HYDROGEN PEROXIDE 50% (ALL GRADES)

1. PRODUCT AND COMPANY IDENTIFICATION

Company

Arkema Inc.
2000 Market Street
Philadelphia, Pennsylvania 19103

Oxygenated and Derivatives

Customer Service Telephone Number: (800) 346-7575
(Monday through Friday, 8:30 AM to 5:30 PM EST)

Emergency Information

Transportation: CHEMTREC: (800) 424-9300
(24 hrs., 7 days a week)
Medical: Rocky Mountain Poison Center: (303) 623-5716
(24 hrs., 7 days a week)

Product Information

Product name: HYDROGEN PEROXIDE 50% (ALL GRADES)
Synonyms: Not available
Molecular formula: H2O2
Chemical family: peroxides
Molecular weight: 34.01 g/mol
Product use: Bleaching agent, Oxidizing agent, Cosmetics, Water treatment

2. HAZARDS IDENTIFICATION

Emergency Overview

Color: colourless
Physical state: liquid
Odor: pungent

DANGER!
STRONG OXIDIZER.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE OR EXPLOSIVE DECOMPOSITION.
CAUSES EYE AND SKIN BURNS.
MAY CAUSE BLINDNESS.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
HARMFUL IF SWALLOWED.

Potential Health Effects

Primary routes of exposure:
Inhalation and skin contact.

Signs and symptoms of acute exposure:
Corrosive to skin and eyes. May cause irritation of respiratory tract. Effects due to ingestion may include: gastrointestinal symptoms ulceration, burns, accumulation of fluid in the lungs which may be delayed for several hours.

Skin:
Slightly toxic. Corrosive. (based on animal studies)

Inhalation:
Slightly toxic. (based on animal studies)

Eyes:
Corrosive. (based on animal studies)

Ingestion:
No more than moderately toxic. (based on animal studies)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Wt/Wt	OSHA Hazardous
Hydrogen peroxide (H2O2)	7722-84-1	50 %	Y
Water	7732-18-5	50 %	N

The substance(s) marked with a "Y" in the Hazard column above, are those identified as hazardous chemicals under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200).

This material is classified as hazardous under Federal OSHA regulation.

4. FIRST AID MEASURES

Inhalation:
If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If inhaled, remove to fresh air. Get medical attention.

Skin:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Destroy contaminated shoes.

Eyes:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

Ingestion:
If swallowed, DO NOT induce vomiting. Get medical attention immediately. If victim is fully conscious, give a cupful of water. Never give anything by mouth to an unconscious person.

Notes to physician:
Exposure to material may cause delayed lung injury resulting in pulmonary edema and pneumonitis. Exposed individuals should be monitored for 72 hours after exposure for the onset of delayed respiratory symptoms.

5. FIRE-FIGHTING MEASURES

Flash point None.

Auto-ignition temperature: not applicable

Lower flammable limit (LFL): not applicable

Upper flammable limit (UFL): not applicable

Extinguishing media (suitable):
water spray, water fog

Protective equipment:
Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand / NIOSH approved or equivalent).

Further firefighting advice:
Fire fighting equipment should be thoroughly decontaminated after use.

Fire and explosion hazards:
Oxidizing Material
Solutions above 65% are especially hazardous as they do not contain enough water to remove the heat of decomposition by evaporation.
Explosive when mixed with combustible material.
Avoid breathing fumes from fire exposed material.

6. ACCIDENTAL RELEASE MEASURES

In case of spill or leak:
Stop the leak if you can do so without risk. Ventilate the area. Flush with plenty of water. Avoid contact with cellulose, paper, sawdust or similar substances. Risk of self-ignition or promotion of fires. Combustible materials exposed to hydrogen peroxide should be rinsed immediately with large amounts of water to ensure that all the hydrogen peroxide is removed. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7. HANDLING AND STORAGE

Handling

General information on handling:
Do not get in eyes, on skin, or on clothing.
Avoid breathing vapor or mist.
Do not taste or swallow.
Wash thoroughly after handling.
Use only with adequate ventilation.
Avoid contamination.
Keep from contact with clothing and other combustible materials.
Store in tightly closed container.
Emptied container retains vapor and product residue.
Observe all labeled safeguards until container is cleaned, reconditioned or destroyed.
DO NOT CUT, DRILL, GRIND, OR WELD ON OR NEAR THIS CONTAINER.

