Gallons Pounds

FMC

FMC

FMC

FMC

FMC

FMC

FMC

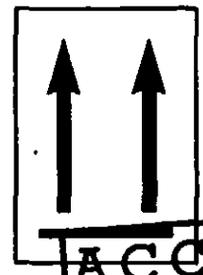
FMC

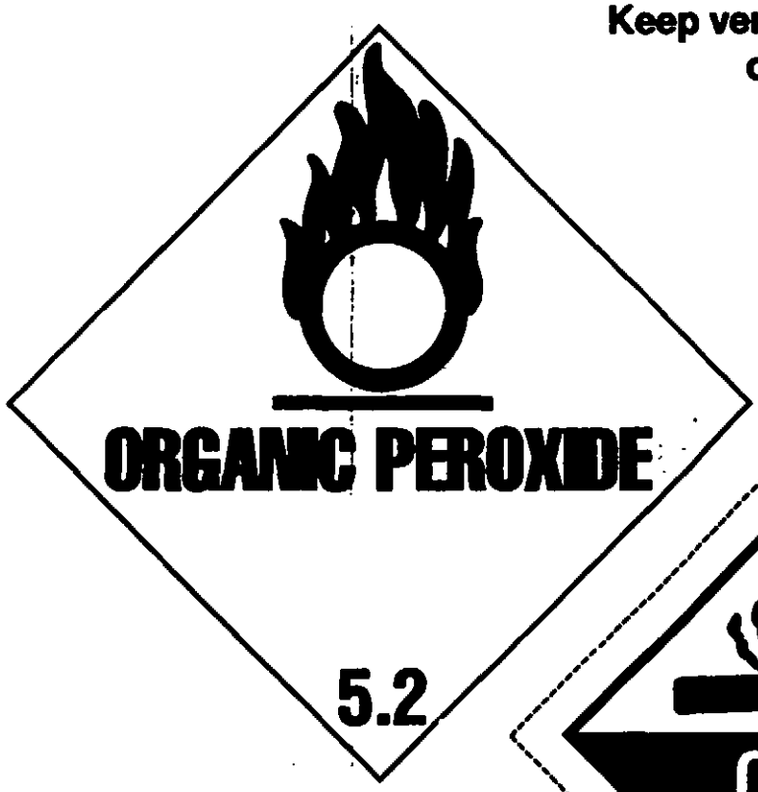
FMC

FMC

FMC

Keep vent end up, do not roll





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
Label Effective Date: April 1993

D.O.T. Description:
Organic Peroxide Liquid N.O.S.
(Peracetic Acid 5%)
NA 9183

VigorOx™ Liquid Sanitizer

Net Contents

EPA Registration No. 65402-1
EPA Est. No. 00279-NY-003

VigorOx™ liquid sanitizer is for institutional/industrial sanitizing of previously cleaned non-porous food contact surfaces in:

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

VigorOx™ liquid sanitizer is for use in the sanitization of ultra filtration and non-medical institutional/industrial use reverse osmosis (RO) membranes and their associated distribution systems.

For Industrial Use Only

Active Ingredients:	Peroxyacetic Acid	5.1%
	Hydrogen Peroxide	21.7%
Inert Ingredients:		73.2%

KEEP OUT OF REACH OF CHILDREN
DANGER

See side panel for additional precautionary statements

FMC and VigorOx are trademarks of FMC Corporation.

ACCEPTED
SEP 10 1993
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 65402-1

FMC

FMC Corporation
Peroxygen Chemicals Division
1735 Market Street
Philadelphia Pennsylvania 19103

Precautionary Statements
Hazards to Humans and Domestic Animals

DANGER
Corrosive, causes eye and skin damage. Harmful or fatal 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 breath 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™ is not combustible; however, at temperatures exceeding 154°F, decomposition occurs releasing oxygen. The oxygen released could initiate or promote combustion of other materials.

Statement of Practical Treatment

If swallowed: Rinse mouth with water. Dilute by giving 1 or 2 glasses of water. Do not induce vomiting. See a physician.

If inhaled: Remove to fresh air. If breathing discomfort occurs, call a physician. If breathing has stopped, apply artificial respiration and see a physician.

If in eyes: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a physician.

If on skin: Immediately flush with plenty of water while removing contaminated clothing and/or shoes. Wash skin thoroughly with soap and water. See a physician. Wash contaminated shoes and clothing before reuse.

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

Storage and Disposal

Storage

NEVER RETURN VigorOx™ 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 VigorOx™ with large volumes of water.

Avoid damage to containers. Keep containers 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™ Liquid Sanitizer 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.

