b></p> <p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment.</p>
<p><b>IF IN EYES:</b> Hold eyelids open and rinse slowly and gently with water for 15 – 20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.</p>
<p><b>IF ON SKIN:</b> 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.</p>
<p><b>IF INHALED:</b> 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.</p>
<p><b>IF SWALLOWED:</b> Call a poison control center or doctor immediately for treatment advice. Promptly drink large quantities of water. 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.</p>
<p style="text-align: center;"><b>CALL THE POISON CONTROL CENTER OR PHYSICIAN IMMEDIATELY FOR EMERGENCY MEDICAL INFORMATION.</b></p>
<p style="text-align: center;"><b>NOTE TO PHYSICIAN</b></p> <p>Probable mucosal damage may contraindicate the use of gastric lavage.</p>

Distributed by:



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## **PRECAUTIONARY STATEMENTS**

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

**DANGER: CORROSIVE** Causes irreversible eye damage and causes skin burns. Do not get in eyes, on skin, or on clothing. May be fatal if swallowed or inhaled. Do not breathe vapor or spray mist and wear a respirator with an organic vapor removing cartridge with a prefilter approved for pesticides (MSHA/NIOSH approval prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval 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 enter an enclosed area without proper respiratory protection. When handling, wear goggles or face shield, rubber gloves, chemically resistant coveralls or apron worn over long-sleeved shirt, long pants, socks and chemically resistant footwear. 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.

### **AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about Personal Protective Equipment (PPE) and Restricted-Entry Interval (REI). The requirements in this box apply to the uses of this product that are covered by the Worker Protection Standard.

There is a restricted entry interval (REI) of zero (0) hours for the application methods on this label. PPE required for early entry to treated areas (that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water), is:

- Chemical-resistant suit;
- Chemical-resistant headgear (if applied by fogging); and,
- Dust/mist filtering respirator (if applied by fogging).

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

Personal Protective Equipment (PPE) - Applicators and handlers must wear coveralls over long-sleeved shirt, long pants, and chemical resistant footwear plus socks. When mixing and loading wear a chemical resistant apron. For overhead exposure wear chemical-resistant headgear. Wear protective eyewear (goggles, face shield, or safety glasses), and chemical resistant gloves. When cleaning equipment wear a chemical resistant apron. Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instruction exists for washables, use detergent and hot water.

### **NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are not within the scope of the Worker Protection Act Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

**Keep unprotected persons out of treated areas until sprays have dried.**

## **DIRECTIONS FOR USE**

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

### **SURFACE COMPATABILITY**

This product in its use concentrations is compatible with stainless steel and aluminum surfaces. If product is intended to be used on any other surface, it is recommended that you apply product to a smaller test area to determine compatibility before proceeding with its use.

## TO ENSURE EFFECTIVENESS FOR ALL APPLICATIONS:

- Do not return unused portion of PeroxySan X15 solution to original container.
- Dispose of unused PeroxySan X15 solution.
- Do not reuse PeroxySan X15 solution
- Always prepare fresh PeroxySan X15 solution daily or more often if the use solution becomes cloudy or soiled.

## INDUSTRIAL USES

### BIOFOULING CONTROL IN PULP AND PAPER MILLS SYSTEMS

(Not Approved for Use in California)

For use in the manufacturing of paper and paperboard intended for food-contact and non-food contact. PeroxySan X15 provides an effective means to treat various process waters for slime control. Apply up to 1.6 lbs PeroxySan X15 solution per ton (2000 lbs., dry basis) of pulp or paper produced.

### TREATMENT OF PAPER MACHINE WHITE WATER

(Not Approved for Use in California)

PeroxySan X15 may be applied within the white water short circulation loop on the paper machine. Apply with either shock, intermittent or continuous dosing. Shock doses may be applied for 1 to 2 hours, as necessary, whereas intermittent doses are applied 1 to 12 times per day, for a duration of 5 to 60 minutes each. For either shock or intermittent dosing, apply 0.013 to 0.67 gallons PeroxySan X15 per 1000 gallons of white water (2 to 116 ppm by wt. of peroxyacetic acid). For continuous dosing, apply 0.013 to 0.16 gallons PeroxySan X15 per 1000 gallons of process water, producing a peak concentration of 2 to 28 ppm by wt. of peroxyacetic acid.

### CATALASE CONTROL IN DEINKING WATER LOOPS

(Not Approved for Use in California)

PeroxySan X15 may be applied to the inlet lines going to deinking water storage following clarification. Apply with either shock, intermittent, or continuous dosing. Shock doses may be applied for 10 to 60 minutes as necessary. Apply 1.33 to 3.30 gallons PeroxySan X15 per 1000 gallons recirculation water (229 to 568 ppm of peroxyacetic acid by wt.). For intermittent doses, apply 1 to 12 times per day for a duration of 10 to 60 minutes. Apply 0.66 to 1.66 gallons PeroxySan X15 per 1000 gallons of water (114 to 286 ppm of peroxyacetic acid by wt.). For continuous dosing, apply 0.16 to 1.13 gallons PeroxySan X15 to 1000 gallons of process water (28 to 195 ppm of peroxyacetic acid by wt.).

