

MATERIAL SAFETY DATA SHEET

Peradigm™



MSDS Ref. No.: F18-55-9
Date Approved: 12/24/2009
Revision No.: 3

This document has been prepared to meet the requirements of the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200 and Canada's Workplace Hazardous Materials Information System (WHMIS) requirements.

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Peradigm™
GENERAL USE: Non-foaming adjuvant to be used in combination with VigorOx® branded peracetic acid products.

MANUFACTURER

FMC CORPORATION
FMC Peroxygens
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Philadelphia, PA 19103
(215) 299-6000 (General Information)
msdsinfo@fmc.com (Email - General Information)

EMERGENCY TELEPHONE NUMBERS

(303) 595-9048 (Medical - U.S. - Call Collect)
For leak, fire, spill, or accident emergencies, call:
(800) 424-9300 (CHEMTREC - U.S.A. & Canada)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Colorless liquid with a sharp, pungent, vinegar like odor.
- Corrosive. Can cause severe irritation, burns and permanent damage to eyes or skin.

POTENTIAL HEALTH EFFECTS: Based on the ingredients, this product is expected to be corrosive. It is also expected to be fatal if swallowed, and harmful if inhaled or in contact with skin or eyes.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Wt. %	EC No.	EC Class
Trade Secret		<86		
Water	7732-18-5	14.2	231-791-2	Not classified

COMMENTS: FMC is withholding the specific chemical identity under provision of the OSHA Hazard Communication Rule Trade Secrets (1910.1200(i)(1)). The specific chemical identity will be made available to health professionals in accordance with 29 CFR 1910.1200(i) (1) (2) (3) (4). This Material Safety Data Sheet provides information for employee training and hazard identification.

4. FIRST AID MEASURES

EYES: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

SKIN: Quickly wipe off as much as possible, then immediately flush with plenty of water while removing contaminated clothing and/or shoes. Thoroughly wash with soap and water. Obtain immediate medical attention. Contact a medical doctor if necessary.

INGESTION: Quickly wipe material from the mouth and rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. See a medical doctor immediately.

INHALATION: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, see a medical doctor. If breathing has stopped, give artificial respiration using a pocket mask equipped with a one-way valve or other proper respiratory medical advice. See a medical doctor immediately.

NOTES TO MEDICAL DOCTOR: This product is expected to be corrosive and contact can cause severe irritation, burns and permanent damage to the eyes or skin. Breathing this product may cause severe irritation to mucous membranes and the lungs, causing coughing and/or shortness of breath. Higher exposures may cause pulmonary edema. Consideration should be given to careful endoscopy as stomach or esophageal burns, perforations or strictures may occur.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Dry chemical, alcohol foams, CO₂ or water spray.

FIRE / EXPLOSION HAZARDS: Slight fire hazard when exposed to high temperatures or flames.

FIRE FIGHTING PROCEDURES: In the event of a fire, wear full protective clothing and NIOSH approved self-contained breathing apparatus. Use flooding quantities of water or chemical type extinguishers.

FLAMMABLE LIMITS: Not available

SENSITIVITY TO IMPACT: No data available

SENSITIVITY TO STATIC DISCHARGE: No data available

6. ACCIDENTAL RELEASE MEASURES

RELEASE NOTES: Isolate spill or leak area, contain / recover as much of material as possible. Ventilate area before entering. Wear appropriate protective equipment. Spilled material can be absorbed with sand, earth or other inert / non-combustible material. Prevent entry into storm or sanitary sewer systems.

7. HANDLING AND STORAGE

HANDLING: Follow good industrial hygiene procedures when handling material. Empty drum as thoroughly as possible.

STORAGE: Keep in tightly closed container, store at temperatures above 2.0°C (35°F) to avoid solidification. Avoid freezing and temperatures above 45°C (113°F).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMITS

Chemical Name	ACGIH	OSHA	Supplier
Trade Secret	10 ppm (TWA) 15 ppm (STEL)	10 ppm (PEL)	

ENGINEERING CONTROLS: If generation of aerosols is expected, provide mechanical local exhaust ventilation to minimize employee exposure.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Use cup type chemical goggles; full-face shield may be used. Maintain eye wash fountain and quick-drench facilities in work area.

