



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

December 18, 2018

Coleen Gerber
Registration Agent
PeroxyChem, LLC
2005 Market Street, Suite 3200
Philadelphia, PA 19103

Subject: Label Amendment – Revised For Treatment of Raw, Unprocessed Fruit and Vegetable Surfaces Claim
Product Name: VigorOx SP-15 Antimicrobial Agent
EPA Registration Number: 65402-3
Application Date: 07/27/2018
Decision Number: 543164

Dear Ms. Gerber:

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

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

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

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Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Terria Northern by phone at 703-347-0265, or via email at northern.terria@epa.gov.

Sincerely,



Zeno Bain, Product Manager 33
Regulatory Management Branch I
Antimicrobials Division (7510P)
Office of Pesticide Programs

Enclosure: Accepted label

VigorOx[®] SP-15 Antimicrobial Agent

EPA Registration No. 65402-3
EPA Est. No. 65402-NY-001

ACTIVE INGREDIENTS:

Peroxyacetic Acid 15%
Hydrogen Peroxide 10%

OTHER INGREDIENTS: 75%

TOTAL: 100%

**KEEP OUT OF REACH OF CHILDREN
DANGER [PELIGRO]**

Note to the reviewer: Bracketed statements will only be present on split-label products with agriculture uses.

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

VigorOx[®] SP-15 Antimicrobial Agent is for institutional/industrial sanitizing of previously cleaned non-porous food contact surfaces in:

- Dairies, Wineries, Breweries and Beverage Plants
- Meat and Poultry Processing/Packaging Plants
- Milk and Dairy Products Processing/Packing Plants
- Seafood and Produce Processing/Packing Plants
- Food Processing/Packing Plants
- Egg Processing/Packing Equipment Surfaces

VigorOx[®] SP-15 Antimicrobial Agent is for Institutional/ industrial sanitizing of previously cleaned non-porous food contact surfaces such as:

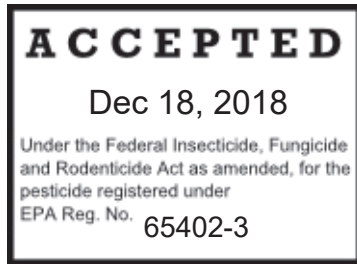
- Commercial Food Processing Utensils
- Plastic, Glass and Metal Bottles (rinse)

For Organic Production, **VigorOx[®] SP-15 Antimicrobial Agent** may be used in rinse or wash water on products labeled as organic in food processing facilities on commodities that will be further processed. For use as a sanitizer on food contact surfaces in contact with products labeled as organic.



Manufactured by:
PeroxyChem, LLC
2005 Market St Ste 3200
Philadelphia PA 19103-7014

Net Contents: 55 Gallons (208 L) 495 lbs (224 kg)



VigorOx[®] SP-15 Antimicrobial Agent is for use as a coarse spray for surfaces to be sanitized.

VigorOx[®] SP-15 Antimicrobial Agent can be used with the non-foaming agent, Peradigm[™], as an antimicrobial container rinse and for hard, non-porous surface sanitization and disinfection.

VigorOx[®] SP-15 Antimicrobial Agent is for sanitizing surfaces such as packinghouse conveyers and harvesting equipment and containers. It is effective against plant pathogens: *Xanthomonas campestris* (*axonopodis*) pathovars citrumelo (citrus canker surrogate).

VigorOx[®] SP-15 Antimicrobial Agent is for sanitization of hatching eggs.

VigorOx[®] SP-15 Antimicrobial Agent is for sanitization of shell eggs.

VigorOx[®] SP-15 Antimicrobial Agent is for porous and non-porous hard surface sterilization except aseptic packaging which is limited to hard surfaces only.

VigorOx[®] SP-15 Antimicrobial Agent is for use in the disinfection of hard surfaces and as an antimicrobial rinse of Pre-cleaned or New Returnable or Non-Returnable Containers.

VigorOx[®] SP-15 Antimicrobial Agent can be used for reducing pathogenic foodborne bacteria in processing waters for fruits and vegetables.

VigorOx[®] SP-15 Antimicrobial Agent is for use as a dip or spray wash, or fog to control the growth of non-public health microorganisms that may cause decay and/or spoilage on raw, post-harvest and fresh cut, fruits and vegetables.

VigorOx[®] SP-15 Antimicrobial Agent is for use in process water that contacts raw, post-harvest, fresh-cut and processed fruits and vegetables.

VigorOx[®] SP-15 Antimicrobial Agent is for use in aseptic food processing on food packaging materials to achieve commercial sterility.

VigorOx[®] SP-15 Antimicrobial Agent may be used to clean poultry, swine, livestock water systems when the system is not in use.

VigorOx[®] SP-15 Antimicrobial Agent may be used to clean poultry, swine, livestock watering operating systems (when animals are present).

VigorOx[®] SP-15 Antimicrobial Agent may be used for the control of algal and slime forming bacterial growth in livestock water.

