



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

June 18, 2019

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

Subject: Notification per PRN 98-10 – Add Optional Background Graphic, NSF and Orthodox Union Logos  
Product Name: VigorOX Liquid Sanitizer and Disinfectant  
EPA Registration Number: 65402-1  
Application Date: May 14, 2019  
Decision Number: 551353

Dear Ms. Gerber:

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

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

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

If you have any questions, you may contact Terria Northern at 703-347-0265 or via email at [northern.terria@epa.gov](mailto:northern.terria@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Zeno Bain", written over a horizontal line.

for

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

# VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant

EPA Registration No. 65402-1

EPA Est. No. 65402-NY-001

**ACTIVE INGREDIENTS:**

Peroxyacetic Acid ..... 5.1%  
 Hydrogen Peroxide ..... 21.7%

**OTHER INGREDIENTS:** ..... 73.2%

**TOTAL:** ..... 100.0%

## KEEP OUT OF REACH OF CHILDREN DANGER

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant 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<sup>®</sup> Liquid Sanitizer and Disinfectant is for Institutional/industrial sanitizing of previously-cleaned, hard, non-porous food-contact surfaces such as:

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

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for sanitizing hard inanimate, non-food contact surfaces, (general environmental surfaces)

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for use in the disinfection of hard, non-porous surfaces in general commercial and medical environments such as:

- Hospitals, Health Care Facilities, Veterinary Hospital/Clinics, Animal
- Life Science Labs, Pharmaceutical Facilities and Equipment
- Schools, Colleges, Recreational Facilities, Office Buildings
- Livestock Premises, Poultry Premises, Poultry Hatcheries, Animal Housing Facilities
- Retail and Wholesale Establishments
- Bathroom Premises

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for use as a coarse spray for surfaces to be sanitized or disinfected.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant can be used with the non-foaming agent, Peradigm<sup>™</sup>, as an antimicrobial container rinse and for hard, non-porous surface disinfection.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for sanitization of hatching eggs.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for sanitization of shell eggs.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for use as an antimicrobial container rinse to control beverage spoilage microorganisms.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant may be used to control algal and slime-forming bacterial growth in livestock water.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for use in the sanitization of ultra filtration and reverse osmosis (RO) membranes and their associated distribution systems.

FIRST AID	
<b>If in Eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on Skin or Clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If Inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>If Swallowed:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<p><b>Note to Physician:</b> Probable mucosal damage may contraindicate the use of gastric lavage.                      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 be used to clean or decontaminate critical or semi-critical medical devices prior to sterilization or high-level disinfection.</p>	

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant may be used to remediate and restore hard, non-porous, environmental surfaces impacted by mold and mildew and odors caused by them.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant may be used to control mold and mildew and odors caused by them in environments such as:

- Schools, colleges, industrial facilities, dietary areas, office buildings, recreational facilities, retail and wholesale establishments.
- Animal hospitals, veterinary clinics, animal life science laboratories, farms, kennels, kennel runs, catteries, cages, feeding and watering equipment, pet shops, zoos, pet animal quarters, poultry premises, trucks, hatcheries, live stock quarters, stables, stalls, and pens.
- Packinghouses, food processing and rendering plants
- Healthcare facilities
- Commercial floral shops
- Hairdressing salons/barber shops
- Pharmaceutical/cosmetic facilities

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant may be used for the non-pesticidal purpose of cleaning room surfaces by fogging.



**NOTIFICATION**

65402-1

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

06/18/2019

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

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

**Precautionary Statements  
Hazards to Humans and Domestic Animals**

**DANGER**

Corrosive. Causes irreversible eye damage and skin burns. Harmful if swallowed. May be fatal if absorbed through skin. Do not get in eyes, on skin or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses), clothing and chemical resistant gloves. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Remove contaminated clothing and wash before reuse.

**Physical or Chemical Hazards**

Strong oxidizing agent. Mix only with water. At temperatures exceeding 156°F, decomposition of VigorOx® Liquid Sanitizer and Disinfectant could occur, 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 life. 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.