RESPIRATORY: For emergencies or instances where the exposure levels are not known, use a full-face positive pressure, air supplied or organic vapor respirator (U.S. NIOSH/MSHA approved).

PROTECTIVE CLOTHING: Wear suitable protective clothing, such as impervious gloves, lab coat, apron or coveralls, as appropriate to protect skin.

GLOVES: Use impervious gloves to protect against skin contact. Thoroughly wash the outside of gloves with soap and water prior to removal. Inspect regularly for leaks.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR:	Sharp, pungent, vinegar like odor
APPEARANCE:	Colorless liquid
BOILING POINT:	110 °C (230 °F)
COEFFICIENT OF OIL / WATER:	Not available
DENSITY / WEIGHT PER VOLUME:	~ 9.08 lb/gal. (1088 g/L)
EVAPORATION RATE:	Not available
FLASH POINT:	63.5 °C (146 °F)
FREEZING POINT:	-4.77°C (23.4°F)
MELTING POINT:	Not available
PERCENT VOLATILE:	79
pH:	2.7 (1% solution)
SOLUBILITY IN WATER:	Fully miscible
SPECIFIC GRAVITY:	1.0892 at 25/15.5°C (77/60°F)
VAPOR PRESSURE:	15.5 at 20°C (68°F); 39.0 at 37.8°C (100°F)
VISCOSITY:	3.33 cSt at 25°C (77°F)

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID:	Temperatures below -3.9°C (25°F) to avoid solidification.
STABILITY:	Stable under ordinary use and storage.
POLYMERIZATION:	Will not occur

INCOMPATIBLE MATERIALS:

Compatible with VigorOx and other FMC peracetic acids. Avoid other oxidizers, acids, and all bases or alkali compounds.

HAZARDOUS DECOMPOSITION PRODUCTS:

Unknown; likely will burn with irritating fumes and carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

EYE EFFECTS: Expected to be severely irritating, corrosive

SKIN EFFECTS: Expected to be severely irritating, corrosive

DERMAL LD₅₀: No data available for the product.

Proprietary Component: 1,060 mg/kg (rabbit)

ORAL LD₅₀: No data available for the product.

Proprietary Component: 3310 mg/kg (rat); 4960 mg/kg (mammal)

Proprietary Component: 3000 mg/kg (rat); 5040 mg/kg (mouse)

Proprietary Component: 540 mg/kg (mouse); 930 mg/kg (rat); 1700 mg/kg (rabbit)

INHALATION LC₅₀: No data available for the product.

Proprietary Component: 5,620 mg/l (1 h) (mouse)

TARGET ORGANS: Proprietary Component #1: Eyes, skin, respiratory system and teeth.

ACUTE EFFECTS FROM OVEREXPOSURE: No data available for the product.

Based on the components, this product is expected to be corrosive and contact may cause severe irritation, burns and permanent damage to the eyes and skin. Repeated exposure can cause thickening and cracking of the skin, particularly to the hands.

Effects of eye contact may include stinging or burning sensations, lacrimation, redness and swelling of the eyelids, intense pain in the eyelids and eyes, ulceration of the tissues and opaqueness of the cornea causing blurred vision and loss of vision.

Ingestion of this product may cause a sore throat, erosion of the dental enamel, and may have a direct irritating effect on oral mucous membranes, and may cause necrotic and ulcerative lesions. It may be irritating to the gastrointestinal tract, causing nausea, vomiting and diarrhea. Ingestion of as little as 1.0 mL of component #1 has resulted in perforation of the esophagus

Breathing or inhaling this product may irritate the mouth, nose, throat, lungs, and respiratory tract, causing coughing and/or shortness of breath, and bronchitis may develop. It may also cause serious damage to the lining of the nose, throat and lungs. Higher exposures can cause build-up of fluid in the lungs (pulmonary edema).

CHRONIC EFFECTS FROM OVEREXPOSURE: No data available for the product. Based on the ingredients, prolonged skin contact may cause dermatitis. Results of genotoxicity tests from the ingredients were negative.