Storage

General information on storage conditions:
Store away from combustibles and incompatible materials. Store in cool, dry, well ventilated area away from sources of ignition such as flame, sparks and static electricity. Refer to National Fire Protection Association (NFPA) 43A, Code for the Storage of Solid and Liquid Oxidizers.

Storage incompatibility – General:
Store separate from acids, alkalies, reducing agents, and combustibles. Store separate from: Metallic oxides

Organic materials

Metallic oxides

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Airborne Exposure Guidelines:

Engineering controls:
Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection:
Avoid breathing vapor or mist. When airborne exposure limits are exceeded, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. Consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limits may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Skin protection:
Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact.

When handling this material, gloves of the following type(s) should be worn:

Neoprene

Polyvinylchloride

Impervious butyl rubber gloves

Wear chemical goggles, a face shield, and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse immediately if skin is contaminated. Remove contaminated clothing immediately and wash before reuse. Clean protective equipment before reuse. Provide a safety shower at any location where skin contact can occur. Wash thoroughly after handling.

Eye protection:
Where there is potential for eye contact, wear a face shield, chemical goggles, and have eye flushing equipment immediately available.

Body protection:
Rubber boots with neoprene or pvc soles., Note: As the water content of hydrogen peroxide evaporates, cotton,

rayon, and wool fibers are particularly subject to spontaneous combustion., Where there is significant risk of sudden splash or spray, it is advised that an apron or rubber suit be worn.

9. PHYSICAL AND CHEMICAL PROPERTIES

Color:	colourless
Physical state:	liquid
Odor:	pungent
pH:	no data available
Density:	1.196 g/cm3 (68 °F (20 °C))
Vapor pressure:	18 mmHg (68 °F (20 °C))
Relative vapor density:	1.0
Vapor density:	not determined
Boiling point/boiling range:	237 °F (114 °C)
Freezing point:	-62 °F (-52 °C)
Evaporation rate:	no data available
Solubility in water:	completely soluble
% Volatiles:	100 %
Molecular weight:	34.01 g/mol
Henry's constant:	(Concentration: 50%) 10.0E-03

10. STABILITY AND REACTIVITY

Stability:
This material is chemically stable under normal and anticipated storage, handling and processing conditions.

Materials to avoid:
Metals
Organic materials
Reducing agents
Metallic oxides
Dusts
Combustible materials (e.g., wood, sawdust)
Alkaline materials

Conditions / hazards to avoid:
Material decomposes with the potential to produce a rupture of unvented closed containers.

Hazardous decomposition products:
This material decomposes if contaminated, causing fire and possible explosions. Oxygen can be liberated at temperatures above ambient.

11. TOXICOLOGICAL INFORMATION

Data on this material and/or its components are summarized below.

Data for HYDROGEN PEROXIDE 50% (ALL GRADES)

Acute toxicity

Oral:
No more than moderately toxic. (rat) LD50 = 225-1200 mg/kg (50%) .

Moderately toxic. (rat) LD50 = 75 mg/kg (70%) .

Dermal:
Practically nontoxic. (rat) LD50 >6500 mg/kg (70%) .

Inhalation:
Slightly toxic. (rat) LC0 > 0.17 mg/l. (50 %)

Skin Irritation:
Corrosive. (rabbit) (50 %)

Corrosive. (rabbit) (70 %)

Eye Irritation:
Corrosive. (rabbit) (70 %)

Repeated dose toxicity
Repeated drinking water administration to rat and mouse / affected organ(s): GI tract / signs: irritation

Repeated inhalation administration to rat and mouse / affected organ(s): nose / signs: irritation

Repeated inhalation administration to dog / affected organ(s): upper respiratory tract, lung / signs: irritation, emphysema

Chronic oral administration to laboratory animal / affected organ(s): stomach / signs: ulceration

Carcinogenicity
Chronic drinking water administration to rat and mouse / affected organ(s): GI tract / Increased incidence of tumors was reported.