**STORAGE AND DISPOSAL**

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

**STORAGE; NEVER RETURN VigorOx® Liquid Sanitizer and Disinfectant 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 a 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.

**DISPOSAL**

**Pesticide Disposal:** VigorOx® Liquid Sanitizer and Disinfectant that 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.

**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. 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.

## DIRECTIONS FOR USE

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

### Sanitizing Hard, Non-Porous Food Contact Surfaces – Pathogenic Organisms

For use in circulation cleaning and institutional/industrial sanitizing of previously cleaned, hard, non-porous food-contact surfaces and equipment, such as food preparation surfaces, 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
- Final Sanitizing Bottle Rinse

VigorOx® Liquid Sanitizer and Disinfectant 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® Liquid Sanitizer and Disinfectant solution by adding 1.0 to 1.7 fluid ounces to 5 gallons potable water. This provides 87.7 to 149 ppm peroxyacetic acid and 373 to 635 ppm hydrogen peroxide.
5. Fill closed systems with diluted sanitizer solution and allow a contact time of one (1) minute. If sanitizing at temperatures of 5°C (40°F) or lower, use 1.6 fluid ounces of product to 5 gallons of potable water.
6. If sanitizing against *Listeria monocytogenes*, use 1.2 to 1.7 fluid ounces of this product to 5 gallons of potable water. This will provide 105 to 149 ppm of peroxyacetic acid and 448 to 635 ppm of hydrogen peroxide.
7. For open or not completely closed systems, use a coarse spray, mop/wipe or flood technique to apply the solution to the surface and allow a contact time of one (1) minute.
8. Allow surfaces to drain thoroughly before resuming operation.

### For use with the non-foaming agent, Peradigm™

VigorOx® Liquid Sanitizer and Disinfectant 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 1.5 fl. oz. VigorOx® Liquid Sanitizer and Disinfectant with Peradigm in 4.5 gallons of water.
2. Add a maximum of 43 fl. oz. of Peradigm to the dilute solution, and bring total volume to 5 gallons. This provides 132 ppm peroxyacetic acid and 560 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 Food Contact Surfaces – Non-Pathogenic Organisms

For use in circulation cleaning and institutional/industrial sanitizing of previously cleaned, hard, non-porous food-contact surfaces and equipment, such as food preparation surfaces, 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
- Final Sanitizing Bottle Rinse

VigorOx® Liquid Sanitizer and Disinfectant 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 5.8 fluid ounces to 5 gallons potable water may be used. This will provide 500 ppm peroxyacetic acid and 2,160 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.

### Eating Establishment Sanitizing

VigorOx® Liquid Sanitizer and Disinfectant is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, 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. Prepare VigorOx® Liquid Sanitizer and Disinfectant solution by adding 1.0 to 1.7 fluid ounces to 5 gallons of potable water. This will provide 87.7 to 149 ppm peroxyacetic acid and 373 to 635 ppm hydrogen peroxide.
4. Immerse all items for at least 2 minutes or for a contact time as specified by the local governing sanitizing code.
5. If sanitizing against *Listeria monocytogenes*, use 1.2 to 1.7 fluid ounces of this product to 5 gallons of potable water. This will provide 105 to 149 ppm of peroxyacetic acid and 448 to 635 ppm of hydrogen peroxide.
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® Liquid Sanitizer and Disinfectant solution (1.0 to 1.7 fluid ounces of the product to 5 gallons of potable water) into the final rinse water. Allow treated surfaces to air dry.

### Final Sanitizing Bottle Rinse

VigorOx® Liquid Sanitizer and Disinfectant 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 1.0 to 1.7 fluid ounces of VigorOx® Liquid Sanitizer and Disinfectant to 5 gallons of potable water.
3. Allow to drain adequately.