Proprietary Component #1: Repeated or prolonged exposures may cause blackening and hyperkeratosis of the skin, bronchitis and pharyngitis, erosion of exposed front teeth, and chronic inflammation of the nose throat and bronchial tubes. Chronic exposures at levels up to 200 ppm has produced palpebral edema, hypertrophy of lymph nodes and conjunctival hyperemia. Persons with pre-existing skin disorders or eye problems, or impaired respiratory function may be more susceptible to the effects of this substance. Teratogenicity testing has been reported to be negative in mice, rats, rabbits, hamsters and guinea pigs. This component has been tested and has not been shown to cause cancer, or to have reproductive effects.

Proprietary Component #2: Chronic or heavy ingestion may cause tooth enamel erosion. Large oral doses may cause severe metabolic acidosis, hyperkalemia, hypotension and tachycardia. This component was not mutagenic in *Salmonella typhimurium* in the presence or absence of metabolic activation, and it did not induce chromosome aberrations in cultured Chinese hamster fibroblast cells; nor was it not shown to be a reproductive hazard in animals. Rats fed 1.2% for 90 weeks experienced no harmful effects on growth, reproduction, blood values, pathology or calcium levels, and slight dental attrition was seen. The actual human reproductive hazard is unknown, but it is not expected to be significant as it is a normal metabolite. No teratogenic effect was observed among the offspring of mice, rats, hamsters, or rabbits treated with large doses during pregnancy. This component is not expected to be genotoxic at physiological concentrations because it is a normal metabolite

Proprietary Component #3: Ingestion of sizable amounts can cause a syndrome evidenced by abdominal pain, vomiting, increased respiration and mental disturbances. Fatalities resulting from respiratory or cardiovascular failure are known. Mean lethal adult ingestion dose is between 20 and 30 grams. When given to pregnant rats and rabbits at high doses, increased congenital malformations occurred, primarily involving the skeleton and central nervous system. This component, an NSAID, may play a role in at least one type of female infertility. Prostaglandin inhibition appears to increase the incidence of luteinized unruptured follicle syndrome, a condition in which normal ovarian follicular development is followed by an elevation of serum progesterone compatible with ovulation, but the cycle remains anovulatory because the follicular wall remains unruptured. Animal and human oral data suggests that the reduced clearance by neonates may result in drug accumulation and toxic effects when repeated oral exposures are small. Because of these concerns, the WHO Working Group on Human Lactation classified this component as unsafe for use by nursing women.

CARCINOGENICITY:

NTP:	Not listed
IARC:	Not listed
OSHA:	Not listed
OTHER:	ACGIH: Not listed

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL DATA: No data available.

ECOTOXICOLOGICAL INFORMATION: No data available for the product.

Proprietary Component #1
96-hour LC₅₀ = 88 mg/L (*Pimephales promelas*)
96-hour LC₅₀ = 75 mg/L (*Lepomis macrochirus*)
72 to 96-hour LC₅₀ = 88 mg/L (*Fathead minnows*)

48-hour LC₅₀ = 92 mg/L (Fathead minnows)
 24-hour LC₅₀ = 122 mg/L (Fathead minnows)
 1-hour LC₅₀ > 315 mg/L (Fathead minnows)
 24-hour EC₅₀ = 95 mg/L (Daphna magna)
 96-hour TLm = 75 mg/L (Bluegill)
 24 to 96-hour TLm = 251 mg/L (Mosquito fish)
 24-hour TLm = 100 - 1000 mg/L (Lepomis macrochirus)
 24-hour TLm = 47 mg/L (Daphnia magna)

Proprietary Component #3
 96-hour LC₅₀ = 1370 mg/L (flow through) (Fathead minnow)

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: None of the components of this formulation are specifically listed as a "Hazardous Waste" in the Federal Regulations. Waste material should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product could change the waste management options. Dispose of container and unused material in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