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

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

Sanitizing Non-Porous Food Contact Surfaces.

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™ solution as follows:
   Add 1.6 to 1.9 ounces VigorOx™ Liquid Sanitizer to 5 gallons potable water. This will provide 128 to 152 ppm peroxyacetic acid and 550 to 644 ppm hydrogen peroxide.
5. Fill closed systems with diluted sanitizer solution at a temperature of 5°C (45°F) to 40°C (104°F) and a contact time of one (1) minute.
6. Allow surfaces to drain thoroughly before resuming operation.

Eating Establishment Sanitizing

1. Scrape/prewash plates, utensils, cups, glasses whenever possible.
2. Wash all items with a detergent.
3. Rinse thoroughly with potable water.
4. Prepare VigorOx™ sanitizing solution as follows:
   Add 1.6 to 1.9 ounces VigorOx™ to 5 gallons of potable water. This will provide 128 to 152 ppm peroxyacetic acid and 550 to 644 ppm hydrogen peroxide.
5. Immerse all items for at least 2 minutes or for a contact time as specified by the local governing sanitizing code.
6. Place all sanitized items on a rack or drainboard to air dry.

VigorOx™ is for use in the sanitization of ultra filtration and non-medical institutional/industrial reverse osmosis membranes and their associated distribution systems.

Sanitizing Ultra Filtration and Reverse Osmosis (RO) Membranes and their Associated Distribution Systems

1. Remove biological or organic fouling from the membranes or other parts of the system with an appropriate cleaner.
2. Flush the system with RO permeate.
3. Remove mineral deposits with an acidic cleaner prior to sanitizing the membranes.
4. Flush the system with RO permeate.
5. Prepare VigorOx™ sanitizing solution by adding 1.6 to 1.9 ounces of VigorOx™ to 5 gallons of potable or permeate water. This will provide 128 to 152 ppm peroxyacetic acid and 550 to 644 ppm hydrogen peroxide.
6. Fill the entire water circuit to be sanitized with the dilute solution and allow the solution to reach a minimum temperature of 20°C.
7. Recirculate the dilute VigorOx™ solution for a minimum of 10 minutes.
8. Allow the elements to soak in the VigorOx™ 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 in the system can be reduced by diverting product water to drain.

In all applications, always prepare a new sanitizing solution daily to ensure effectiveness. Do not reuse sanitizing solutions. Dispose of any unused sanitizer.

CONTRIBUTOR TO THE FIELD OF ACTIVE OXYGEN CHEMISTRY INTRODUCES
VigorOx™ liquid sanitizer

(EPA Registration No. 65402-1)

VigorOx™ is an equilibrium solution of two active ingredients - peroxyacetic acid (CH_3COOOH) and hydrogen peroxide (H_2O_2).

VigorOx™ has been formulated for use in the circulation cleaning and institutional/industrial sanitizing of previously cleaned non-porous food contact surfaces and equipment such as tanks, pipelines, evaporators, fillers, pasteurizers, aseptic equipment in:

ACCEPTED
SEP 10 1993
Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide registered under EPA Reg. No. 65402-1

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

VigorOx™ liquid sanitizer is also for use in the sanitization of ultra filtration and non medical institutional/industrial reverse osmosis membranes and their associated distribution system.

VigorOx™ liquid sanitizer can be used as an aid to minimize the growth of biological matter on non medical institutional/industrial RO membranes and their associated distribution system.

When properly diluted, VigorOx™ meets the specifications for an indirect food additive in accordance with 21 CFR 178.1010 (b)(30) and (c)(25). VigorOx™ is effective against a variety of microorganisms.

BENEFITS

- o Excellent non-foaming action at low concentrations
- o Broad spectrum sanitizing action
- o Effective at low temperature
- o Non-corrosive to most food and beverage systems
- o Non-absorptive in materials of plant construction
- o Upon use, active ingredients breakdown into water, oxygen and acetic acid.

VigorOx™ Properties

Chemical	Wt. %	Physical Properties	
Peroxyacetic acid	5.1	Melting/Freezing pt.	-25.9°C
Hydrogen Peroxide	21.7	Vapor pressure	22mm Hg
Inert Ingredients	73.2	Odor	strong, pungent
Active Oxygen	11.3	Appearance	colorless liquid
		pH (1% solution)	2.5
		Water Solubility	100%
		Density (lbs/gal)	9.17

DIRECTIONS FOR USE

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

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

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

Sanitizing Non Porous Food Contact Surfaces

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™ sanitizing solution as follows: Add 1.6 to 1.9 ounces VigorOx™ Liquid Sanitizer to 5 gallons of potable water. This will provide 128 to 152 ppm peroxyacetic acid and 550 to 644 ppm hydrogen peroxide.