### Sanitization of Hatching Eggs

1. Prepare a dilute solution by adding 1.0 to 1.7 fluid ounces of VigorOx® Liquid Sanitizer and Disinfectant to 5 gallons of potable water. This provides 87.7 to 149 ppm peroxyacetic acid and 373 to 635 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 1.0 to 1.7 fluid ounces of VigorOx® Liquid Sanitizer and Disinfectant to 5 gallons of potable water. This provides 87.7 to 149 ppm peroxyacetic acid and 373 to 635 ppm of hydrogen peroxide.
  2. The dilute solution must be equal to or warmer than the eggs, but not to exceed 130F.
  3. Apply dilute solution as eggs are gathered as a vapor, coarse spray or flood. Wet eggs thoroughly and allow a contact time of one (1) minute.
  4. Allow to drain.
  5. Eggs should be reasonably dry before casing or breaking.
  6. 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® Liquid Sanitizer and Disinfectant is an effective sanitizer against *Staphylococcus aureus*, *Escherichia coli*, and *Salmonella typhimurium*.

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

1. Remove all products from equipment if during treatment the sanitizer will directly contact the items.
2. Prepare VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant solution by adding 1.0 to 1.7 fluid ounces to 5 gallons of potable water.
3. Apply sanitizer solution to the return portion of the conveyor or to the equipment using a coarse spray, foam or other means of wetting the surfaces. Treat for at least 1 minute. Control the volume of solution so as to permit maximum drainage and to prevent puddles. The conveyor still may be damp when food contact occurs.
4. If sanitizing against *Listeria monocytogenes*, use 1.2 to 1.7 fluid ounces of this product to 5 gallons of potable water.
5. Allow equipment to drain adequately before reusing; a dry surface is not required.

### General Environmental Surfaces Sanitization (Non-Food Contact)

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is an effective inanimate, hard, non-food contact surface sanitizer against *Staphylococcus aureus*, *Klebsiella pneumoniae*, and *Saccharomyces cerevisiae*.

Sanitization of surfaces such as floors, walls, tables, chairs, benches, drains etc., can be accomplished using the following procedures:

1. Remove gross filth with a cleaner or other suitable detergent.
2. Add 1 to 11 fluid ounces of VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant to 16 gallons of potable water to prepare a solution containing 27 to 302 ppm of peroxyacetic acid and 117 to 1285 ppm of hydrogen peroxide.
3. Soak items in/with diluted solution using mop/wipe, coarse spray or flood techniques and allow contact for at least 5 minutes.
4. Allow items and/or surfaces to drain adequately or air dry.

### Surface Disinfection

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is an effective disinfectant against vegetative forms of Gram positive and Gram negative bacteria, and viruses. This product is effective against *Staphylococcus aureus*, *Salmonella enterica*, *Pseudomonas aeruginosa*, Influenza A Virus (H1N1, H3N2, H5N1, and H7N9 strains), Influenza B Virus and Parainfluenza Virus Type 3. It may also be used to disinfect veterinary clinic surfaces and livestock equipment contaminated with Newcastle Disease virus, Avian Reovirus, Avian Infectious Bronchitis, Infectious Bursal Disease and Infectious Bovine Rhinotracheitis and may be used in general commercial and medical and veterinary environments to clean, disinfect, and deodorize hard, non-porous inanimate surfaces, including:

- 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, glazed tile, linoleum, vinyl, glazed porcelain, plastic (such as polypropylene and polyethylene), stainless steel or glass.
- 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.

To disinfect surfaces that may be contaminated with Gram positive or Gram negative bacteria, including *S. aureus*, *S. enterica* or *P. aeruginosa*:

1. Prepare VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant disinfecting solution by adding 3.2 to 30 oz. of the product to 5 gallons of potable water. This will provide 280 to 2630 ppm peroxyacetic acid and 1195 to 11,200 ppm hydrogen peroxide.
2. Remove gross filth from surfaces to be disinfected by cleaning with a detergent or suitable cleaning product. Rinse with clean water.
3. Apply VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant solution by wiping, mopping, foaming, or as a coarse spray. Allow to soak for at least 10 minutes, then air dry. (Applications on food-contact surfaces require a sterile or potable water rinse following disinfection).