VigorOx[®] SP-15 Antimicrobial Agent is for use in agricultural water and irrigation systems.

VigorOx SP-15 Antimicrobial Agent is for sanitizing surfaces of harvesting equipment used in the aquaculture industry.

VigorOx SP-15 Antimicrobial Agent is for cleaning and disinfecting fish culture tanks and raceways when water is drained and fish are not present.

VigorOx SP-15 Antimicrobial Agent is for sanitizing hard, non-porous, non-edible outside surfaces of airtight, sealed packages containing food or non-food products.

VigorOx[®] SP-15 Antimicrobial Agent may be used for the non-pesticidal purpose of cleaning room surfaces by fogging.

Precautionary Statements

Hazards to Humans and Domestic Animals

DANGER

Corrosive, causes eye and skin damage. Harmful if swallowed. Do not get in eyes, on skin or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses), chemical resistant apron or coveralls and chemical resistant gloves when handling concentrate. Wash thoroughly with soap and water after handling. Do not breathe vapor or spray mist. Do not enter an enclosed area without proper respiratory protection.

Physical or Chemical Hazards

Strong oxidizing agent. Mix only with water. VigorOx® SP-15 Antimicrobial Agent is not combustible; however, at temperatures exceeding 156°F, decomposition occurs, releasing oxygen. The oxygen released could initiate or promote combustion of other materials.

Note to the reviewer: The following bracketed statements will only be present on split-label products with agriculture uses.

[Personal Protective Equipment (PPE)]

Handlers who may be exposed to the undiluted product through mixing, loading, application, or other tasks must wear: coveralls over long-sleeved shirt and long pants, rubber gloves, chemical resistant footwear plus socks, and protective eyewear (goggles or face shield).

Handlers who may be exposed to the diluted product during application or other tasks must wear: long-sleeved shirt, long pants, socks, and shoes.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations

Users should remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.]

Environmental Hazards

This pesticide is toxic to birds, mammals, fish and aquatic invertebrates. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with 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.

Any solution released from the system should be diluted with water and tested for residuals to ensure that there is less than 3 ppm peroxygen remaining.

First Aid

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

If in eyes

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

If swallowed

- Call 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.

Note to Physician: Probable mucosal damage may contraindicate the use of gastric lavage.

STORAGE AND DISPOSAL

STORAGE: NEVER RETURN VigorOx® SP-15 Antimicrobial Agent TO THE ORIGINAL CONTAINER AFTER IT HAS BEEN REMOVED. Avoid all contaminants, especially dirt, caustic, reducing agents, and metals. Contamination and impurities will reduce shelf life and can induce decomposition. In case of decomposition, isolate container, douse container with cool water and dilute with large volumes of water.

Avoid damage to containers. Keep container closed at all times when not in use. Keep container out of direct sunlight. To maintain product quality, store at temperatures below 86°F. Do not store on wooden pallets.

Procedure for Leak or Spill

Stop leak if this can be done without risk. Shut off ignition sources; no flames, smoking, flares, or spark producing tools. Keep combustible and organic materials away. Flush spilled material with large quantities of water. Undiluted material should not enter confined spaces.

DISPOSAL

Pesticide Disposal

If material has been spilled, an acceptable method of disposal is to dilute with at least 20 volumes of water followed by discharge into suitable treatment system in accordance with all local, state, and Federal environmental laws, rules, regulations, standards, and other requirements. Because acceptable methods of disposal may vary by location, regulatory agencies should be contacted prior to disposal.

VigorOx® SP-15 Antimicrobial Agent which is to be discarded should be disposed of as hazardous waste after contacting the appropriate local, state, or Federal agency to determine proper procedures.

Container Disposal

Nonrefillable containers less than 5 gallons. Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container (or equivalent) 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.

Nonrefillable containers greater than or equal to 5 gallons. Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available. Triple rinse container (or equivalent) 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. Empty drums are not returnable to PeroxyChem, LLC unless special arrangements have been made. Dispose of drums in accordance with local, state, and Federal regulations.

All Refillable containers. 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. Return to PeroxyChem, LLC for reuse.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. [Do not apply this product in a way that will contact workers or persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide regulation.]

Note to the reviewer: The following bracketed statements will only be present on split-label products with agriculture uses.

[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), restricted entry interval, and notification to workers. The requirements in this box only apply to the uses of this product that are covered by the Worker Protection Standard.

A Restricted-Entry-Interval of zero (0) hours is required for VigorOx® SP-15 Antimicrobial Agent in agricultural or horticultural uses.

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

Non-Agricultural Use Requirements

The requirements in this box apply to uses of the product that are **not** within the scope of the Worker Protection 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.]

Aseptic Food Processing Operations

This product may be used to achieve commercial sterility of food packaging prior to fill and of equipment used in aseptic food processing applications.