PACKAGING TYPE:	Non-Bulk
PROPER SHIPPING NAME:	Acetic acid solution, not less than 50% but not more than 80%, by mass
PRIMARY HAZARD CLASS / DIVISION:	8
UN/NA NUMBER:	UN 2790
PACKING GROUP:	II
LABEL(S):	Corrosive
PLACARD(S):	Corrosive
MARKING(S):	Acetic acid solution, not less than 50% but not more than 80% by mass, UN 2790
ERG NUMBER:	154

INTERNATIONAL MARITIME DANGEROUS GOODS (IMDG)

PROPER SHIPPING NAME:	Acetic acid solution, not less than 50% but not more than 80%, by mass
PRIMARY HAZARD CLASS / DIVISION:	8

UN/NA NUMBER: UN 2790
PACKING GROUP: II
LABEL(S): 8
PLACARD(S): 8
ADDITIONAL INFORMATION: EmS Number: F-A, S-B

**INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO) /
INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)**

ADDITIONAL INFORMATION: NOTE: Venting of packages is not permitted for air transport.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355, APPENDIX A):

None of the components are listed.

SECTION 311 HAZARD CATEGORIES (40 CFR 370):

Immediate, Delayed, Fire

SECTION 312 THRESHOLD PLANNING QUANTITY (40 CFR 370):

The Threshold Planning Quantity (TPQ) for this product, if treated as a mixture, is 10,000 lbs; however, this product contains the following ingredients with a TPQ of less than 10,000 lbs.:
None

SECTION 313 REPORTABLE INGREDIENTS (40 CFR 372):

Not listed

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT)

CERCLA DESIGNATION & REPORTABLE QUANTITIES (RQ) (40 CFR 302.4):

Proprietary Component #1
5,000 lb

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA INVENTORY STATUS (40 CFR 710):

All components are listed or exempt.

**RESOURCE CONSERVATION AND RECOVERY ACT (RCRA)
RCRA IDENTIFICATION OF HAZARDOUS WASTE (40 CFR 261):**

Waste Number: Not considered a hazardous waste.

CANADA

WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):

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

Hazard Classification / Division: B3
D2A
E

Ingredient Disclosure List: Proprietary Component #1
Proprietary Component #2

Domestic Substance List: All components are listed or exempt.

INTERNATIONAL LISTINGS

Proprietary Component #1
Australia (AICS): Listed
China: Listed
Japan (ENCS): (2)-688
Korea: KE-00013
Philippines (PICCS): Listed

Proprietary Component #2
Australia (AICS): Listed
China: Listed
Japan (ENCS): (2)-1318
Korea: KE-20831
Philippines (PICCS): Listed

Proprietary Component #3
Australia (AICS): Listed
China: Listed
Japan (ENCS): (3)-1639); (9)-1094
Korea: KE-20384
Philippines (PICCS): Listed

COMMENTS:

Proprietary Component #1
Korea Toxic Release: >=1.0% (by weight)
Japan-GHS Acute Hazards to the Aquatic Environment: Category III (harmful to aquatic life)
Japan-GHS Respiratory Sensitizers: Category I (Health Hazard; Danger; May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.)

Japan-GHS Serious Eye Damage/Irritation: Category I (Corrosion; Danger; Causes serious eye damage)

Japan-GHS Skin Corrosion/Irritation: Category IA - 1C (Corrosion; Danger, Causes severe skin burns and eye damage)

16. OTHER INFORMATION

HMIS

Health	3
Flammability	2
Physical Hazard	0
Personal Protection (PPE)	H

Protection = H (o) = Chemical goggles or face shield, gloves, apron, and vapor respirator

HMIS = Hazardous Materials Identification System

Degree of Hazard Code:

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

NFPA

Health	3
Flammability	2
Reactivity	0
Special	

NFPA (National Fire Protection Association)

Degree of Hazard Code:

- 4 = Extreme
- 3 = High
- 2 = Moderate
- 1 = Slight
- 0 = Insignificant

REVISION SUMMARY:

This MSDS replaces Revision #3, dated February 22, 2008.

Changes in information are as follows:

Section 1 (Product and Company Identification)

Section 9 (Physical and Chemical Properties)

Section 16 (Other Information)

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