For surfaces contaminated with the viruses listed above:

1. Prepare VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant solution by adding 2 ½ fluid ounce to 5 gallons of potable water. This will provide 230 ppm peroxyacetic acid and 990 ppm hydrogen peroxide. This product is effective against viruses in up to 500 ppm hard water and on surfaces with moderate organic soil.
2. Remove gross filth from surfaces by cleaning with a detergent or suitable cleaning product. Rinse with clean water.
3. Apply VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant solution by wiping, mopping, or as a coarse spray. Allow to soak for at least 5 minutes, then air dry.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant may be mixed with the non-foaming agent, Peradigm™, prior to disinfection.

1. Prepare a diluted solution of VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant by adding a minimum of 2.8 fl. oz. to 4.5 gallons of water.
2. Add a maximum of 43 fl. oz. of Peradigm to the dilute solution, and bring total volume to 5 gallons.
3. Apply solution as previously described, allowing a minimum contact time of 10 minutes.

### Antimicrobial Rinse of Pre-Cleaned or New Returnable or Non-Returnable Containers

To reduce the number of nonpathogenic beverage spoilage organisms such as *Aspergillus versicolor*, *Byssoschlamys fulva*, *Pediococcus damnosus*, *Lactobacillus buchneri*, and *Saccharomyces cerevisiae*.

1. Prepare VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant by adding 7.0 to 30 fluid oz. to 5 gallons of potable water. This provides 614 to 2630 ppm peroxyacetic acid and 2614 to 11,200 ppm hydrogen peroxide.
2. Apply solution, allowing a minimum contact time of 5 seconds.
3. Allow containers to drain thoroughly. Optional rinse with sterile or potable water.

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant 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 1.5 fl. oz. VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant with Peradigm in 4.5 gallons of water.
2. Add a maximum of 43 fl. oz. of Peradigm to the dilute solution, and bring total volume to 5 gallons. This provides 132 ppm peroxyacetic acid and 560 ppm hydrogen peroxide.
3. Apply solution, allowing a minimum contact time of 30 seconds.

### Control of Algal and Slime-Forming Bacterial Growth in Livestock Water

#### Stock Tanks and Livestock Water

VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant is for suppressing / controlling algae, odor causing and slime-forming bacteria and sulfides in stock tanks, stock watering ponds, tanks and troughs, and livestock water. Apply 1.3 to 6.3 fluid ounces of VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant 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<sup>®</sup> Liquid Sanitizer and Disinfectant over the algae mats. Apply VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant 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<sup>®</sup> Liquid Sanitizer and Disinfectant based upon water flow rates. Pre-dilute VigorOx<sup>®</sup> Liquid Sanitizer and Disinfectant 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<sup>®</sup> Liquid Sanitizer and Disinfectant at 0.44-0.9 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.

After water lines have been cleaned, use VigorOx® Liquid Sanitizer and Disinfectant at 0.9-1.33 fl. oz. per 100 gallons of water to control algae and bacteria in drinking water and to control mineral build up in watering lines.

### Disinfection and Deodorizing of Animal Housing Facilities, Poultry Premises, Coops, Trucks and Crates

1. Remove all animals / poultry from the facilities / items / areas to be disinfected.
2. Remove gross particulate, litter, droppings etc. with a warm water flush or by sweeping.
3. Empty all troughs, racks, and other feeding and watering equipment.
4. Wash all items thoroughly with detergent or cleaning solution and rinse with water.
5. Prepare a disinfecting solution by adding 3.2 fluid ounces of VigorOx™ Liquid Sanitizer and Disinfectant to 5 gallons of potable water. This provides 280 ppm of peroxyacetic acid and 1195 ppm of hydrogen peroxide which will disinfect surfaces contaminated with Gram positive and Gram negative bacteria, as well as poultry and cattle viruses listed above
6. Before starting the treatment ensure that the work area is well ventilated
7. For disinfection, saturate with the diluted product for a period of at least 10 minutes.
8. For surfaces contaminated with the viruses listed above under *Surface Disinfection*, saturate surfaces with diluted product for a period of at least 5 minutes.
9. Thoroughly scrub treated feed equipment (i.e., feed racks, troughs, fountains etc.) with a detergent and rinse with potable water.
10. Do not return animals / poultry or use equipment until solution has been completely absorbed and air dried.