Food Packaging Materials

Apply VigorOx® SP-15 Antimicrobial Agent on the exterior and interior of food containers and closure systems (caps, seals, etc.). Apply 4000 ppm peroxyacetic acid at a minimum temperature of 65°C. The solution must remain in contact with the packaging surface for a minimum of 20 seconds. Rinse containers with sterile water prior to filling with processed food; in lieu of a rinse, films may be mechanically stripped of excess sanitizing solution.

For a fine mist or vapor application, no rinse of treatment solution is required: (1) solution application does not exceed 0.0175 mL treatment solution per ounce container capacity; (2) treatment solution has not been recycled; and (3) no treatment solution with a concentration of higher than 4000 ppm peracetic acid has been added to the treatment solution reservoir.

This product may be used on food packaging as an aseptic packaging antimicrobial rinse in food packaging processing operation that has a scheduled process accepted by FDA. The aseptic food processing operation must comply with all applicable FDA regulations, including but not limited to 21 CFR parts 108, 110, 113, and/or 114. Use in an aseptic food processing operation includes testing required for the process validation.

Food Processing Equipment

This product may be used to achieve commercial sterility of non-porous food manufacturing, packaging and filling equipment.

MASTER LABEL

VigorOx® SP-15 Antimicrobial Agent may be used as a manufacturing, filling (including rotary fillers) and packaging equipment.

1. Remove gross soil particles from equipment surfaces.
2. Clean surfaces thoroughly.
3. Rinse thoroughly with potable water.
4. Apply 4000 ppm peroxyacetic acid at a minimum temperature of 65 °C.
5. Use immersion, coarse spray or circulation techniques to apply VigorOx® SP-15 Antimicrobial Agent. Automated application by fine mist or vapor deposition may be used within enclosed spaces.
6. Allow contact time of at least 20 seconds.
7. Allow to drain dry.
8. A final rinse with sterile water is optional.

This product may be used on equipment used in aseptic packaging antimicrobial rinse in food processing operation that has a scheduled process accepted by FDA. The aseptic food processing operation must comply with all applicable FDA regulations, including but not limited to 21 CFR parts 108, 110, 113, and/or 114. Use in an aseptic food processing operation includes testing required for the process validation.

Sanitization of Non-Porous Food Contact Surfaces

For use in circulation cleaning and institutional/industrial sanitizing of previously cleaned non-porous food contact surfaces and equipment, such as pipelines, tanks, vats, fillers, evaporators, pasteurizers, and aseptic equipment in:

- Dairies, Wineries, Breweries and Beverage Plants
- Meat and Poultry Processing/Packaging Plants
- Milk and Dairy Products Processing/Packing Plants
- Seafood and Produce Processing/Packing Plants
- Food Processing/Packing Plants
- Egg Processing/Packing Equipment Surfaces, and
- Final Sanitizing Bottle Rinse

Pathogenic Organisms

VigorOx® SP-15 Antimicrobial Agent is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, *Listeria monocytogenes* and *Salmonella typhimurium*.

Clean equipment immediately after use:

1. Remove gross particulate matter with a warm water flush.
2. Wash equipment with detergent or cleaning solution.
3. Rinse equipment with potable water.
4. Prepare VigorOx® SP-15 Antimicrobial Agent solution by adding 0.31 to 0.45 fluid ounces to 5 gallons potable water. This provides 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide.
5. If sanitizing against *Listeria monocytogenes* use 0.4 to 0.45 fluid ounces (109 to 123 ppm peroxyacetic acid and 73 to 82 ppm hydrogen peroxide) of product to 5 gallons of potable water.
6. Fill closed systems with diluted sanitizer solution for a contact time of one (1) minute.
7. For open or not completely closed systems, use a coarse spray, mop/wipe or flood technique to apply the solution to the surface for a contact time of one (1) minute.
8. Allow surfaces to drain thoroughly before resuming operation.

Non-Pathogenic Spoilage Organisms

VigorOx® SP-15 Antimicrobial Agent is an effective sanitizer against non-pathogenic spoilage organisms: yeasts, molds.

Clean equipment immediately after use:

1. Remove gross particulate matter with a warm water flush.
2. Wash equipment with detergent or cleaning solution.
3. Rinse equipment with potable water.
4. To control non-pathogenic organisms, a rate of up to 1.8 fluid ounces to 5 gallons potable water may be used. This will provide 500 ppm peroxyacetic acid and 325 ppm hydrogen peroxide.
5. Fill closed systems with diluted sanitizer solution for a contact time of one (1) minute or more.
6. For open or not completely closed systems, use a coarse spray, mop/wipe or flood technique to apply the solution to the surface for a contact time of one (1) minute or more.
7. Allow surfaces to drain thoroughly before resuming operation.

For use with the non-foaming agent, Peradigm™

VigorOx® SP-15 Antimicrobial Agent may be mixed with the non-foaming agent, Peradigm™ and applied at room temperature or at a minimum of 25 °C.

