

SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Hydrogen Peroxide

Other means of identification

Product No.: 5803, 5170, 3664, V340, 2192, 2204, 2203, 2202, 2201, 2200, 2190, 2189, 2186, 5236, 5853, 5846, 5816, 2002, 5516, 5369, 5240, 5155, 37818, 37817, 37810, 2206

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name: Avantor Performance Materials, LLC
Address: 100 Matsonford Rd, Suite 200
Radnor, PA 19087

Telephone: Customer Service: 855-282-6867

Contact Person: Product Information Compliance
E-mail: info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Oxidizing liquids Category 2

Health Hazards

Acute toxicity (Oral) Category 4
Acute toxicity (Inhalation - vapor) Category 3
Skin Corrosion/Irritation Category 1
Serious Eye Damage/Eye Irritation Category 1
Germ Cell Mutagenicity Category 1B
Specific Target Organ Toxicity - Single Exposure Category 1¹
Specific Target Organ Toxicity - Single Exposure Category 3²

Target Organs

1. Lungs
2. Respiratory tract irritation.

Unknown toxicity - Health

Acute toxicity, oral 0 %
Acute toxicity, inhalation, vapor 25 %

Environmental Hazards

Acute hazards to the aquatic environment

Category 2

Unknown toxicity - Environment

Acute hazards to the aquatic environment 0 %

Chronic hazards to the aquatic environment 25 %

Label Elements

Hazard Symbol:



Signal Word:

Danger

Hazard Statement:

May intensify fire; oxidizer.
Toxic if inhaled.
Harmful if swallowed.
Causes severe skin burns and eye damage.
May cause respiratory irritation.
May cause genetic defects.
Causes damage to organs if swallowed.
Toxic to aquatic life.

Precautionary Statements

Prevention:

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat. - No smoking. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Wash thoroughly after handling. Do not breathe dust/mist/vapors. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Do not eat, drink or smoke when using this product. Avoid release to the environment.

Response:

In case of fire: Use water spray, foam, dry powder or carbon dioxide for extinction. IF exposed: Call a POISON CENTER or doctor/physician. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Hydrogen peroxide	7722-84-1	25 - 35%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information:	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion:	Call a physician or poison control center immediately. Do NOT induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Inhalation:	Move to fresh air. Call a physician or poison control center immediately. If breathing is difficult, give oxygen. Apply artificial respiration if victim is not breathing
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms:	Harmful if swallowed. Toxic if inhaled. Corrosive to skin and eyes.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment:	Treat symptomatically. Symptoms may be delayed.
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5. Fire-fighting measures

General Fire Hazards: Strong oxidizer - contact with other material may cause fire.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Strong oxidizer. Contact with combustible material may cause fire. Pressurized container may explode when exposed to heat or flame.

Special protective equipment and precautions for firefighters

Special fire fighting procedures:

Use water spray to keep fire-exposed containers cool. Fight fire from a protected location. Move containers from fire area if you can do so without risk.

Special protective equipment for fire-fighters:

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Keep unauthorized personnel away. Use personal protective equipment. Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up:

In case of leakage, eliminate all ignition sources. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures:

Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions:

Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:

Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Wash hands thoroughly after handling. Do not get in eyes, on skin, on clothing. Keep away from combustible material. Do not taste or swallow. Do not eat, drink or smoke when using the product. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight.

Conditions for safe storage, including any incompatibilities:

Keep away from heat. Keep away from sources of ignition - No smoking. Keep away from combustible material. Keep container tightly closed. Store in a well-ventilated place. Store in a dry place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Hydrogen peroxide	TWA	1 ppm	US. ACGIH Threshold Limit Values (2011)
	REL	1 ppm 1.4 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	PEL	1 ppm 1.4 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	1 ppm 1.4 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA	1 ppm 1.4 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)
	ST ESL	Health 14 µg/m3	US. Texas. Effects Screening Levels (Texas

			Commission on Environmental Quality) (11 2016)
	ST ESL	Health 10 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL	Health 1.4 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL	Health 1 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
Hydrogen peroxide - as H2O2	TWA PEL	1 ppm 1.4 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.

Skin Protection
Hand Protection: Chemical resistant gloves

Other: Wear appropriate clothing to prevent reasonably probable skin contact.

Respiratory Protection: In case of inadequate ventilation use suitable respirator. Chemical respirator with acid gas cartridge.

Hygiene measures: Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state: Liquid

Form: Liquid

Color: Colorless

Odor: Mild pungent

Odor threshold: No data available.

pH: 3.3

Melting point/freezing point: -25 °C

Initial boiling point and boiling range: 108 °C

Flash Point: Not applicable

Evaporation rate: < 1 (butyl acetate=1)

Flammability (solid, gas): No data available.