### Poultry Hatchery Disinfection

1. Remove remaining eggs and chicks, and all gross particulate and other hatching-related debris.
2. Thoroughly wash all surfaces with a recommended detergent or cleaning solution and then rinse with potable water.
3. Prepare the disinfecting solution by adding 3.2 fluid ounces of VigorOx® Liquid Sanitizer and Disinfectant to 5 gallons of potable water.
4. Before starting the treatment, ensure that the work area / room and any closed spaces are well ventilated.
5. Apply the disinfecting solution with a mop, cloth, brush or coarse spray, keeping surfaces wet for 10 minutes.
6. Air dry before re-introducing eggs.

### Batch Sanitization of Ultra-Filtration and Reverse Osmosis (RO) Membranes

VigorOx® Liquid Sanitizer and Disinfectant is for use in the sanitization of ultra filtration, medical and non-medical institutional/industrial reverse osmosis (RO) membranes and their associated distribution systems. This product is not for use in kidney dialysis reprocessing equipment.

This product has been shown to be an effective disinfectant when tested by AOAC and EPA methods. This product may not totally eliminate all vegetative microorganisms in reverse osmosis membranes and their associated piping systems due to their construction and/or assembly, but can be relied upon to reduce the number of microorganisms to acceptable levels when used as directed. Check with equipment manufacturer for membrane compatibility with VigorOx® Liquid Sanitizer and Disinfectant.

1. Remove biological or organic fouling from the membrane or other parts of the system with an appropriate cleaner.
2. Flush the system with RO permeate or similar quality water.
3. Remove mineral deposits with an acidic cleaner prior to sanitizing the membranes.
4. Flush the system with RO permeate or similar quality water.
5. Prepare an appropriate volume of 1% solution of the product (12 fl. oz. per 10 gallons of water). This will provide 526 ppm of peroxyacetic acid and 2338 ppm hydrogen peroxide.
6. Fill the entire water circuit to be sanitized with the dilute solution and allow the solution to reach a minimum of 20°C (69°F).
7. Recirculate the dilute solution of VigorOx® Liquid Sanitizer and Disinfectant for a minimum of 10 minutes.
8. Allow membrane elements to soak in the solution for a minimum of 20 minutes.

9. Rinse the RO system and test for residuals to ensure that there is less than 3 ppm peroxygen. Residuals can be reduced by diverting product water to drain.

### Batch Sanitization of Piping Systems Associated with RO Membranes

1. Isolate incompatible equipment from piping system. This includes activated carbon filters and ion exchange equipment. Turn off power to ultraviolet light units.
2. Estimate total volume of water contained in the system (tanks, rinse stations and piping). Prepare an appropriate volume of 1.0 to 1.5% VigorOx® Liquid Sanitizer and Disinfectant solution by adding 1.0 to 1.5 gallons of the product for every 100 gallons of solution prepared. Use RO permeate or similar quality water for dilution. This will provide 561 to 842 ppm peroxyacetic acid and 2389 to 3584 ppm hydrogen peroxide.
3. Recirculate the dilute VigorOx® Liquid Sanitizer and Disinfectant solution through the system for a minimum of 4 hours. Process usage valves should be opened and closed to expose internals to the VigorOx® Liquid Sanitizer and Disinfectant solution.
4. Completely drain the system of dilute VigorOx™ Liquid Sanitizer and Disinfectant solution. Thoroughly rinse the system by filling with RO permeate or similar quality water and recirculate before drainage. Repeat the process until test for residuals indicates there is less than 3 ppm peroxygen.

### Continuous/Intermittent Addition to Minimize the Accumulation of Biological Matter Between Intermittent Sanitizing Episodes in Piping Systems Associated with RO Membranes.