1. Mix 0.5 fluid ounce VigorOx® SP-15 Antimicrobial Agent with Peradigm in 4.5 gallons of water.
2. Add a maximum of 43 fluid ounces of Peradigm to the dilute solution, and bring total volume to 5 gallons. This provides 125 ppm peroxyacetic acid and 85 ppm hydrogen peroxide.
3. Apply solution, allowing a minimum contact time of 30 seconds.
4. Rinse with sterile or potable water.

Sanitizing Hard, Non-Porous, Non-Edible Outside Surfaces of Airtight, Sealed Packages Containing Food or Non-Food Products

VigorOx® SP-15 Antimicrobial Agent may be used as a final sanitizing rinse for hard, non-porous non-edible outside surfaces of airtight, sealed packages containing food or non-food products at a dilution of 0.31-1.83 fluid ounces per 5 gallons of potable water. This provides 85-500 ppm peroxyacetic acid. The treated hard, nonporous 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 sanitizing solution for at least one (1) minute. Drain thoroughly. No rinse necessary. This is not to be used on porous surfaces.

Sanitizing Food Processing Utensils

VigorOx® SP-15 Antimicrobial Agent is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, *Listeria monocytogenes* and *Salmonella typhimurium* in commercial food processing facilities. This product is not for use in cafeteria settings.

1. Scrape/prewash utensils whenever possible.
2. Wash all items with a detergent.
3. Rinse thoroughly with potable water.
4. Prepare VigorOx® SP-15 Antimicrobial Agent solution as follows: Add 0.31 to 0.45 fluid ounces of the product to 5 gallons of potable water. This will provide 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide.
5. Immerse all items for at least one (1) minute or for a longer contact time if specified by the local governing sanitizing code.
6. If sanitizing against *Listeria monocytogenes* use 0.4 to 0.45 fluid ounces (109 to 123 ppm peroxyacetic acid and 73 to 82 ppm hydrogen peroxide) of product to 5 gallons of potable water.
7. Place all sanitized items on a rack or drainboard to drain adequately. Air dry if items will not be reused immediately.

Final Sanitizing Bottle Rinse

VigorOx® SP-15 Antimicrobial Agent may be used as a final sanitizing 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 0.31 to 0.45 fluid ounces of VigorOx™ SP-15 Antimicrobial Agent to 5 gallons of potable water. This provides 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide. Allow to drain dry.

Sanitization of Hatching Eggs

1. Prepare a dilute solution by adding 0.31 to 0.45 fluid ounces of VigorOx® SP-15 Antimicrobial Agent to 5 gallons of potable water. This provides 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide.
2. Apply dilute solution as eggs are gathered or prior to setting as a vapor, coarse spray or flood so as to lightly wet all egg shell surfaces.
3. Allow to drain dry.

Sanitization of Shell Eggs

To sanitize clean shell eggs intended for food or food products:

1. Prepare a dilute solution by adding 0.31 to 0.45 fluid ounces of VigorOx® SP-15 Antimicrobial Agent to 5 gallons of potable water. This provides 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide.

MASTER LABEL

- The dilute solution must be equal to or warmer than the eggs, but not to exceed 130F.
- Apply dilute solution as eggs are gathered as a vapor, coarse spray or flood. Wet eggs thoroughly.
- Allow to drain.
- Eggs should be reasonably dry before casing or breaking.
- The solution must **not** be reused for sanitizing eggs.

This product can be used in Federally Inspected Meat and Poultry facilities as a sanitizer.

Sanitization of Conveyors, Peelers, Slicers, and Saws for Meat, Poultry, Seafood, Fruits, and Vegetables

VigorOx® SP-15 Antimicrobial Agent is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, *Salmonella typhimurium*, and *Listeria monocytogenes*.

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

- Remove all products from equipment unless treating only the return portion of a conveyor.
- Prepare VigorOx® SP-15 Antimicrobial Agent solution by adding 0.31 to 0.45 fluid ounces to 5 gallons of potable water. This provides 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide.
- Apply sanitizer 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 so as to permit maximum drainage and to prevent puddles. The conveyor surface may still be damp when food contact occurs.
- If sanitizing against *Listeria monocytogenes* use 0.4 to 0.45 fluid ounces (109 to 123 ppm peroxyacetic acid and 73 to 82 ppm hydrogen peroxide) of product to 5 gallons of potable water.
- Allow equipment to drain adequately before reusing; a dry surface is not required.

Surfaces Treated to Control the Spread of Citrus Canker

VigorOx® SP-15 Antimicrobial Agent can be used to control the spread of citrus canker between inanimate surfaces and inanimate surfaces to plants. This product is for sanitizing surfaces such as packinghouse conveyers and harvesting equipment and containers. This product is not for treatment of infected plants.

Packinghouse Sanitization

VigorOx® SP-15 Antimicrobial Agent is an effective sanitizer against microorganisms: *Xanthomonas campestris (axonopodis)* pathovars citrumelo (citrus canker surrogate) and *Aspergillus versicolor*, as well as *Staphylococcus aureus*, *Escherichia coli*, and *Salmonella typhimurium*.

