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PERIOD 2014-2016 LIC. NO.

PERIOD 2011-2013 LIC. NO.

PERIOD 2008-2010 LIC. NO.

8342.8

VigorOx[®] LS-15

EPA Registration No. 65402-3
EPA Est. No. 00279-NY-003

For Industrial Use Only

Active Ingredients:	Peroxyacetic Acid	15%
	Hydrogen Peroxide	10%
Inert Ingredients:	75%
Total:	100%

KEEP OUT OF REACH OF CHILDREN DANGER

VigorOx[®] LS-15 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
- Eating Establishments

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

- Eating, Drinking, and Food Preparation Utensils
- Tableware
- Plastic, Glass and Metal Bottles (rinse)

For Organic Production. **VigorOx[®] LS-15** 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.

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

VigorOx[®] LS-15 is for sanitization of hatching eggs.

VigorOx[®] LS-15 is for use in fogging applications as an adjunct to acceptable manual cleaning and sanitizing room surfaces.

VigorOx[®] LS-15 is for use in the disinfection of hard surfaces in general commercial and medical environments and as an antimicrobial rinse of Pre-cleaned or New Returnable or Non-Returnable Containers.

VigorOx[®] LS-15 is for use as a dip or spray wash 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.

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 goggles or face shield and rubber gloves when handling. 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[®] LS-15 is not combustible; however, at temperatures exceeding 156°F, decomposition occurs, releasing oxygen. The oxygen released could initiate or promote combustion of other materials.

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.



FMC Corporation
Peroxygens Division
1735 Market Street
Philadelphia Pennsylvania 19103

Storage and Disposal

Storage

NEVER RETURN VigorOx® LS-15 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® LS-15 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

Empty drums are not returnable to FMC unless special arrangements have been made. Triple rinse drums with water. Dispose of drums in accordance with local, state, and Federal regulations. **DO NOT REUSE.**

Directions for Use

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

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
- Eating Establishments, and in
- Final Sanitizing Bottle Rinse

VigorOx® LS-15 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® LS-15 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. Fill closed systems with diluted sanitizer solution for a contact time of one (1) minute.
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. 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 at least one (1) minute. Allow surfaces to drain thoroughly before resuming operation.

Eating Establishment Sanitizing

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

1. Scrape/prewash plates, utensils, cups, glasses, etc. 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.

Sanitizing Tableware

For sanitizing tableware in low to ambient temperature warewashing machines, inject the diluted VigorOx® LS-15 solution (0.31 to 0.45 fluid ounces of the product to 5 gallons of potable water) into the final rinse water. This provides 85 to 123 ppm peroxyacetic acid and 57 to 82 ppm of hydrogen peroxide. Allow treated materials to drain adequately. Air dry if items will not be reused immediately.

Final Sanitizing Bottle Rinse

VigorOx® LS-15 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™ LS-15 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® LS-15 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 coarse spray or flood so as to lightly wet all egg shell surfaces.
3. Allow to drain dry.

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

VigorOx® LS-15 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.

1. Remove all products from equipment unless treating only the return portion of a conveyor.
2. Prepare VigorOx® LS-15 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.
3. 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.
4. 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.
5. Allow equipment to drain adequately before reusing; a dry surface is not required.

Packinghouse Sanitization

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

1. Remove gross contamination with a cleaner or other suitable detergent and rinse with potable water.
2. Use VigorOx® LS-15 at a dilution of 3.1 fluid oz. 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.
3. Allow sanitizer to contact surface for at least one (1) minute.
4. Allow to air dry, do not rinse.

Field Equipment Sanitization

VigorOx® LS-15 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*.

1. 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.
2. Remove gross contamination with a cleaner or other suitable detergent and rinse with water.
3. Use VigorOx® LS-15 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.
4. Allow sanitizer to contact surface for at least one (1) minute.
5. Allow to air dry, do not rinse.

Fogging

VigorOx® LS-15 is for sanitizing hard room surfaces as an adjunct to acceptable manual cleaning and disinfecting of room surfaces.