1. VigorOx® Liquid Sanitizer and Disinfectant, as received or diluted, may be added continuously to the feed water stream, between system sanitizing episodes, to aid in minimizing the regrowth/accumulation of biological matter. The peroxygen residual in the system that will be effective, will vary with the design and usage characteristics of the system. Adjust the addition rate of VigorOx® Liquid Sanitizer and Disinfectant or the solution and periodically monitor residual peroxygen so that the desired effect is obtained.
2. For continuous addition, do not exceed 20 ppm VigorOx® Liquid Sanitizer and Disinfectant (0.1 fl. oz. per 40 gallons of water). This will give 1 ppm peroxyacetic acid and 4.5 ppm hydrogen peroxide. For intermittent feed, do not exceed 2000 ppm VigorOx® Liquid Sanitizer and Disinfectant (10 fl. oz. per 40 gallons of water). This will give 123 ppm peroxyacetic acid and 523 ppm hydrogen peroxide.

### MOLD AND MILDEW CONTROL (Not for Use in California)

VigorOx® Liquid Sanitizer and Disinfectant may be used to effectively inhibit the growth of mold and mildew and odors caused by them at a rate of 0.52 fl. oz. in 1 gallon of water (230 ppm of active peroxyacetic acid) in general commercial environments such as:

- Schools, colleges, industrial facilities, dietary areas, office buildings, recreational facilities, retail and wholesale establishments.
- Animal hospitals, veterinary clinics, animal life science laboratories, farms, kennels, kennel runs, catteries, cages, feeding and watering equipment, pet shops, zoos, pet animal quarters, poultry premises, trucks, hatcheries, live stock quarters, stables, stalls, and pens.
- Packinghouses, food processing and rendering plants
- Healthcare facilities
- Commercial floral shops
- Hairdressing salons/barber shops
- Pharmaceutical/cosmetic facilities

VigorOx® Liquid Sanitizer and Disinfectant effectively inhibits the growth of mold and mildew and odors caused by them when applied to hard non-porous surfaces (non food contact surfaces), such as floors, walkways, walls, tables, chairs, benches, countertops, cabinets, bathroom fixtures, sinks, shelves, racks, crates, utility carts, trailers, vehicles, conveyors, refrigerators (exterior), fan blades, drains, piping, commercial, municipal, and process water transfer and handling systems, filter housings, vats, tanks, pumps, valves and systems.

### MOLD AND MILDEW CONTROL ON HARD, NON-POROUS SURFACES (Not for Use in California)

Use a rate of 0.52 fl. oz. per gallon for hard, non-porous surfaces, (non food contact surfaces), that are lightly soiled or have been pre-rinsed to remove gross contamination. For heavily soiled hard non-porous surfaces, a pre-cleaning step is required. Apply solution with mop, cloth, sponge, brush, scrubber, or coarse spray device or by soaking so as to wet all surfaces thoroughly. Allow surface to remain wet for 10 minutes then

remove solution and entrapped soil with a clean wet mop, cloth, or wet vacuum pickup. Prepare a fresh solution daily or when it becomes soiled or diluted. Repeat treatment every seven days, or more often if new growth appears.

## **REMEDICATION AND RESTORATION SITES (Not for Use in California)**

VigorOx® Liquid Sanitizer and Disinfectant is recommended for use on hard, non-porous, environmental surfaces such as walls and other hard, non-porous surfaces such as floors, walls, tables, chairs, countertops, garbage bins/cans, bathroom fixtures, sinks, bed frames, shelves, racks, carts, refrigerators (exterior), glazed tile, and use sites listed on this label made of linoleum, vinyl, glazed porcelain, plastic polyethylene, stainless steel, or glass.

### **Preventative Treatment**

To inhibit surface mold and mildew growth on hard, non-porous surfaces in new or renovated building construction, mix VigorOx® Liquid Sanitizer and Disinfectant at a rate of 0.52 fl. oz. in 1 gallon of water and apply evenly by paintbrush, airless sprayer, low pressure hand wand, or backpack sprayer. Assure uniform coverage of surfaces to be protected. Surfaces should be evenly wet without runoff or pooling. Allow surfaces to stay wet with solution for ten (10) minutes. Permit treated surfaces to be thoroughly dry before painting or affixing overlayment materials such as siding, wallboard or flooring. Repeat the application of this product as necessary if mold growth appears, following directions provided below for remedial treatment. Normally, infrequent application will provide effective control. If regrowth occurs, investigate to determine the causes and correct the problem prior to reapplication of VigorOx® Liquid Sanitizer and Disinfectant. Mold may recur in conditions of persistently high humidity, standing water, or hidden water leaks.

