Material Safety Data Sheet

VigorOx® Liquid Sanitizer and Disinfectant

MSDS #: 79-21-0-10
Revision Date: 2014-01-24
Version 2

This MSDS has been prepared to meet U.S. OSHA Hazard Communication Standard 29 CFR 1910.1200 And Canadian Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name **VigorOx® Liquid Sanitizer and Disinfectant**

Synonyms Peroxyacetic Acid Solution; Peracetic Acid Solution; Ethanperoxoic acid

EPA Registration Number 65402-1
Recommended use: Sanitizing agent

This product is distributed by
Canada Colors and Chemicals Limited
General Inquiry: (905) 459-1232
24 Hour Emergency: (416) 444-2112
CCC: Product Code: 647910
CCC: Product Name: VIGOROX L (S&D)

Manufacturer

FMC CORPORATION
FMC Peroxygens
1735 Market Street
Philadelphia, PA 19103
Phone: +1 215/ 299-6000 (General Information)
E-Mail: msdsinfo@fmc.com

Emergency telephone number

1 303 / 595 9048 (Medical - U.S. - Call Collect)

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)

2. HAZARDS IDENTIFICATION

Emergency Overview

Clear liquid with a sharp, pungent, vinegar-like odor
Oxidizing agent: Contact with combustible material may cause fire.
Decomposes under fire conditions to release oxygen that intensifies the fire.
Use water to keep fire-exposed containers cool

Potential health effects

Principle Routes of Exposure: Eye contact. Skin contact.

Eyes Corrosive to the eyes and may cause severe damage including blindness.
Skin Contact causes severe skin irritation and possible burns.
Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system.
Ingestion Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Name	CAS-No	Weight %
Sulfuric Acid	7664-93-9	< 1.0
Water	7732-18-5	63 - 65
Acetic Acid	64-19-7	10 - 11
Hydrogen peroxide	7722-84-1	21 - 23
Peracetic Acid	79-21-0	5 - 6

4. FIRST AID MEASURES

Eye contact
In case of eye contact, remove contact lenses and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Skin contact
Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.

Inhalation
Move to fresh air. If breathing difficulty or discomfort occurs and persists, obtain medical attention. If breathing is irregular or stopped, administer artificial respiration. Call a physician immediately.

Ingestion
Clean mouth with water and afterwards drink plenty of water. Do NOT induce vomiting. Call a physician or poison control center immediately. If swallowed, do not induce vomiting - seek medical advice. Never give anything by mouth to an unconscious person.

Indication of immediate medical attention and special treatment needed, if necessary
This product can be corrosive to skin, eyes and mucous membranes. Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur. Careful gastric lavage with an endotracheal tube in place should be considered. Observation may be warranted. Treatment is controlled removal of exposure followed by symptomatic and supportive care.

5. FIRE-FIGHTING MEASURES

Flash Point
~ 83 °C

Suitable extinguishing media
Cool containers with flooding quantities of water until well after fire is out. Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media
Chemical type extinguishers are not effective with peracetic acid or hydrogen peroxide.

This product contains a Class 2 Oxidizer as defined by the Uniform Fire Code

Explosion Data
Sensitivity to Mechanical Impact Not available
Sensitivity to Static Discharge Not available

Specific hazards arising from the chemical
Decomposes under fire conditions to release oxygen that intensifies the fire.

Protective equipment and precautions for firefighters
Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Wear self-contained breathing apparatus and protective suit.

NFPA	Health Hazard 3	Flammability 1	Stability 2	Special Hazards OX

6. ACCIDENTAL RELEASE MEASURES

Personal precautions For personal protection see section 8.

Methods for containment Approach release from upwind. Control runoff and isolate discharged material for proper disposal. Do not allow material to enter storm or sanitary sewer system.

Methods for cleaning up Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in fire. Dispose of waste as indicated in Section 13.

7. HANDLING AND STORAGE

Handling Handle product only in closed system or provide appropriate exhaust ventilation.
Drums - Empty as thoroughly as possible. Triple rinse drums before disposal. Avoid contamination; impurities accelerate decomposition. Never return product to original container.

Storage Keep in a dry, cool and well-ventilated place. Do not store near combustible materials. Containers must be vented. To maintain product quality, do not store in heat or direct sunlight. Keep at temperatures below 30°C. Higher temperatures will accelerate decomposition resulting in loss of assay. Shelf life 12 months.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure guidelines .