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%): No data available.

Flammability limit - lower (%): No data available.

Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	3.33 kPa
Vapor density:	1.17
Density:	1.11 g/ml (20 °C)
Relative density:	1.11 (20 °C)
Solubility(ies)	
Solubility in water:	Miscible with water.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No dangerous reaction known under conditions of normal use.
Chemical Stability:	Stable; however, may decompose if heated.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Conditions to avoid:	Heat. Light. Contact with combustibles. Contact with incompatible materials.
Incompatible Materials:	Organic compounds. Reducing agents. Flammable/combustible material.
Hazardous Decomposition Products:	May decompose upon heating to produce corrosive and/or toxic fumes.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	May cause irritation to the respiratory system.
Skin Contact:	Causes severe skin burns.
Eye contact:	Causes serious eye damage.
Ingestion:	May cause burns of the gastrointestinal tract if swallowed.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral	
Product:	ATEmix (Rat): 1,982 mg/kg
Dermal	
Product:	No data available.
Inhalation	
Product:	No data available.

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: Causes skin burns.

Serious Eye Damage/Eye Irritation

Product: Causes eye burns.

Respiratory or Skin Sensitization

Product: Not a skin sensitizer.

Carcinogenicity

Product: Suspected of causing cancer.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity
In vitro

Product: May cause genetic defects.

In vivo

Product: May cause genetic defects.

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: Lungs. Respiratory tract irritation.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Target Organs

Specific Target Organ Toxicity - Single Exposure: Lungs

Specific Target Organ Toxicity - Single Exposure: Respiratory tract irritation.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:
Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

Hydrogen peroxide
NOAEL (Pimephales promelas, 96 h): 5 mg/l
LC 50 (Pimephales promelas, 96 h): 16.4 mg/l
LC 50 (Ictalurus punctatus, 96 h): 37.4 mg/l

Aquatic Invertebrates

Product: No data available.

Chronic hazards to the aquatic environment:
Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability
Biodegradation

Product: Expected to be readily biodegradable.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential
Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: The product is water soluble and may spread in water systems.

Other adverse effects: Toxic to aquatic life.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information
DOT

UN Number: UN 2014
UN Proper Shipping Name: Hydrogen peroxide, aqueous solutions
Transport Hazard Class(es)
Class: 5.1
Label(s): 5.1, 8
Packing Group: II
Marine Pollutant: No

Special precautions for user: Not determined.

IMDG

UN Number: UN 2014
UN Proper Shipping Name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION (WITH 20% - 60% HYDROGEN PEROXIDE)
Transport Hazard Class(es)
Class: 5.1
Label(s): 5.1, 8
EmS No.: F-H, S-Q
Packing Group: II
Marine Pollutant: No
Special precautions for user: Not determined.

IATA

UN Number: UN 2014
Proper Shipping Name: Hydrogen peroxide, aqueous solution
Transport Hazard Class(es):
Class: 5.1
Label(s): 5.1, 8
Packing Group: II
Marine Pollutant: No
Special precautions for user: Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Oxidizer (liquid, solid or gas)
Acute toxicity (any route of exposure)
Skin Corrosion or Irritation
Serious eye damage or eye irritation
Germ Cell Mutagenicity
Specific target organ toxicity (single or repeated exposure)

SARA 302 Extremely Hazardous Substance

<u>Chemical Identity</u>	<u>Reportable quantity</u>	<u>Threshold Planning Quantity</u>
Hydrogen peroxide	1000 lbs.	1000 lbs.

SARA 304 Emergency Release Notification

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Hydrogen peroxide	

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Hydrogen peroxide	500 lbs.

SARA 313 (TRI Reporting)

None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient regulated by CA Prop 65 present.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

Hydrogen peroxide

US. Massachusetts RTK - Substance List

Chemical Identity

Hydrogen peroxide

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity

Hydrogen peroxide

US. Rhode Island RTK

Chemical Identity

Hydrogen peroxide

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

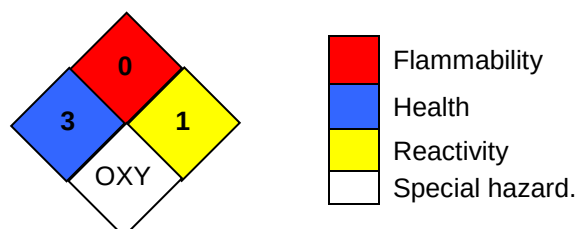
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Mexico INSQ:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16. Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible
OXY: Oxidizer

Issue Date: 12-21-2018

Revision Information: Not relevant.

Version #: 1.3

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

Further Information: No data available.

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