### **Remedial Treatment (Not for use in California)**

VigorOx® Liquid Sanitizer and Disinfectant must be used as part of a comprehensive mold remediation or water damage restoration program, including:

- Periodic monitoring and inspection of conditions favorable to mold growth such as moisture ingress and high relative humidity
- Effective repairs as necessary to eliminate conditions favorable to mold growth
- Drying of affected areas to below 20% moisture content

Mix VigorOx® Liquid Sanitizer and Disinfectant at a rate of 0.52 fl. oz. in 1 gallon of water and apply evenly by paintbrush, airless sprayer, low-pressure hand wand, or backpack sprayer. Assure uniform coverage of surfaces to be protected. Surfaces should be evenly wet without runoff or pooling. Allow surfaces to stay wet with solution for ten (10) minutes. Permit treated surfaces to be thoroughly dry before painting or affixing overlayment materials such as siding, wallboard or flooring.

The following associations and Internet sites should be consulted for information on standards and guidelines for remedial treatment of mold and mildew:

- IAQA-Indoor Air Quality Association ([www.iaqa.org](http://www.iaqa.org))
- EPA-Environmental Protection Agency ([www.epa.gov](http://www.epa.gov))
- DOH-New York City Department of Health ([www.ci.nyc.ny.us/html/doh/html/epi/moldrpt1.html](http://www.ci.nyc.ny.us/html/doh/html/epi/moldrpt1.html))
- IICRC-Institute of Inspection, Cleaning and Restoration Certification (<http://www.iicrc.org/>)

## **Small Areas-Total Surface Area Affected Less Than 10 Square Feet**

### **Cleanup Methods\***

Prior to applying VigorOx® Liquid Sanitizer and Disinfectant, clean the affected area using one of the following or another preferred professional method.

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).

Method 2: Damp-wipe surfaces with plain water or use a wood floor cleaner; scrub as needed.

Method 3: High-efficiency particulate air (HEPA) vacuum after the material has been thoroughly dried.

Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

\*Minimum personal protective equipment to be worn during clean up includes gloves, N-95 respirator and goggles/eye protection.

## **Other Construction Materials**

Concrete or Cinder Block

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).

Method 2: High-efficiency air (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

Special procedures and training are required for remediation of moldy areas larger than 10 square feet. Consult guidelines for remediation of large areas established by the Indoor Air Quality Association ([www.iaqa.org](http://www.iaqa.org)) and the US Environmental Protection Agency ([www.epa.gov](http://www.epa.gov)). An excellent reference is the New York City Department of Health publication, "Guidelines on Assessment and Remediation of Fungi in Indoor Environments." An excellent guide for professional mold remediation is available from the Institute of Inspection, Cleaning And Restoration Certification (IICRC). Standard S520 is based upon reliable remediation and restoration techniques, and combines academic principles with practical elements of water damage restoration. Where structural members and/or contents have been exposed to water in excess of 24 hours, there is a possibility of extensive microbial growth that may be hidden. In such a case a complete assessment and remediation plan must be prepared that provides for user and occupant safety and documentation and monitoring of the remediation process. IICRC S520 contains excellent guidance for such a plan. In the context of such a plan, VigorOx® Liquid Sanitizer and Disinfectant can be used on materials to be removed and disposed of and in other applications where mold inhibition is indicated. The Standard must be followed exactly and all growth and contaminated organic material removed prior to using VigorOx® Liquid Sanitizer and Disinfectant. Before using VigorOx® Liquid Sanitizer and Disinfectant in mitigation of large projects, you should be knowledgeable of these guidelines and follow their recommendations. In the absence of access to the guidance and standards identified, the user should refer to the following information taken from U.S. EPA's guide: Mold Remediation in Schools and Commercial Buildings (March 2001). These guidelines are based on the area and type of material affected by water damage and/or mold growth. Please note that these are guidelines; some professionals may prefer other cleaning methods. Use the appropriate remediation steps prior to application of VigorOx® Liquid Sanitizer and Disinfectant.