5. Fill closed systems with diluted sanitizer solution at a temperature of 5°C (45°F) to 40°C (104°F) and a minimum contact time of one (1) minute.
6. Allow surfaces to drain thoroughly before resuming operation.

Eating Establishment Sanitizing

1. Scrape/prewash plates, utensils, cups, glasses whenever possible.
2. Wash all items with a detergent.
3. Rinse thoroughly with potable water.
4. Prepare VigorOx™ sanitizing solution as follows: Add 1.6 to 1.9 ounces VigorOx™ to 5 gallons of potable water. This will provide 128 to 152 ppm peroxyacetic acid and 550 to 644 ppm hydrogen peroxide.
5. Immerse all items for at least 2 minutes or for a contact time as specified by the local governing sanitation code.
6. Place all sanitized items on a rack or drainboard to air dry.

VigorOx™ is also for use in the sanitizing of non-medical institutional/industrial ultra filtration and reverse osmosis membranes and their associated distribution systems. In such uses, maintaining a low (but less than 3 ppm) residual of peroxygen compounds aids in minimizing the regrowth of biological matter.

Sanitizing Non-Medical Use Ultra Filtration and Reverse Osmosis (RO) Membranes and their Associated Distribution Systems and Minimizing Biological Regrowth

1. Remove biological or organic fouling matter from the membrane or other parts of the system with an appropriate cleaner.
2. Flush the system with RO permeate (or potable water for ultra filtration systems).
3. Remove mineral deposits with an acidic cleaner prior to sanitizing the membranes.
4. Flush the system with RO permeate (or potable water for ultra filtration systems).
5. Prepare VigorOx™ sanitizing solution by adding 1.6 to 1.9 ounces of VigorOx™ to 5 gallons of potable or permeate water. This will provide 128 to 152 ppm peroxyacetic acid and 550 to 644 ppm hydrogen peroxide.
6. Fill the entire water circuit to be sanitized with the dilute solution and allow the solution to reach a minimum temperature of 20°C (68°F).
7. Recirculate the VigorOx™ solution for a minimum of 10 minutes.
8. Allow the elements to soak in the VigorOx™ solution for a minimum of 20 minutes.
9. Rinse the RO or ultra filtration system and test for residuals to ensure that there is less than 3 ppm peroxygen. Residuals in the system can be reduced by diverting product water to drain.

6 7 9

10. VigorOx™, as received or diluted, may be added continuously to the feed water stream, between episodes of system sanitizing, to aid in minimizing the regrowth and/or accumulation of biological matter. The peroxygen residual in the system which will be effective will vary with the design and usage characteristics of the system. Adjust the addition rate of VigorOx™ or VigorOx™ solution and periodically monitor residual peroxygen so that the desired effect is obtained but do not exceed 3 ppm peroxygen residuals. Residuals in the system may be reduced by diverting product water to drain.
11. Effluents containing this product should not be discharged into lakes, streams, ponds, estuaries, oceans, or public waters unless this product is specifically identified and included in the NPDES permit. Contact the appropriate local, state, or Federal regulatory agency prior to disposal.

In all applications, always prepare a new sanitizing solution daily to ensure effectiveness. Do not reuse sanitizing solutions. Dispose of any unused sanitizer.

SHIPPING AND PACKAGING

The U.S. Department of Transportation (DOT) classifies VigorOx™ Liquid Sanitizer as an ORGANIC PEROXIDE.

VigorOx™ is packaged in DOT approved, vented, polyethylene drums.
- 30 gallon - net weight 250 pounds
- 55 gallon - net weight 495 pounds.

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 drums.**

SAFETY AND HANDLING PRECAUTIONS

Proper handling and storage of VigorOx™ Liquid Sanitizer solutions minimize health hazards. Material Safety Data Sheets (MSDS) provide information concerning exposure, emergency first aid, as well as disposal of VigorOx™ solutions. You may request an MSDS from any FMC office.

VigorOx™ solutions which are actively decomposing are potentially hazardous. Observe the following precautions to prevent decomposition:

- o Avoid all contaminants, especially dirt, caustic, reducing agents, and metals. Contamination and impurities will reduce shelf life can induce decomposition. **Never** return unused portions of VigorOx™ to the original container.
- o Open flames and elevated temperatures should be avoided at all times. These conditions promote decomposition and the concurrent release of oxygen can initiate or promote combustion of other materials. **(See Decomposition).**
- o **Do not** store VigorOx™ on wooden pallets or near other combustible materials.
- o Store VigorOx™ only in the original vented containers. To ensure proper venting, keep drums upright and do not stack. Keep drums closed when not in use. Avoid damage to containers.