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH	Mexico
Sulfuric Acid 7664-93-9	TWA: 0.2 mg/m³	TWA: 1 mg/m³	IDLH: 15 mg/m³ TWA: 1 mg/m³	
Acetic Acid 64-19-7	STEL 15 ppm TWA: 10 ppm	TWA: 10 ppm TWA: 25 mg/m³	IDLH: 50 ppm TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³	
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³	IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m³	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m³ Mexico: STEL 2 ppm Mexico: STEL 3 mg/m³

Chemical Name	British Columbia	Quebec	Ontario TWAEV	Alberta
Sulfuric Acid 7664-93-9	TWA: 0.2 mg/m³	TWA: 1 mg/m³ STEL: 3 mg/m³	TWA: 0.2 mg/m³	TWA: 1 mg/m³ STEL: 3 mg/m³
Acetic Acid 64-19-7	TWA: 10 ppm STEL: 15 ppm	TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³	TWA: 10 ppm STEL: 15 ppm	TWA: 10 ppm TWA: 25 mg/m³ STEL: 15 ppm STEL: 37 mg/m³
Hydrogen peroxide 7722-84-1	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³	TWA: 1 ppm	TWA: 1 ppm TWA: 1.4 mg/m³

Occupational exposure controls

Engineering measures Ensure adequate ventilation, especially in confined areas.

General Information Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

Respiratory protection	If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. If exposures are anticipated to be above the limits indicated in the "Exposure Limit" table, an approved, full-face acid/gas cartridge or canister respirator should be used. If concentrations are unknown (significant spill or other emergency) or if they are anticipated to be above 5 ppm for hydrogen peroxide or 50 ppm for acetic acid, the use of a full-face airline supplied respirator or self-contained breathing apparatus (SCBA) is recommended. .
Eye/face protection	Tightly fitting safety goggles. Face-shield.
Skin and body protection	Rubber or neoprene footwear. Impervious clothing materials such as rubber, neoprene, nitrile or polyvinyl chloride. Wear liquid proof rubber or neoprene gloves. Hydrogen peroxide is an ingredient in this product; completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on combustible materials such as paper, fabrics, leather or wood can cause the material to ignite and result in a fire.
Hand protection	Rubber/latex/neoprene or other suitable chemical resistant gloves. Wash the outside of gloves with soap and water prior to reuse. Inspect regularly for leaks. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion and the contact time. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves
Hygiene measures	When using, do not eat, drink or smoke. Wear suitable gloves and eye/face protection. Wash hands before breaks and at the end of workday. Wash hands with water as a precaution. Regular cleaning of equipment, work area and clothing is recommended. Avoid breathing vapors, mist or gas.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Clear liquid with pungent odor.
Color	Clear colorless
Physical state	Liquid
Odor	pungent vinegar-like
pH	< 1 pH = 2 - 3 (1% solution)
Melting Point/Range	-29.5 °C
Freezing point	No information available
Boiling Point/Range	99 °C
Flash Point	~ 83 °C
Evaporation rate	>1 (BuAc = 1)
Oxidizing properties	Oxidizer
Vapor pressure	22 mm Hg at 25ºC
Vapor density	No information available
Density	9.17 lb/gal
Specific Gravity	1.1 @ 20 °C
Water solubility	Completely Soluble
Percent volatile	No information available
Partition coefficient	Not applicable
Viscosity	No information available
Decomposition Temperature	55 °C (SADT)
Autoignition Temperature	270 °C

10. STABILITY AND REACTIVITY

Stability Stable under recommended storage conditions.

Conditions to avoid Keep away from open flames, hot surfaces and sources of ignition, Contamination. Combustibles such as paper and wood. Temperatures above 30°C. Higher temperatures will accelerate decomposition resulting in loss of assay.

Materials to avoid Dirt, alkali, reducing agents, caustic, organics and metals such as iron, copper, chromium, aluminum, and cobalt

Hazardous decomposition products Acetic acid and oxygen that supports combustion.

Hazardous polymerization Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

Acute effects

Eye irritation Corneal lesions and irreversible damage if contact with the eyes irritating [FMC Study I95-2036]
Skin irritation Corrosive. Causes severe skin burns (rabbit) irritating [FMC Study I95-2036]

LD50 Oral 1922 mg/kg (Rat) [FMC Study I97-2236]
LD50 Dermal > 200 mg/kg (rabbit) (17 % solution) [FMC Study I83-721]
LC50 Inhalation 204 mg/m^3 (4-hr) (Rat) (5 % solution) [FMC Study I96-2138]

Sensitization Did not cause sensitization on laboratory animals

Chronic Toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen

Chemical Name	ACGIH	IARC	NTP	OSHA
Sulfuric Acid	A2	Group 1	Known	X
Hydrogen peroxide	A3	3		

Mutagenicity This product is not recognized as mutagenic by Research Agencies

Reproductive toxicity This product is not recognized as reprotox by Research Agencies.