1. Prior to fogging, remove or carefully protect all food products and packaging materials.
2. Ensure room is properly ventilated. Vacate all personnel from the 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.
3. Fog areas using one quart per 1000 cu. Ft. of room area with a 0.1% VigorOx® LS-15 solution.
4. Allow surfaces to drain thoroughly before operations are resumed.

Surface Disinfection

VigorOx® LS-15 is an effective one-step cleaner and disinfectant against gram positive and negative bacteria (vegetative forms) such as *Staphylococcus aureus*, *Salmonella choleraesuis*, *Pseudomonas aeruginosa*. 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 in general commercial and medical environments 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, bathroom fixtures, sinks, bed frames, shelves, racks, carts, refrigerators, coolers, tile, linoleum, vinyl, asphalt, porcelain, plastic (such as polypropylene and polyethylene), stainless steel or glass.
- Areas of use in hospitals, surgical and obstetrical suites; operating tables, housekeeping services; physical therapy departments; nursing homes, health care facilities, autopsy facilities, pharmaceutical and chemical processing facilities and equipment.
- Schools, colleges, industrial facilities, dietary areas, office buildings, recreational facilities, retail and wholesale establishments.
- Animal hospitals, veterinary clinics, animal life science laboratories, kennels, kennel runs, cages, feeding and watering equipment, pet shops, zoos, pet animal quarters, poultry premises, trucks, hatcheries, and live stock quarters.

Prepare VigorOx® LS-15 disinfecting solution by adding 1.1 to 9.5 oz. 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. If surfaces are moderately soiled, the disinfection solution may be used without a pre-cleaning step. For grossly 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® LS-15 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

If non-pathogenic beverage spoilage microorganisms (for example *Byssochlamys fulva* and *Aspergillus versicolor*) are present, use up to 10 fluid oz. of product per 5 gallons of water. This provides 2700 ppm peroxyacetic acid and 1800 ppm hydrogen peroxide. After applying antimicrobial rinse, allow containers to drain thoroughly, then rinse with sterile or potable water.

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 that the water is recirculating or mixing.
2. Add VigorOx® LS-15 at a dilution of 1 fluid oz per 16 gallons of water. This provides 85 ppm peroxyacetic acid and 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 85 ppm peroxyacetic acid and 57 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 to Control Growth of Non-Public Health Microorganisms that Can Cause Spoilage

1. Add VigorOx® LS-15 at a dilution of 1.5 fl. oz. 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. 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

VigorOx® LS-15 can be applied as a dip or spray to control the growth of non-public health microorganisms such as *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 treating solution by diluting 1 fluid oz. per 16 gallons of potable water. This will provide 85 ppm peroxyacetic acid and 57 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. Do not reuse solution after treatment.

VigorOx® LS-15 can be used on the following raw and post-harvest fruits and vegetables,

- Root and tuber vegetables such as carrots and potatoes
- Bulb vegetables such as onions, garlic and shallots
- Leafy vegetables such as lettuce and spinach
- Brassica leafy vegetables such as broccoli, cabbage and cauliflower
- Legumes such as beans, peas and lentils
- Fruiting vegetables such peppers, tomato, and eggplant
- Cucurbits such cucumbers, melons, squash, and pumpkins
- Citrus fruits such oranges, lemons, limes, and grapefruit
- Pome fruits, apples and pears
- Stone Fruits such as cherries, peaches, nectarine, and plum
- Small fruits and berries: blackberries, blueberries, red and black raspberries
- Tree nuts such almond, brazil, filbert, cashew, and pecan
- Cereal grains such corn, barley, oats, rice, and wheat
- Herbs and spices such basil, chives, coriander, and dill
- Miscellaneous fruits and vegetables such as asparagus, avocado, artichoke, banana, cranberry, fig, grapes, kiwifruit, mango, mushroom, okra, papaya, peanut, pineapple, strawberry and water chestnut

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

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

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

**EMERGENCY TELEPHONE NUMBERS
(24 HOURS)**

MEDICAL: COLLECT 303-595-9048

TRANSPORTATION: 800-424-9300

OTHER: COLLECT 716-879-0400

**For more information see Material Safety Data Sheet
ESL080807 REV111207**