Classified by the International Agency for Research on Cancer as: Group 3: Unclassifiable as to carcinogenicity in humans.

Genotoxicity

Assessment in Vitro:
Genetic changes were observed in laboratory tests using: bacteria, animal cells

Assessment in Vivo:
No genetic changes were observed in laboratory tests using: animals

Human experience

Inhalation:
Throat: irritation. (based on reports of occupational exposure to workers)
Skin contact:
Skin: bleaching of hair. (based on reports of occupational exposure to workers)
Eye contact:
Eye: irritating. (based on reports of occupational exposure to workers)
Ingestion:
GI tract: bloating, ulceration, burns. (accidental exposure to concentrated solutions)
Lung: accumulation of fluid in the lungs, death.

12. ECOLOGICAL INFORMATION

Chemical Fate and Pathway
No data are available.

Ecotoxicology

Data for HYDROGEN PEROXIDE 50% (ALL GRADES)

Aquatic toxicity data:
Slightly toxic. Fish 96 h LC50 between 10 - 37 mg/l

Aquatic invertebrates:
Moderately toxic. Daphnia magna (Water flea) EC50 = 7.7 mg/l
Moderately toxic. Daphnia pulex (Water flea) EC50 = 2.4 mg/l

Algae:
Highly toxic. EC50 = 0.85 mg/l

Microorganisms:
Slightly toxic. Bacteria EC50 = 30 mg/l

13. DISPOSAL CONSIDERATIONS

Waste disposal:
Dilution with water is the preferred method of disposal. Dispose of in accordance with federal, state and local regulations. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT)

UN Number	:	2014
Proper shipping name	:	Hydrogen peroxide, aqueous solutions
Class	:	5.1
Subsidiary hazard class	:	(8)
Packaging group	:	II
Marine pollutant	:	no

International Maritime Dangerous Goods Code (IMDG)

UN Number	:	2014
Proper shipping name	:	HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Class	:	5.1
Subsidiary hazard class	:	(8)
Packaging group	:	II
Marine pollutant	:	no

15. REGULATORY INFORMATION

Chemical Inventory Status

EU. EINECS	EINECS	Conforms to
US. Toxic Substances Control Act	TSCA	The components of this product are all on the TSCA Inventory.
Australia. Industrial Chemical (Notification and Assessment) Act	AICS	Conforms to
Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL). (Can. Gaz. Part II, Vol. 133)	DSL	All components of this product are on the Canadian DSL list.
Japan. Kashin-Hou Law List	ENCS (JP)	Does not conform
Korea. Toxic Chemical Control Law (TCCL) List	KECI (KR)	Conforms to
Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act	PICCS (PH)	Does not conform
China. Inventory of Existing Chemical Substances	INV (CN)	Does not conform
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	NZIOC	Conforms to

United States – Federal Regulations

SARA Title III – Section 302 Extremely Hazardous Chemicals:

SARA Title III - Section 311/312 Hazard Categories:
Acute Health Hazard, Fire Hazard, Reactivity Hazard

SARA Title III – Section 313 Toxic Chemicals:
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - Reportable Quantity (RQ):

OSHA Regulated Carcinogens (NTP, IARC, OSHA Listed):

NTP:
No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

IARC:
No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA:
No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

United States – State Regulations

Massachusetts Right to Know

Chemical Name	CAS-No.
Hydrogen peroxide (H2O2)	7722-84-1
Chlorides	Proprietary

New Jersey Right to Know

Chemical Name	CAS-No.
Hydrogen peroxide (H2O2)	7722-84-1

Pennsylvania Right to Know

Chemical Name	CAS-No.
Water	7732-18-5
Hydrogen peroxide (H2O2)	7722-84-1

California Prop. 65
This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive defects.

16. OTHER INFORMATION

Miscellaneous:

Other information:	This MSDS covers the following grades of 50% H2O2: Albone; Peroxal; Valsterane; A; Alb, BIO; CG; CG-HP; CGHP; CLG; DS; FG; M; MS.

Latest Revision(s):

Reference number:	000000033382
Date of Revision:	05/04/2009
Date Printed:	05/04/2009

Arkema Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of Arkema Inc., Arkema Inc. expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.