- Remove gross contamination with a cleaner or other suitable detergent and rinse with potable water.
- Use VigorOx® SP-15 Antimicrobial Agent at a dilution of 3.1 fluid ounces per 50 gallons of water (85 ppm peroxyacetic acid and 57 ppm hydrogen peroxide) as a general sanitizing coarse spray to reduce bacterial and fungal contamination of walls, floors, conveyers and harvesting containers.
- Allow sanitizer to contact surface for at least one (1) minute.
- Allow to air dry, do not rinse.

Field Equipment Sanitization

VigorOx® SP-15 Antimicrobial Agent may be used to sanitize harvest equipment such as pickers, trailers, trucks (including truck body parts and tires), bins, packing crates, ladders, power tools, hand tools, gloves, rubber boots, pruning shears or other equipment that may transfer *Xanthomonas campestris (axonopodis)* pathovars citrumelo (citrus canker surrogate). This product can also be used to sanitize surfaces contaminated with *E. coli*, *Salmonella typhimurium*, and *S. aureus*. VigorOx SP-15 Antimicrobial Agent may be used to sanitize harvest equipment used in the aquaculture industry such as nets, seines, trailers, trucks (including truck body parts and tires), or other non-porous equipment that may be a source of microbial contaminants.

- Before sanitization, move the field equipment into an area with an impervious surface and with controlled drainage. Ensure that no sanitization solution will be released into the environment.
- Remove gross contamination with a cleaner or other suitable detergent and rinse with water.

- Use VigorOx® SP-15 Antimicrobial Agent at a dilution of 3.1 to 5.0 fluid oz per 50 gallons of water (85 to 135 ppm peroxyacetic acid and 57 to 90 ppm hydrogen peroxide) as a general sanitizing coarse spray.
- Allow sanitizer to contact surface for at least one (1) minute.
- Allow to air dry, do not rinse.

Surface Disinfection

VigorOx® SP-15 Antimicrobial Agent is an effective one-step cleaner and disinfectant against gram positive and negative bacteria (vegetative forms): *Staphylococcus aureus*, *Salmonella enterica*, *Pseudomonas aeruginosa* and viruses: Norovirus and *Legionella pneumophila*. It is effective in hard water (up to 400 ppm as calcium carbonate equivalent), and in the presence of moderate organic soil. It may be used to clean, disinfect, and deodorize inanimate surfaces, such as:

- Floors, walls, and other non-porous surfaces such as tables, chairs, counter tops, garbage cans/bins, sinks, shelves, racks, carts, refrigerators, coolers, glazed tile, linoleum, vinyl, sealed asphalt, glazed porcelain, plastic (such as polypropylene and polyethylene), stainless steel or glass.
- Areas of use in-poultry premises, trucks, hatcheries, and live stock quarters.
- Fish culture tanks and raceways when water is drained and fish are not present. Rinse surfaces with potable water before reintroducing fish.

To Control Bacteria listed above: Prepare VigorOx® SP-15 Antimicrobial Agent disinfecting solution by adding 1.1 to 9.5 fluid ounces of the product to 5 gallons of potable water. This will provide 300 to 2600 ppm peroxyacetic acid and 200 to 1730 ppm hydrogen peroxide. For visibly soiled surfaces, remove filth from surfaces to be disinfected by cleaning with a detergent or suitable cleaning product. Rinse with clean water. To disinfect, apply VigorOx® SP-15 Antimicrobial Agent by wiping, mopping, or as a coarse spray. Allow to soak for at least 10 minutes, then air dry.

VigorOx® SP-15 Antimicrobial Agent may be mixed with the non-foaming agent, Peradigm™.

- Prepare a diluted solution of VigorOx® SP-15 Antimicrobial Agent by adding a minimum of 1.0 fluid ounce to 4.5 gallons of water.
- Add a maximum of 43 fluid ounces of Peradigm to the dilute solution, and bring total volume to 5 gallons.
- Apply solution as previously described, allowing a minimum contact time of 10 minutes.

To Control Norovirus: Prepare VigorOx® SP-15 Antimicrobial Agent disinfecting solution by adding 3.0 fluid ounces of the product to 5 gallons of potable water. This will provide 800 ppm peroxyacetic acid and 530 ppm hydrogen peroxide. For visibly soiled surfaces, remove filth from surfaces to be disinfected by cleaning with a detergent or suitable cleaning product. Rinse with clean water. To disinfect, apply VigorOx® SP-15 Antimicrobial Agent by wiping, mopping, or as a coarse spray. Allow to soak for at least 5 minutes, then air dry.

To Control Legionella pneumophila for hard, non-porous surfaces: Prepare VigorOx® SP-15 Antimicrobial Agent disinfecting solution by adding 1.1 fluid ounces of the product to 5 gallons of potable water. This will provide 300 ppm peroxyacetic acid and 200 ppm hydrogen peroxide. For visibly soiled surfaces, remove filth from surfaces to be disinfected by cleaning with a detergent or suitable cleaning product. Rinse with clean water. To disinfect, apply VigorOx® SP-15 Antimicrobial Agent by wiping, mopping, or as a coarse spray. Allow to soak for at least 10 minutes, then air dry.