PERSONAL PROTECTIVE EQUIPMENT

Concentrated VigorOx™ solutions and mist are corrosive to tissues. When handling VigorOx™ Liquid Sanitizer follow the guidelines listed here and in the Material Safety Data Sheets (MSDS).

EYES

Wear chemical type goggles or a face shield when handling or mixing VigorOxTM solutions. Due to the strong oxidizing nature of VigorOx™, avoid direct contact with the eyes. Direct contact with the eyes can cause irreversible damage including blindness.

RESPIRATORY SYSTEM

Always use in a well ventilated area. High concentrations of VigorOx™ vapors will irritate the nose, throat and lungs. If strong odors are detected in an enclosed area, do not enter without a self-contained breathing apparatus.

SKIN

- o Protect your hands with long, general purpose, neoprene gloves.
- o Protect yourself with a long rubber or plastic apron.
- o Protect your feet with rubber or neoprene footwear.

STORAGE

To maintain product quality, store VigorOx™ at or below 86o F (30°C). Do not store VigorOx™ in direct sunlight. Provide good ventilation of storage areas.

PROCEDURE FOR RELEASE OR SPILL
Stop leak if this can be done without risk. Shut off or remove all ignition sources. Remove combustible and organic material. Flush spilled material with large quantities of water. Do not let undiluted material enter sewers or confined spaces.

DISPOSAL
Undiluted VigorOx™ must not be poured down drains or directly into sewers. Unused, VigorOx™ solutions that become waste material are classified as hazardous wastes due to their low pH and oxidizing properties. Contact the appropriate local, state, or Federal regulatory agencies prior to disposal. An acceptable method for disposal is to dilute with at least twenty volumes of water, allow the VigorOx™ to decompose and then discharge into a suitable treatment system in accordance with all local, state, and Federal laws, rules and regulations.

DECOMPOSITION
Decomposition reaction is exothermic and releases large volumes of oxygen and heat. The oxygen produced may cause rupture of the container, if not properly vented, and can increase the intensity of a nearby fire.

If decomposition is suspected, observe the drums for bulging or excessive heat. Cool the drums by deluging with cold water. This will slow the decomposition. Call FMC for assistance (Collect 716-879-0400). Once the container has been cooled for at least 20 minutes, dilute the material with large amounts of water and flush to an acceptable disposal area or sewer if Federal, state, and local laws and regulations allow.

FMC CORPORATION

FMC is a leader in the research, development and application of peroxygen technology. FMC's Chemical Products Group, headquartered in Philadelphia, PA is the largest producer of specialty peroxygen chemicals in North America. FMC is a world leader in the development and manufacture of products which serve the food industry. FMC's agricultural chemicals protect crops in fields and orchards worldwide. FMC equipment harvest crops, handles produce, extracts juices, fills, conveys, packages, and warehouses diverse food products. FMC functional ingredients - phosphates, carrageenans, konjacs, and cellulose gels enhance many foods. FMC has substantial depth in research and development directly related to the food industry. FMC is committed to being the food industry's most valued supplier.

CUSTOMER SUPPORT SERVICES

Quality
Product quality is of critical importance to FMC. Excellent quality reflects teamwork and good communication with our customers and throughout the FMC organization. There are many behind-the-scenes activities and programs carried out by FMC plant and technical staffs which have made our product quality second to none.

VigorOx™ is guaranteed to meet certified limits. We monitor incoming raw material and analyze each segment of the manufacturing operation. Deviations from quality parameters are instantly detected and corrected.

Customer Safety Assistance
FMC is committed to the proper delivery, handling and use of peroxygen products. Safety and handling programs conducted by FMC experts are available to all customers. We encourage you to take advantage of these programs.

Technical Service
Customers have access to FMC's technical service representatives located at the Princeton R&D Center in Princeton, NJ and the plant in Tonawanda, NY. Our chemists and engineers are experienced in the production, use, distribution, and sale of peroxygen chemicals. They are capable of answering questions on the proper handling and use of VigorOx™ Liquid Sanitizer.

Our engineering services include the design and construction of storage facilities, as well as safety inspections of your present warehouse, and assistance in choosing materials of construction.

Distribution Services
FMC operates an extensive distribution network throughout North America and worldwide to provide customers with fast, dependable service.