### TREATMENT OF INDUSTRIAL RAW AND PROCESS WATER

(Not Approved for Use in California)

PeroxySan X15 may be applied to water at the inlet of the process water system or any other suitable point. Apply with either shock, intermittent, or continuous dosing. Shock dosing may be applied for a duration of 1 to 2 hours, as necessary, whereas intermittent dosing is applied for 2 to 15 minutes, 4 to 100 times per day. For either shock or intermittent dosing, apply 0.13 to 0.66 gallons PeroxySan X15 per 1000 gallons of water (22 to 114 ppm peroxyacetic acid by wt.). For continuous dosing applications, apply 0.006 to 0.24 gallons PeroxySan X15 to 1000 gallons of water (1 to 41 ppm of peroxyacetic acid by wt.)

### FOR MICROBIAL CONTROL IN EFFLUENT TREATMENT SYSTEMS

Use PeroxySan X15 to treat sewage and wastewater effluent associated with public and private wastewater treatment plants. PeroxySan X15 can be applied, by itself, directly to the effluent or in conjunction with an appropriate activator, such as UV light. Apply PeroxySan X15 at any point where microbial control is essential. Apply 3.2 to 66.4 gallons of PeroxySan X15 per 1,000,000 gallons of wastewater (0.5 to 10 ppm of peroxyacetic acid by wt.).

NOTE: The dosing rate for individual facilities will depend on the nature of the effluent (level of microbial control) and the local microbial discharge limit. Therefore, adjust the dosing rates to the levels appropriate for your facility. Do not exceed the maximum dose level of 66.4 gallons of PeroxySan X15 per 1,000,000 gallons of wastewater (or 10 ppm of peroxyacetic acid by wt.). The peroxyacetic acid concentration will rapidly decline after treatment. The maximum amount of peroxyacetic acid that can be discharged from the treatment facility is 1.0 ppm peroxyacetic acid. Use an appropriate peroxyacetic acid test kit or analyzer as recommended by Xgenex to ensure that this level is not exceeded. Contact your Xgenex technical representative for guidance on treatment regimes.

### CONTROL OF ALGAL, FUNGAL, AND BACTERIAL GROWTH FOR NON-FOOD CONTACT PAPER USES

(Not Approved for Use in California)

#### Treatment Of Starch Used For Sizing On The Paper Machine

(Not Approved for Use in California)

Apply PeroxySan X15 directly to the starch storage tank or through the recirculation loop. Apply with either shock, intermittent, or continuous dosing. Shock doses may be applied for 1 to 2 hours, whereas intermittent doses may be applied for 5 to 60 minutes up to 12 times per day. For either shock or intermittent dosing, apply 0.66 to 4 gallons PeroxySan X15 per 1000 gallons of starch solution to achieve 114 to 687 ppm of peroxyacetic acid by wt.. For continuous dosing applications, apply 0.066 to 1.33 gallons PeroxySan X15 per 1000 gallons starch solution, producing a peak concentration of approximately 11 to 229 ppm of peroxyacetic acid by wt.

#### Treatment Of Clays Used As Coatings And Fillers On The Paper Machine

(Not Approved for Use in California)

Applications may be made at the recirculation loop or directly to the agitated slurry storage tank. Apply with either shock, intermittent, or continuous dosing. Shock doses may be applied for 1 to 2 hours, as necessary, whereas intermittent doses may be applied for 5 to 60 minutes, 1 to 12 times per day. For either shock or intermittent dosing, apply 0.33 to 0.66 gallons PeroxySan X15 to 1000 gallons clay slurry solution (57 to 114 ppm of peroxyacetic acid by wt.). For continuous dosing applications, apply 0.033 to 0.66 gallons PeroxySan X15 to 1000 gallons of process water (6 to 114 ppm of peroxyacetic acid by wt.).

#### Coatings Preservation

(Not Approved for Use in California)

PeroxySan X15 can be used as an in-container preservative for the control of bacteria and fungi in water-based coatings such as paper coatings. Add 0.08 to 0.56 gallons of PeroxySan X15 solution to 1,000 gallons of water (14 to 96 ppm of peroxyacetic acid by wt.).

#### Treatment Of Dispersed Pigments

(Not Approved for Use in California)

PeroxySan X15 can be used in the control of bacteria and fungi in the manufacture and storage of dispersed pigments such as kaolin clay, titanium dioxide, calcium carbonate, calcium sulfate, barium sulfate, magnesium silicate and kieselguhr used in paint and paper production. Add 0.1 to 0.46 Lbs. of PeroxySan X15 to each 1,000 Lbs. of fluid (15 to 70 ppm of peroxyacetic acid by wt.).