## **Medium-Total Surface Area Affected Between 10 and 100 Square Feet**

### **Cleanup Methods\***

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).

Method 2: Damp-wipe surfaces with plain water or with wood floor cleaner; scrub as needed.

Method 3: High-efficiency particulate (HEPA) vacuum after the material has been thoroughly dried.

Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

## **Other Construction Materials**

Concrete or cinder block

### **Cleanup Methods\***

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).

Method 2: High-efficiency particulate (HEPA) vacuum after the material has been thoroughly dried.

Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

\*Limited or Full personal protective equipment is recommended during cleanup. Limited personal protective equipment includes gloves, N-95 respirator or half-face respirator with HEPA filter, disposable overalls, goggles/eye protection. Full personal protective equipment includes gloves, disposable full body clothing, headgear, foot coverings, full-face respirator with HEPA filter.

Use professional judgment, consider potential for remediation exposure and size of contaminated area.

**Large-Total Surface Area Affected Greater Than 100 Square Feet or Potential for Increase Occupant or Remediator Exposure During Remediation Estimated to be Significant Cleanup Methods\***

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).

Method 2: Damp-wipe surfaces with plain water or with a wood floor cleaner; scrub as needed Method

3: High-efficiency particulate (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

Method 4: Discard/remove water-damaged materials and seal in plastic bags while inside of containment, if present. Dispose of as normal waste. HEPA vacuum area after it is dried.

**Other Construction Materials**

**Concrete or cinder block**

**Cleanup Methods\***

Method 1: Wet vacuum (in the case of porous materials, some mold spores/fragments will remain in the material but will not grow if the material is completely dried).

Method 2: High-efficiency particulate (HEPA) vacuum after the material has been thoroughly dried. Dispose of the contents of the HEPA vacuum in well-sealed plastic bags.

\*Gloves, disposable full body clothing, headgear, foot coverings, full-face respirator with HEPA filter are the recommended personal protective equipment.

\*Select method most appropriate to situation. Since molds gradually destroy the things they grow on, if mold growth is not addressed promptly, some items may be damaged such that cleaning will not restore their original appearance. If mold growth is heavy and items are valuable or important, you may wish to consult a restoration/water damage/remediation expert. Please note that these are guidelines; other cleaning methods may be preferred by some professionals.

\*Use professional judgment to determine prudent levels of Personal Protective Equipment and containment for each situation, particularly as the remediation site size increases and the potential for exposure and health effects rises. Assess the need for increased Personal Protective Equipment if, during the remediation, more extensive contamination is encountered than was expected. These guidelines are for damage caused by clean water. If you know or suspect that the water source is contaminated with sewage, or chemical or biological pollutants, then the Occupational Safety and Health Administration (OSHA) requires PPE and containment. An experienced professional should be consulted if you and/or your remediators do not have expertise in remediating contaminated water situations.

**Containment of Affected Materials**

**Total Surface Area Affected Between 10 and 100 Square Feet (All Surfaces)**

Use polyethylene sheeting ceiling to floor around affected area with a slit entry and covering flap; maintain area under negative pressure with HEPA filtered fan unit. Block supply and return air vents within containment area.

**Total Surface Area Affected Greater Than 100 Square Feet or Potential for Increased Occupant or Remediator Exposure During Remediation Estimated to be Significant**

Use two layers of fire-retardant polyethylene sheeting with one airlock chamber. Maintain area under negative pressure with HEPA filtered fan exhausted outside of building. Block supply and return air vents within containment area.

**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® Liquid Sanitizer and Disinfectant solution.
4. Allow surfaces to drain thoroughly before operations are resumed.

**Note:** Before using VigorOx® Liquid Sanitizer and Disinfectant 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 sanitizing/disinfecting solution daily to ensure effectiveness. Do not reuse sanitizing/disinfecting solutions. Dispose of any unused sanitizing/disinfecting solution.

**EMERGENCY TELEPHONE NUMBERS (24 HOURS)**

MEDICAL: COLLECT 303-389-1409

CHEMTREC: 800-424-9300

OTHER: COLLECT 716-879-0400

**NSF Listed**



**Orthodox Kosher Certified**



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