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic organisms.

Active Ingredient(s)	Duration	Species	Value	Units	Test method:
Peracetic Acid 15%	96 h LC50	Rainbow trout Onchorhyncus mykiss	0.53	mg/L	
Peracetic Acid 5%	48 h EC50	Daphnia magna	0.73	mg/L	[FMC Study I95-2021]
Peracetic Acid 12.5%	48 h EC50	Mytilus sdulis	0.27	mg/L	
Peracetic Acid 5%	72 h EC50	Algae S. Capricornutum	0.16	mg/L	
Peracetic Acid 5%	72 h NOEC	S. Capricornutum	0.061	mg/L	
Peracetic Acid 5%	96 h LC50	Rainbow trout Onchorhyncus mykiss	1.6	mg/L	[FMC Study I95-2023]
Peracetic Acid 5%	96 h LC50	Bluegill sunfish	1.1	mg/L	[FMC Study I95-2029]
Peracetic Acid 5%	120 h EC50	Algae (selenastrum)	0.18	mg/L	[FMC Study I95-2027]

Persistence and degradability The fate of peracetic in water will be influenced by abiotic degradation, which yields acetic acid and oxygen, and hydrolysis, which forms acetic acid and hydrogen peroxide, both of which are easily biodegradable compounds

Bioaccumulation Based on its low octanol-water partition coefficient and its rapid degradation in the environment, this product is not bioaccumuable.

Mobility Peracetic acid released in the environment will partition almost exclusively (>99%) to the water compartment. Only a minor part (<1%) will remain in the atmosphere, where it is expected to undergo rapid decomposition with a half life of 22 minutes. The fate of peracetic acid in the environment is mainly determined by its degradation.

Other adverse effects None known

13. DISPOSAL CONSIDERATIONS

Waste disposal methods This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261). If these wastes cannot be disposed of by use according to label instructions, contact appropriate disposal authorities for guidance.

RCRA D Waste Code D001 (ignitable). D002 (corrosive).

Contaminated packaging Dispose of in accordance with local regulations.

US EPA Waste Number D002

14. TRANSPORT INFORMATION

DOT

UN/ID No 3149
Proper shipping name HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED
Hazard Class 5.1
Subsidiary Class 8
Packing group II
Reportable Quantity (RQ) Hazardous Substance/RQ: Not applicable

TDG

UN/ID No 3149
Proper shipping name HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED

Hazard Class	5.1
Subsidiary Class	8
Packing group	II

ICAO/IATA

Air regulation permit shipment of peracetic acid in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all FMC peracetic acid containers are vented and therefore, air shipments of FMC peracetic acid are not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

IMDG/IMO

UN/ID No	3149
Proper shipping name	HYDROGEN PEROXIDE AND PEROXYACETIC ACID MIXTURE, STABILIZED
Hazard Class	5.1
Subsidiary hazard class	8
Packing group	II

15. REGULATORY INFORMATION

International Inventories

TSCA Inventory (United States of America)	Complies
DSL (Canada)	Complies
NDSL (Canada)	Complies
EINECS/ELINCS (Europe)	Complies
ENCS (Japan)	Complies
IECSC (China)	Complies
KECL (Korea)	Complies
PICCS (Philippines)	Complies
AICS (Australia)	Complies
NZIoC (New Zealand)	Complies

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

SARA 311/312 Hazard Categories

Acute Health Hazard	yes
Chronic Health Hazard	yes
Fire Hazard	yes
Sudden Release of Pressure Hazard	no
Reactive Hazard	yes

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Sulfuric Acid	1000 lb	1000 lb
Acetic Acid	5000 lb	
Hydrogen peroxide		1000 lb
Peracetic Acid		500 lb

SARA 302/CERCLA 355 Extremely Hazardous Substances: Hydrogen Peroxide RQ is for concentrations of > 52% only

International Regulations

Mexico - Grade Moderate risk, Grade 2

Chemical Name	Carcinogen Status	Mexico
Sulfuric Acid	A2	

Hydrogen peroxide	A3	Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m^3 Mexico: STEL 2 ppm Mexico: STEL 3 mg/m^3

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

C Oxidizing materials
E Corrosive material
D2B Toxic materials
B3 Combustible liquid

Legend

NPRI - National Pollutant Release Inventory

16. OTHER INFORMATION

HMIS	**Health Hazard** 3	**Flammability** 1	**Stability** 2	**Special precautions** H

NFPA/HMIS Ratings Legend

Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0

Product Certifications

Revision Date: 2014-01-24
Reason for revision: (M)SDS sections updated. 14.

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End of Material Safety Data Sheet