#### CONTROL OF ALGAL, FUNGAL, AND BACTERIAL GROWTH IN INDOOR CLOSED LOOP, NON-POTABLE, NON-FOOD CONTACT WATER SYSTEMS

(Not Approved for Use in California)

#### Treatment Of Raw And Process Water Such As Heat Exchanger System Water, Boiler Water, Wet Scrubber Water, Etc.

(Not Approved for Use in California)

PeroxySan X15 may be applied to water at the inlet of the water system or any other suitable point. Apply with either shock, intermittent, or continuous dosing. Shock dosing may be applied for 1 to 2 hours, as necessary, whereas intermittent dosing is applied for 2 to 15 minutes, 4 to 100 times per day. For either shock or intermittent dosing, apply 0.133 to 0.66 gallons PeroxySan X15 per 1000 gallons of water (23 to 114 ppm of peroxyacetic acid by wt.). For continuous dosing applications, apply 0.006 to 0.23 gallons PeroxySan X15 to 1000 gallons of water (1 to 40 ppm of peroxyacetic acid by wt.).

#### Treatment Of Cooling Water Systems Such As Cooling Towers, Evaporative Condensers, Etc.

(Not Approved for Use in California)

Severely fouled systems should be cleaned before treatment. PeroxySan X15 should be added to the system directly and not mixed with any other chemicals or additives. Contamination with other chemicals could result in lack of efficacy. Add PeroxySan X15 at a point in the system where uniform mixing and even distribution will occur such as the cooling tower basin sump. Shock doses may be applied for 1 to 2 hours, as necessary, whereas intermittent doses are applied for 5 to 60 minutes, 1 to 100 times per day. For either shock, intermittent or continuous dosing, apply 0.0066 to 0.060 gallons PeroxySan X15 solution per 1000 gallons of water (1 to 10 ppm of peroxyacetic acid by wt. Repeat treatment as required to maintain control.

## FOR MICROBIAL CONTROL ASSOCIATED WITH MICROBIAL CONTAMINATION IN OIL AND GAS APPLICATIONS

(Not Approved for Use in California)

Use PeroxySan X15 for controlling slime-forming and spoilage bacteria, biofilm, yeast and fungi and anaerobic sulfate-reducing bacteria (*Desulfovibrio vulgaris*) in subterranean oilfield and gas-field well operations such as well drilling, formation fracturing, productivity enhancement and secondary recovery. Use of PeroxySan X15 can reduce reservoir souring and metal corrosion. PeroxySan X15 must be introduced through a closed mixed/loading and delivery transfer system equipped with a metering device that is appropriate for its intended uses.

### Drilling Muds, Fracturing Fluids, Well Squeezed Fluids

(Not Approved for Use in California)

For the preservation of drilling muds, workover and completion fluids and other products susceptible to contamination, pre-mix PeroxySan X15 with the fluid or add directly at the point of use at 4.35 fl. oz. per 1000 gallons of water (6 ppm of peroxyacetic acid by wt.) to 85 oz. per 1000 gallons of water (115 ppm of peroxyacetic acid by wt.) as required. Depending on the severity of the contamination, initial application may be added up to 850 oz. per 1000 gallons of water (1138 ppm of peroxyacetic acid by wt.).

### Flooding, Injection, And Produced Water

(Not Approved for Use in California)

For water flooding operations, add PeroxySan X15 initially at 4.35 fl. oz. per 1000 gallons of water (6 ppm of peroxyacetic acid by wt.) to 85 fl. oz. per 1000 gallons of water (115 ppm of peroxyacetic acid by wt.) and repeat until control is achieved. Subsequent treatment may be continued on a weekly basis or as required. Injection wells associated with gas storage systems may be treated up to 115 ppm of peroxyacetic acid by wt. when diluted in the formation of water. Any additional top-up water should be treated as required. For hydrostatic systems, apply 4.35 fl. oz. per 1000 gallons of water (6 ppm of peroxyacetic acid by wt.) to 85 fl. oz. per 1000 gallons of water (115 ppm of peroxyacetic acid by wt.) depending on the water quality and the duration of the shut in.

### Pipeline And Tank Maintenance

(Not Approved for Use in California)

For microbial control in water-bottoms in crude and refined hydrocarbon storage tanks, piping, and transportation systems. Apply 4.35 fl. oz. of PeroxySan X15 per 1000 gallons of water (6 ppm of peroxyacetic acid by weight) to 85 fl. oz. per 1000 gallons of water (115 ppm of peroxyacetic acid by weight) in the aqueous phase, directly injected into the water-bottom, pipeline or may be added to the hydrocarbon phase. Treatment may be applied daily or monthly for both storage and transportation systems as needed.

## SANITIZATION

PeroxySan X15 is for use in circulation cleaning and institutional/ industrial sanitizing of pre-cleaned hard nonporous food contact surfaces and equipment such as tanks, pipelines, evaporators, fillers, pasteurizers and aseptic equipment.

The main areas of use include:

- Dairies, wineries, breweries and beverage plants
- Meat and meat products processing/packing plants
- Milk and dairy processing/packing plants
- Egg processing/packing plants
- Seafood and poultry processing/packing plants
- Vegetable processing plants
- Eating establishments

This product has demonstrated 99.999% reduction of *Staphylococcus aureus* (ATCC 6538), *Escherichia coli* (ATCC 11229), *Listeria monocytogenes* (ATCC 19117), and *Salmonella enterica* (ATCC 10708) in the AOAC Germicidal and Detergent Sanitizing Action of Disinfectants study when applied to pre-cleaned surfaces at a dosing rate of 0.5 to 0.7 fl. oz. of PeroxySan X15 per 5 gallons of water (135 - 189 ppm of peroxyacetic acid and 207 - 289 of hydrogen peroxide).