Antimicrobial Rinse of Pre-cleaned or New Returnable or Non-Returnable Containers

To reduce the number of nonpathogenic beverage spoilage organisms: *Aspergillus versicolor*, *Byssoschlamys fulva*, *Pediococcus damnosus*, *Lactobacillus buchneri*, and *Saccharomyces cerevisiae*, use 1 to 10 fluid ounces of product per 5 gallons of water. This provides 265 to 2700 ppm peroxyacetic acid and 175 to 1800 ppm hydrogen peroxide.

After applying the antimicrobial rinse, allow containers to drain thoroughly. Optional rinse with sterile or potable water.

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VigorOx® SP-15 Antimicrobial Agent may be mixed with the non-foaming agent, Peradigm™ and applied at room temperature or at a minimum of 25 °C.

1. Mix a minimum of 0.5 fluid ounce VigorOx® SP-15 Antimicrobial Agent with Peradigm in 4.5 gallons of water.
2. Add a maximum of 43 fluid ounces of Peradigm to the dilute solution, and bring total volume to 5 gallons. This provides 125 ppm peroxyacetic acid and 85 ppm hydrogen peroxide.
3. Apply solution, allowing a minimum contact time of 30 seconds.
4. Rinse with sterile or potable water.

For Porous and Non-porous Hard Surface Sterilization

VigorOx® SP-15 Antimicrobial Agent may be used to sterilize both porous and non-porous hard surfaces in food-processing facilities where sterilization is required. It is effective in the presence of 400 ppm hard water (measured as calcium carbonate equivalent) and moderate organic soil (tested as 5% serum).

1. Remove gross filth with a suitable detergent if present. Rinse with clean water.
2. Mix 2.5 fluid ounces VigorOx® SP-15 Antimicrobial Agent per gallon of clean water. This provides 3400 ppm of peroxyacetic acid and 2240 ppm of hydrogen peroxide.
3. Spray, sponge or flood to wet all surfaces thoroughly. Solution must remain in contact with surface for 6 hours. Reapply solution to surfaces as necessary to maintain wet conditions.
4. Rinse food-contact surfaces with a sterile or potable water rinse, followed by application of a sanitizing solution of VigorOx® SP-15 Antimicrobial Agent.
5. Do not re-use solution; prepare new solution each time.

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

For Reducing Pathogenic Foodborne Bacteria in Processing Waters for Fruits and Vegetables

VigorOx® SP-15 Antimicrobial Agent can be used for reducing (in 90 seconds) 99.9% of pathogenic food borne bacteria (*Escherichia coli*, *Salmonella enterica*, and *Listeria monocytogenes*) in processing waters for fruits and vegetables.

1. Ensure the solution is thoroughly mixed.
2. Add VigorOx® SP-15 Antimicrobial Agent at a dilution of 0.54 fluid ounce per 16 gallon of water. This provides approximately 45 ppm peroxyacetic acid and 30 ppm hydrogen peroxide.
3. Allow the solution to circulate at least 45 seconds before adding or treating raw, fresh-cut or processed fruits and vegetables.
4. Add concentrate as needed to maintain a minimum product concentration of 45 ppm peroxyacetic acid.
5. Prepare fresh process water daily. Do not reuse water that is badly fouled.

For Treatment of Processing Waters to Control Growth of Non-Public Health Microorganisms that Can Cause Spoilage of Fresh-Cut, Post-Harvest or Processed Fruits and Vegetables

1. Ensure the solution is thoroughly mixed.
2. Add VigorOx® SP-15 Antimicrobial Agent at a dilution of 0.1 fluid oz. to 1.0 fluid oz. per 16 gallons of water. This provides 5 to 85 ppm peroxyacetic acid and 4 to 57 ppm hydrogen peroxide.
3. Allow the solution to circulate at least 45 seconds before adding or treating raw, fresh-cut or processed fruits and vegetables.
4. Add concentrate as needed to maintain a concentration of at least 5 ppm peroxyacetic acid and 4 ppm hydrogen peroxide.
5. Prepare fresh process water daily. Do not reuse water that is badly fouled.

For Treatment of Processed Fruit and Vegetable Surfaces and Process Water to Control Growth of Non-Public Health Microorganisms that Can Cause Spoilage

1. Add VigorOx® SP-15 Antimicrobial Agent at a dilution of 1.5 fluid ounces per 25 gallons of water. Ensure that the solution is thoroughly mixed. This provides 80 ppm of peroxyacetic acid and 50 ppm of hydrogen peroxide.
2. Apply the prepared solution as a spray or dip. Allow a minimum contact time of 45 seconds. No rinse following application is required. This use complies with the requirements at 21 C.F.R. 173.315 (a) (5). A potable water rinse is not required following application of the diluted solution.