This product is effective against spoilage organisms *Saccharomyces cerevisiae*, *Pediococcus damnosus*, and *Lactobacillus malefermentans* (Not Approved for Use in California).

PeroxySan X15 is effective against *Xanthomonas campestris* (*axonopodis*) pathovars citrumelo (citrus canker surrogate) (Not Approved for Use in California).

## SANITIZING PRE-CLEANED HARD NON-POROUS FOOD CONTACT SURFACES SUCH AS TANKS, PIPING SYSTEMS, PUMPS

Clean equipment such as tanks immediately after use:

1. Remove gross food particulate matter and soil by a warm water flush, or pre-flush, or a pre-scrape and, when necessary, pre -soak treatment.
2. Thoroughly preclean surfaces or equipment with a good detergent or compatible cleaning solution.
3. Rinse equipment with water.
4. Prepare a use-solution of PeroxySan X15 by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water.
5. Fill closed systems with diluted sanitizer solution and allow a contact time of one (1) minute.
6. Allow surfaces to drain thoroughly before resuming operation.

#### SANITIZING OF EATING ESTABLISHMENT EQUIPMENT SUCH AS PLATES, UTENSILS, CUPS, GLASSES

1. Scrape/prewash plates, utensils, cups, glasses, etc. to remove gross food particulate matter
2. Preclean all items with a with a good detergent or compatible cleaning solution.
3. Rinse thoroughly with water.
4. Prepare a use-solution of PeroxySan X15 by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water.
5. Immerse all items for at least one (1) minute or for a longer contact time as specified a local governing sanitizing code.
6. Place all sanitized items on a rack or drainboard to air dry.

#### SANITIZING TABLEWARE

Remove gross food particulate matter by a warm water flush, or pre-flush, or a pre-scrape and, when necessary, pre -soak treatment. Thoroughly preclean tableware with a good detergent or compatible cleaning solution. To sanitize tableware in low to ambient temperature warewashing machines, prepare a use-solution of PeroxySan X15 containing 0.5 to 0.7 fl. oz. of this product per 5 gallons of water. The use-solution must contact tableware for a minimum of one (1) minute. Allow treated surfaces to air dry.

#### SANITIZING HARD, NON-POROUS, NON-EDIBLE OUTSIDE SURFACES OF AIRTIGHT, SEALED PACKAGES CONTAINING FOOD PRODUCTS

(Not Approved for Use in California)

PeroxySan X15 may be used as a final sanitizing rinse for hard, non-porous non-edible outside surfaces of airtight, sealed packages containing food products. Thoroughly preclean surfaces or equipment with a good detergent or compatible cleaning solution. Rinse packages with a use-solution of PeroxySan X15 prepared by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water. The use-solution must contact packaging for a minimum of one (1) minute. The treated hard, non-porous, non-edible packaging, such as food wraps and meat casings, must be removed and discarded before packaged food products are further processed or consumed. All surfaces must be exposed to the use-solution for a period of not less than one (1) minute. Drain thoroughly. Do not rinse. This is not to be used on porous surfaces.

#### SANITIZE PRE-CLEANED OR NEW RETURNABLE OR NON-RETURNABLE BOTTLED WATER CONTAINERS

To sanitize pre-cleaned or new returnable or non-returnable containers for bottled water processing, rinse bottles with a use-solution of PeroxySan X15 prepared by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water. The use-solution must contact bottles for a minimum of one (1) minute. After thorough draining, rinse interior container surfaces with a disinfected water rinse free of pathogenic bacteria.

#### FINAL SANITIZING BOTTLE RINSE FOR PLASTIC, GLASS OR METAL RETURNABLE AND NON -RETURNABLE BOTTLES/CANS

1. Wash bottles with detergent or cleaning solution and rinse with potable water.
2. Rinse bottles/cans with a solution prepared by mixing 0.5 to 0.7 fl. oz. of PeroxySan X15 per 5 gallons of water. The use-solution must contact bottles/cans for a minimum of one (1) minute.
3. Allow to drain dry.

#### SANITIZING MILKING EQUIPMENT BY CLUSTER DIPPING

(Not Approved for Use in California)

1. Clean external surfaces of milking systems after each use.
2. Manually or automatically rinse and sanitize all system components using a sanitizing solution prepared by adding 0.5 to 0.7 fl. oz. of PeroxySan X15 per 5 gallons of water. Ensure the use-solution fills clusters.
3. Allow surfaces to remain wet for at least one (1) minute. Shake solution off after dipping and allow to air dry. Do not rinse.

#### SANITIZING FOOD STORAGE AREAS

(Not Approved For Use In California)

1. Remove all food prior to sanitization of food storage areas.
2. Prior to use of this product, remove gross soil particles from surfaces to be treated. For heavily soiled surfaces, a pre-wash is required.
3. Thoroughly preclean surfaces or equipment with a good detergent or compatible cleaning solution.
4. Add 0.5 to 0.7 fl. oz. of PeroxySan X15 per 5 gallons of potable water and then apply the use-solution with a mop, cloth, sponge, or hand trigger spray so as to wet all surfaces thoroughly.
5. Allow to remain wet with solution for one (1) minute.
6. Allow items and/or surfaces to air dry. No potable water rinse is required.

#### SANITIZING CONVEYORS PEELERS, SLICERS, SAWS AND OTHER EQUIPMENT FOR MEAT, POULTRY, SEAFOOD, FRUIT, NUTS AND VEGETABLES

For use in the static or continuous washing, rinsing and sanitizing of conveyor equipment, peelers, collators, slicers, saws etc.

1. Remove gross food particulate matter and soil by a warm water flush, or pre-flush, or a pre-scrape and, when necessary, pre -soak treatment.
2. Thoroughly preclean surfaces or equipment with a good detergent or compatible cleaning solution.
3. Prepare a use-solution of PeroxySan X15 by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water.
4. Apply the use-solution to the return portion of the conveyor or to the equipment using a coarse spray or other means of wetting the surfaces. Control the volume of solution to prevent puddles. Allow sanitizer to thoroughly wet surface for a minimum of one (1) minute.
5. Allow equipment to drain adequately before reusing; a dry surface is not required. No rinse is needed. The conveyor surface may still be damp when food contact occurs.

#### SANITIZING CONVEYORS FOR MEAT, POULTRY, SEAFOOD, FRUITS, AND VEGETABLES

1. Remove all products from equipment.
2. Remove gross food particulate matter and soil by a warm water flush, or pre-flush, or a pre-scrape and, when necessary, pre -soak treatment.
3. Thoroughly preclean surfaces or equipment with a good detergent or compatible cleaning solution.
4. Prepare a use-solution of PeroxySan X15 by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water.
5. Apply the use-solution to the return portion of the conveyor or to the equipment using a coarse spray or other means of wetting the surfaces for a minimum of one (1) minute contact time. Control the volume of solution so as to permit maximum drainage and to prevent puddles.
6. Allow equipment to drain dry before reusing.

#### PACKINGHOUSE SANITIZATION

(Not Approved for Use in California)

1. Remove gross contamination then preclean surfaces or equipment with a good detergent or compatible cleaning solution and rinse with potable water.
2. Prepare a use-solution of PeroxySan X15 by adding 0.5 to 0.7 fl. oz. of this product per 5 gallons of water.
3. Use as a general sanitizing coarse spray to reduce bacterial contamination of walls, floors, conveyers and harvesting containers.
4. Allow sanitizer to contact surface for at least one (1) minute.
5. Allow to air dry, do not rinse.

For direct injection into spray waters used in packinghouse process lines and humidification systems, treat water to control citrus canker by injecting this product directly into spray system water with 0.42 fl. oz. for every gallon of water. Applicable for use on all types of post-harvest commodities.

#### USE IN RO, UF AND NF MEMBRANE SYSTEMS

(Not Approved for Use in California)

#### MICROBIAL CONTROL OF REVERSE OSMOSIS (RO), ULTRA FILTRATION (UF) AND OTHER MEMBRANES

(Not Approved for Use in California)

PeroxySan X15 may be used for non-pathogenic, non-public health microbial control of ultra filtration (UF) and reverse osmosis (RO) membranes and other similar type membranes and their associated piping systems. This product may be added continuously in food, beverage, and drinking water systems for RO (reverse osmosis) systems only and in accordance with the instructions below. This product is not for use in kidney dialysis equipment. This product may not totally eliminate all vegetative microorganisms in RO or NF or UF membranes and their associated piping systems due to their construction or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when

used as directed. Prior to using this product check with membrane manufacturer to confirm compatibility of membranes with various types or concentration of peroxyacetic acid solutions.

#### **BATCH TREATMENT OF NF, UF AND RO SYSTEMS**

(Not Approved for Use in California)

Isolate incompatible equipment, such as carbon filters and ion exchangers. Clean system with an appropriate cleaner and follow with RO permeate water or potable water. Remove mineral deposits if necessary with an acidic cleaner, and rinse as before. Fill entire system with water and add up to 0.34% of this product by volume (590 ppm peroxyacetic acid by wt.) for heavily fouled systems. Recirculate the sanitizing solution through the piping and membrane system at 20° C for ten (10) minutes minimum, or up to four (4) hours, depending on the severity of cleaning to be done. Open and close process valves and solenoids to be sure all parts are in contact with the solution. For occasional intermittent feed, use a treatment rate of 0.34 fl. oz. per 5 gallons of feed water. Do not use the intermittent feed method for on-line use for potable water or direct food contact systems. Rinse the system with RO permeate or potable water until residual peroxygen concentration is below 1 ppm.