For Treatment of Raw, Unprocessed Fruit and Vegetable Surfaces (Not approved for CA)

VigorOx® SP-15 Antimicrobial Agent can be applied as a dip or spray to control the growth of non-public health microorganisms: *Xanthomonas campestris (axonopodis)* pathovars citrumelo (citrus canker surrogate) and *Aspergillus versicolor*, blue mold (*Penicillium* species), green mold (*Penicillium* species) and stem-end rot (*Geotrichium*) that may cause decay and/or spoilage on raw, post-harvest fruits and vegetables during the washing process. This product can be applied during physical cleaning processes, including at the roller spreader, washer manifold, dip tank, on the brushes or elsewhere in the washing process prior to, simultaneously with or after detergent wash.

1. Prepare treatment solution by adding 1.0-6.0 fluid ounces per 16 gallons of potable water. This will provide 85-500 ppm peroxyacetic acid and 57-330 ppm hydrogen peroxide.
2. Apply the diluted sanitizer solution using a coarse spray directed at the fruits or vegetables, or by soaking the fruits or vegetables in the solution. Allow a contact time of at least 45 seconds.
3. The treated produce can be drain dried without a potable water rinse.
4. Prepare fresh process water daily. Do not reuse water that is badly fouled.

VigorOx® SP-15 Antimicrobial Agent can be used on the following raw and post-harvest fruits and vegetables

Fruits

- Citrus fruits: citrus citron, citrus hybrids, grapefruit, kumquat, lemon, lime, mandarine (tangerine), orange, and pummelo
- Pome fruits: apple, crabapple, mayhaw, pear, and quince
- Stone fruits: apricot, cherry, nectarine, peach, plum, and prune
- Berries group: blackberry, blueberry, currant, cranberry, grape, honeysuckle, kiwifruit, serviceberry, raspberry, and strawberry

Vegetables

- Root & tuber vegetables: artichoke (Chinese and Jerusalem), beet, carrot, chicory, ginger, ginseng, horseradish, parsley, potato, radish, rutabaga, salsify, sweet potato, and yam
- Leaves of root and tuber vegetables: beet, carrot, celeriac, chicory, radish, rutabaga, sweet potato, turnip and yam
- Bulb vegetables: chive, garlic, leek, onion, and shallot
- Leafy vegetables: arugula, celery, endive, fennel, lettuce, parsley, radicchio, rhubarb, spinach, and swiss chard
- *Brassica* leafy vegetables: broccoli, Brussels sprouts, cabbage, cauliflower, collards, kale, and mustard greens
- Legumes: bean, chickpea, guar, lentil, pea, and soybean
- Fruiting vegetables: eggplant, pepper, tomatillo, and tomato
- Cucurbits: citron melon, cucumber, gourd, *Momordica* spp., muskmelon, pumpkin, and squash, and watermelon

Sprouts and seeds of: Fruits and Vegetables that are listed on this label including citrus fruits, pome fruits, stone fruits, berries group, root & tuber vegetables, bulb vegetables, leafy vegetables, *Brassica* leafy vegetables, legumes, and fruiting vegetables.

Other

- Tree nuts: almond, beech nut, brazil nut, butternut, cashew, chestnut, filbert, hickory nut, macadamia nut, pecan, walnut
- Cereal grains: Barley, buckwheat, corn, millet, oats, popcorn, rice, rye, sorghum, teosinte, triticale, wheat, and wild rice
- Herbs and spices: Allspice, anise, balm, basil, chive, celery seed, clove buds, cinnamon, coriander, cumin, curry, and dill (including

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seed), fennel, lavender, lemongrass, lovage, pepper, nutmeg, rosemary, saffron, sage, taragon, thyme, and vanilla

- Edible fungi: mushroom and truffle
- Miscellaneous fruits and vegetables: asparagus, avocado, banana, fig, globe artichoke, hops, mango, okra, papaya, pawpaw, peanut, persimmon, pineapple, water chestnut, and watercress.

VigorOx® SP-15 Antimicrobial Agent can be applied by fogging to control the growth of non-public health microorganisms that may cause decay and/or spoilage on raw, post-harvest fruits and vegetables during the post-harvest process.

1. Ensure room is properly ventilated. Vacate all personnel from room during fogging and for a minimum of 2 hours after fogging. Ensure there is no strong odor characteristic of acetic acid before having personnel return to work area. Do not enter room until hydrogen peroxide concentrations are correctly tested and are below 1 ppm on a time weighted average.
2. Fog area using one quart of a 0.06% solution (1.0 fluid ounce per 16 gallons of water) per 1,000 cu. ft. of room volume. Allow surface to drain thoroughly before operations are resumed.