#### **RO CONTINUOUS OR INTERMITTENT ADDITION**

(Not Approved for Use in California)

For continuous addition methods for RO systems, apply 0.6 to 1.5 fl. oz. of product per 430 gallons of process water. For occasional intermittent feed, apply 0.34 fl. oz. of product per 5 gallons of feed water. Do not use the intermittent feed method for on-line use in potable water or direct food contact systems.

#### **TREATMENT OF GRANULAR ACTIVATED CARBON BEDS AND DEIONIZING (DI) SYSTEM RESIN BEDS**

(Not Approved for Use in California)

This product can be used to reduce or eliminate most non-pathogenic, non-public health microbial contamination of Granular Activated Carbon (GAC) beds and Dionizing (DI) Systems without negatively affecting the GAC or DI resin if used as directed. All new systems must be soaked in process water for at least 12 hours before sanitizing. Drain and refill system with a use- solution by mixing 3.2 to 9.8 fl. oz. of this product in 10 gallons of water. Typically, the system would be backwashed and circulated through the GAC or resin beds during and/or after adding this product. Add this product as quickly as possible to the backwash process if a metering pump is used.

Backwash and circulate for 20 to 30 minutes. Stop the backwash process and allow system to stand for 60 minutes. Drain system. Refill with fresh water and soak for 1 to 4 hours or more, which should be a long enough period for all residual peroxygen to dissipate. Small amounts of sodium metabisulfite may be used to neutralize any trace amounts of peroxygen. For potable water systems, total residual peroxide must be less than 0.5 ppm before operations resume.

#### **ANTIMICROBIAL RINSE**

(Not Approved for Use in California)

PeroxySan X15 is effective against non-public health food and beverage spoilage microorganisms that can adversely affect product quality. These organisms include *Bacillus coagulans*, *Bacillus sporothermodurans*, *Clostridium butyricum*, *Alicyclobacillus acidoterrestris*, *Geobacillus stearothermophilus*, *Saccharomyces cerevisiae*, *Pediococcus damnosus* and *Lactobacillus malefermentans*



## FOR PRECLEANED FOOD-CONTACT SURFACES

(Not Approved for Use in California)

Prior to antimicrobial rinsing, remove gross food particles, then preclean surfaces or equipment with a good detergent or compatible cleaning solution and rinse with potable water. To reduce the number of non-public health food spoilage organisms, apply PeroxySan X15 at a concentration of 0.34 to 0.68 fl. oz. per 6 gallons of water at a temperature of 120 to 160 °F for at least five (5) minutes. Drain thoroughly. Do not rinse.

## PRECLEANED OR NEW RETURNABLE OR NON-RETURNABLE CONTAINERS:

(Not Approved for Use in California)

To reduce the number of beverage spoilage organisms apply PeroxySan X15 at a concentration of 3.2 to 9.2 fl. oz. per 10 gallons of water at a temperature of 15° to 60° C for at least fifteen (15) seconds. After thorough draining, rinse interior container surfaces with a disinfected water rinse free of pathogenic bacteria.

## CLEANER

### DETERGENT BOOSTER FOR ALKALINE DETERGENTS TO CLEAN FOOD PROCESSING EQUIPMENT

PeroxySan X15 is an effective oxygen bleach cleaning booster for use with alkaline detergents. It may be used as a cleaning additive for Clean-In-Place (CIP) operations involving the circulation cleaning of pipelines, tanks, vessels, evaporators, HTSTs, and other food processing equipment. For cleaning applications as a detergent booster, use 0.22 to 1.1 fl. oz. of this product per gallon of detergent use solution to aid in the removal of organic soils. All hard non-porous food contact surfaces treated with this boosted detergent must be rinsed thoroughly with a potable water rinse followed by sanitizing with an approved food contact surface sanitizer.

### DETERGENT BOOSTER FOR ACID DETERGENTS TO CLEAN FOOD PROCESSING EQUIPMENT

PeroxySan X15 is an effective oxygen bleach cleaning booster for use with acidic detergents. It may be used as a cleaning additive for Clean-In-Place (CIP) operations involving the circulation cleaning of pipelines, tanks, vessels, evaporators, HTSTs, and other food processing equipment. For cleaning applications as a detergent booster, use 0.22 to 1.1 fl. oz. of this product per gallon of detergent use solution to aid in the removal of organic soils. All hard non-porous food contact surfaces treated with this boosted detergent must be rinsed thoroughly with a potable water rinse followed by sanitizing with an approved food contact surface sanitizer.

## FOR TREATMENT OF (INDUSTRIAL) PROCESS WATERS IN FOOD FACILITIES

(Not Approved for Use in California)

Use this product to control spoilage microorganisms in industrial process waters. Mix PeroxySan X15 with water either batch wise or continuously to produce 2 - 30 ppm peroxyacetic acid in use solution. This can be accomplished by initially adding PeroxySan X15 at a rate from 0.15 to 2.12 fl. oz. per 100 gallons of process water. At this dilution, PeroxySan X15 will control the growth of spoilage and decay causing non-public health organisms, including odor-causing organisms, in industrial process waters.

## AGRICULTURAL AND HORTICULTURAL USES

The Restricted-Entry Interval after the use of PeroxySan X15 is zero (0) hours. This product must never be mixed or combined with any other pesticide or fertilizer. Upon soil contact, this product decomposes rapidly to oxygen and water. This product may be harmful to fish if exposed on a continuous basis at concentrations of 1 ppm or more of active peroxyacetic acid. Meter this product into pressurized pipes using a plastic or stainless steel injection/backflow device installed far enough upstream from the target equipment to ensure thorough mixing. For open flowing bodies of water, apply this product as far upstream as possible to allow adequate mixing prior to the flow entering any larger body of water. If open pouring of this product is required pour product as close to the surface of the water as possible to reduce odor exposure.

Spray lines, hoses and tank must be clean before using this product. Make sure no iron or yellow metals are in contact with the spray solution at any time. Only stainless steel or plastic contact materials may be used in your spray rig.

### Treatment of Irrigation Water Systems (Sand Filters, Humidification Systems, Storage Tanks, Ponds, Reservoirs, Canals)

For the control of odor, sulfides, slime and algae in water systems, apply PeroxySan X15 at 2-11 ppm peroxyacetic acid by weight. This feed rate equals 1.6 to 8.1fl. oz. of this product per 1,000 gallons of water. Repeat dose as necessary to maintain control, which will vary with seasonal conditions. For prevention of algae some systems may require continuous low level dosing (2-5 ppm peroxyacetic acid) during warm sunny periods.

### Drip Irrigation Systems

(Not Approved for Use in California)

To clean slime and algae from drip system tapes and emitters, meter PeroxySan X15 upstream at the rate of 2.65 to 5.1 fl. oz. per 1,000 gallons of water (3 - 7 ppm peroxyacetic acid). When required, during normal irrigation cycles, use this product at the recommended dose for a minimum of 30 minutes. After an irrigation cycle do not flush the lines.

### Greenhouses

(Not Approved for Use in California)

PeroxySan X15 can be used to suppress/control algae and slime formations in and around greenhouses for use in various process, irrigation or sprinkler watering systems. Treat contaminated water with a dilution of 1:6500 of PeroxySan X15. For maintenance, treat clean water with a dilution of 1:65,000 to 1:130,000 of PeroxySan X15 as needed, for the control of algae and bacteria. Heavily fouled systems, may need shock doses of up to 1:4,700 dilution.

Treat contaminated surfaces in greenhouse evaporative coolers with a dilution of 1:256 of PeroxySan X15 or 0.17 fl. oz. per 1 gallon of water. For maintenance, treat cooler water once a week with a dilution of 1:2,400 of PeroxySan X15 for every gallon of cooling water. For fungal control, increase maintenance rate to 1:14,700 to 1:29,400.

NOTE: This product at its use dilution is compatible with stainless steel and aluminum surfaces. If product is intended to be used on any other surface, it is recommended that you apply product to a small test area to determine compatibility before proceeding with its use.

### **FRUIT, VEGETABLE, AND NUT PROCESSING WATERS**

(Not Approved for Use in California)

#### **FOR TREATMENT OF RAW, UNPROCESSED FRUIT AND VEGETABLE SURFACES AND PROCESS WATER IN FOOD PROCESSING FACILITIES**

(Not Approved for Use in California)

Use PeroxySan X15 as a dip or spray to control non-public health microorganisms and prevent spoilage of raw post-harvest fruits and vegetables during the washing process. Apply PeroxySan X15 during the physical cleaning processes, including at the roller spreader, washer manifold, dip tank, on the brushes, or elsewhere in the washing process before, during or after a detergent wash.

1. Add 1 fl. oz. of PeroxySan X15 for every 16 gallons of potable water (85 ppm peroxyacetic acid) to prepare treatment solution.
2. Apply solution by soaking the fruits and vegetables or using a coarse spray directed at the fruits and vegetables.
3. Allow solution to remain in contact with fruits and vegetables for at least 45 seconds.
4. Treated produce can be drained and dried without a potable water rinse
5. Do not reuse solution.

#### **FOR TREATMENT OF PROCESSED FRUIT AND VEGETABLE AND PROCESS WATERS IN FOOD PROCESSING FACILITIES**

(Not Approved for Use in California)

Use PeroxySan X15 as a dip or spray to control non-public health microorganisms and prevent spoilage of processed fruits and vegetables.

1. Add 1.5 fl. oz. of PeroxySan X15 for every 25 gallons of potable water (80 ppm peroxyacetic acid) to prepare treatment solution.
2. Apply solution by soaking the fruits and vegetables or using a coarse spray directed at the fruits and vegetables.
3. Allow solution to remain in contact with fruits and vegetables for at least 45 seconds.
4. Treated produce can be drained and dried without a potable water rinse
5. Do not reuse solution.