Cleaning Poultry, Swine, Livestock Water Systems When the System is Not in Use

To remove scale, calcium, iron, magnesium, heavy soils, polysaccharides and deposits from vitamins and medications from livestock watering systems use VigorOx® SP-15 Antimicrobial Agent at 0.15-0.30 fl. oz. per gallon of water. When used as directed, VigorOx® SP-15 Antimicrobial Agent will remove organic and inorganic deposits that reduce water flow and clog nipples. Allow system to run for 6 - 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. Never mix VigorOx® SP-15 Antimicrobial Agent with any other product.

Cleaning Poultry, Swine, Livestock Watering Operating Systems (When Animals are Present)

After water lines have been cleaned, use VigorOx® SP-15 Antimicrobial Agent at 0.3-0.45 fl. oz. per 100 gallons of water to control mineral build up in watering lines. Never use VigorOx® SP-15 Antimicrobial Agent more than 5 consecutive days to clean the operating system. Never mix VigorOx® SP-15 Antimicrobial Agent with any other product. If cleaning the operating system, stop the use of VigorOx® SP-15 Antimicrobial Agent twenty-four (24) hours prior to vaccination or medication via the water line.

Control of Algal and Slime Forming Bacterial Growth in Livestock Water

Stock Tanks and Livestock Water

Use VigorOx® SP-15 Antimicrobial Agent to suppress / control 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 2.0 fluid ounces of VigorOx® SP-15 Antimicrobial Agent per 250 gallons of water (2 – 11 ppm of 100% 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 VigorOx® SP-15 Antimicrobial Agent over the algae mats. Apply VigorOx® SP-15 Antimicrobial Agent 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 VigorOx® SP-15 Antimicrobial Agent based upon water flow rates. Pre-dilute VigorOx® SP-15 Antimicrobial Agent at a 1:265 rate or 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

To remove scale, mineral build up and heavy soils from livestock watering systems use VigorOx® SP-15 Antimicrobial Agent at 0.15-0.3 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

After water lines have been cleaned, use VigorOx® SP-15 Antimicrobial Agent at 0.3-0.42 fl. oz. per 100 gallons of water to control algae and bacteria in drinking water and to control mineral build up in watering lines.

Agricultural and Horticultural Uses

A Restricted-Entry-Interval of zero (0) hours is required for VigorOx® SP-15 Antimicrobial Agent in agricultural or horticultural uses. This product should not be mixed or combined with any pesticides or fertilizers. Upon soil contact, the diluted product decomposes rapidly to oxygen, carbon dioxide and water. This product may be harmful to fish if exposed on a continuous basis at concentrations greater than 1 ppm of active peroxyacetic acid. Meter VigorOx® SP-15 Antimicrobial Agent into pressurized pipes using a plastic or stainless steel injection/backflow device installed upstream from the equipment to ensure thorough mixing prior to application. For open bodies of water, allow adequate mixing prior to product flow entering any body of water. If open pouring of this product is required, pour product close to the surface of the water as possible to reduce odor and exposure.

Treatment of Agricultural and Irrigation Water Systems

Use VigorOx® SP-15 Antimicrobial Agent to control sulfides, odor, slime, and algae in sand filters, humidification systems, storage tanks, ponds, reservoirs, canals. Apply VigorOx® SP-15 Antimicrobial Agent at 15 to 75 fluid ounces per 10,000 gallons of water. This provides 2 ppm to 10 ppm peroxyacetic acid. Repeat dose as necessary to maintain control. For prevention of algae, some systems may require continuous low level dosing during warm, sunny periods (2 ppm to 5 ppm peroxyacetic acid).

Drip Irrigation Systems

To clean slime and algae from drip system filters, tapes and emitters, meter VigorOx® SP-15 Antimicrobial Agent at 7.5 to 15 fluid ounces per 1000 gallons. This provides 10 ppm to 20 ppm peroxyacetic acid. Use this product at the recommended dose for a minimum of 30 minutes during normal irrigation cycles. Upon irrigation cycle completion, discontinue use and flush the lines.

In all applications always prepare a new solution daily to ensure effectiveness. Do not re-use solutions. Dispose of unused solution.

Non-Pesticidal Cleaning

All surfaces must be cleaned and disinfected in accordance with label directions prior to fogging.

1. Prior to fogging, remove or carefully protect all food products and packaging materials.
2. Vacate the area of all personnel prior to, during, and after fogging until the hydrogen peroxide concentration is below 0.5 ppm. Ensure room is properly ventilated after fogging.
3. Fog areas using one quart per 1000 cu. ft. of room area with a 0.30% (3.8 fluid ounces per 10 gallons of water) VigorOx® SP-15 Antimicrobial Agent solution.
4. Allow surfaces to drain thoroughly before operations are resumed.

Note: May cause bleaching of treated surfaces; test commodity if unsure.

Note: Before using VigorOx® SP-15 Antimicrobial Agent on metal surfaces, it is recommended that the diluted solution be tested on a small area to determine compatibility.

EMERGENCY TELEPHONE NUMBERS (24 HOURS)

MEDICAL: COLLECT 303-595-1409

TRANSPORTATION: 800-424-9300

OTHER: COLLECT 716-879-0400