#### **TREATMENT OF FRUIT AND VEGETABLE SURFACES AND PROCESS WATERS IN FOOD FACILITIES**

(Not Approved for Use in California)

This product is not intended for control of any public health organisms on fruit and vegetable surfaces. Mix PeroxySan X15 with water either batch-wise or continuously to produce about 27 - 96 ppm peroxyacetic acid by volume in use solution. This can be accomplished by initially adding PeroxySan X15 at a rate of 0.5 – 1.8 fl. oz. per 25 gallons of process water. The fruits and vegetables can be sprayed or submerged in the resulting solution for a minimum contact time of 45 seconds, followed by adequate draining. At this use dilution, PeroxySan X15 will control the growth of spoilage and decay causing non-public health organisms, including odor causing organisms, in process waters and on the surface of fruits and vegetables.

PeroxySan X15 can be used on the following types of fresh, post-harvest and further processed fruits and vegetables:

### Vegetables

- Root and tuber vegetables: Carrot, potato, radish, rutabaga, sweet potato, yam, sugar beet
- Leaves of root and tuber vegetables: Turnip greens and sugar beet
- Bulb vegetables: Onion (dry bulb and green), leek, garlic, shallot
- Leafy vegetables: Lettuce (head and leaf), celery, fennel, endive, escarole, parsley, radicchio, rhubarb, spinach
- *Brassica* leafy vegetables: Broccoli, Brussel sprouts, cabbage, cauliflower, mustard greens, mustard spinach
- Legumes [succulent or dried], bean (green, kidney, lima, mung, navy, pinto, snap, wax), pea (chickpea, lentil, dwarf, garden, English, field, edible pea pod), alfalfa, and soybean
- Fruiting vegetables: Pepper (bell, pimento, hot, sweet), tomato, tomatillo, eggplant
- Cucurbits: Cucumber, melon (cantaloupe, crenshaw melon, honeydew, honey ball melon, mango melon, muskmelon, pineapple melon, watermelon), summer squash, pumpkins, winter squash

### Fruits

- Citrus fruits: Sweet and sour orange, lemon, lime, tangelo, tangerine, mandarin, citrus citron, kumquats, grapefruit
- Pome fruits: Apples and pears
- Stone fruits: Sour and sweet cherry, peach, nectarine, plum, and prune
- Small Fruits and berries: Blackberries, blueberries, red and black raspberries

### Sprouts and Seeds

Sprouts and seeds of vegetables and fruits that are listed on this label including, root & tuber vegetables, bulb vegetables, leafy vegetables, *Brassica* leafy vegetables, legumes, fruiting vegetables, cucurbits, citrus fruits, pome fruits, stone fruits, small fruits and berries, mustard

### Tree Nuts

Almond, Brazil, filbert, cashew, pecan, walnut (black & English), macadamia, chestnut

### Cereal Grains

Corn, barley, oats, rice, wheat, triticale, wild rice, sweet corn

### Herbs and Spices

Basil, chives, coriander, dill, lemongrass, marjoram, sage, savory, tarragon, thyme

### Miscellaneous

Asparagus, avocado, artichoke, banana, cranberry, fig, grape, kiwifruit, mango, mushroom, okra, peanut, persimmon, pineapple, raisins, strawberry, water chestnut, watercress, coffee berry, coffee bean, seaweed

## **LIVESTOCK WATER**

(Not Approved for Use in California)

### **ALGAL AND SLIME-FORMING BACTERIAL GROWTH IN LIVESTOCK WATER STOCK TANKS AND LIVESTOCK WATER**

(Not Approved for Use in California)

PeroxySan X15 is for suppressing and controlling algae, odor causing and slime-forming bacteria and sulfides in stock tanks, stock watering ponds, tanks and troughs, and livestock water. Apply 0.4 to 2 fl. oz. of PeroxySan X15 per 250 gallons of water (2 – 11 ppm peroxyacetic acid) for algae control. Product can be simply added to the body of water. Where existing algae mats are present at time of treatment, the most effective control will be obtained by breaking up mats and/or evenly dispersing diluted PeroxySan X15 over the algae mats. Apply PeroxySan X15 as needed to control and prevent algae growth; apply more often in times of higher water temperatures.

Drip system application for livestock watering tanks: Tanks fed by a continuous flow of spring or well water can be equipped with a chemical drip system designed to meter-in PeroxySan X15 based upon water flow rates. Pre-dilute PeroxySan X15 at a 1:780 rate or 1.4-mL/minute water flow rate. Treat continuously or as needed to control and prevent algae regrowth.

### **POULTRY, SWINE, LIVESTOCK WATER LINE CLEANER WHEN SYSTEM IS NOT IN USE**

(Not Approved for Use in California)

To remove scale, mineral build up and heavy soils from livestock watering systems use PeroxySan X15 at 0.34 to 0.85 fl. oz. per gallon of water. Allow system to run for 6 to 24 hours depending on the conditions. Following the cleaning process, rinse with potable water to remove the cleaning solution from the watering line, nipples and cups.

### **POULTRY, SWINE, LIVESTOCK WATERING OPERATING SYSTEMS**

(Not Approved for Use in California)

After water lines have been cleaned, use PeroxySan X15 at 0.31 to 0.45 fl. oz. per 100 gallons of water to control algae and bacteria in drinking water and to control mineral build up in watering lines.