

Material Safety Data Sheet



386790

Hydrogen Peroxide

1. Product and company identification

Supplier/Manufacturer : EMD Chemicals, Inc.
10394 Pacific Center Court
San Diego, CA 92121
(858)450-5558/(800)854-3417
FAX: (858)453-3552

In case of emergency Call Chemtrec®
(800)424-9300 (within U.S.A.)
(703)527-3887 (outside U.S.A.)

Responsible name : **Company**
Not available.

Product name : Hydrogen Peroxide

Material uses : Other non-specified industry: Analytical reagent

Validation date : **3/26/2008.**

Print date : 3/26/2008.

2. Hazards identification

Physical state : Liquid. (Supplied as a stabilized 30% solution.)

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : Danger!
CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
OXIDIZER.
HARMFUL IF SWALLOWED.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: SKIN, EYES, EYE, LENS OR CORNEA.
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: LUNGS, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, HEAD.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.
Do not ingest. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Store in tightly-closed container. Avoid contact with combustible materials. Use only with adequate ventilation. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eyes : Corrosive to eyes.

Skin : Corrosive to the skin.

Inhalation : Corrosive to the respiratory system.

Ingestion : Toxic if swallowed. May cause burns to mouth, throat and stomach.

Potential chronic health effects : **CARCINOGENIC EFFECTS** Classified A3 (Proven for animals.) by ACGIH. Classified None. by NIOSH. 3 (Not classifiable for humans.) by IARC.
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS Not available.

Medical conditions aggravated by over-exposure : Repeated skin exposure can produce local skin destruction or dermatitis. Repeated or prolonged exposure to the substance can produce lung damage. Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to the substance can produce target organs damage.

See toxicological information (section 11)

3 . Composition/information on ingredients

United States

Name

Hydrogen peroxide solution

CAS number

7722-84-1

%

30

4 . First aid measures

- Eye contact** : Get medical attention immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Chemical burns must be treated promptly by a physician.
- Skin contact** : Get medical attention immediately. Flush contaminated skin with plenty of water. Continue to rinse for at least 10 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing or wear gloves. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Inhalation** : Get medical attention immediately. Move exposed person to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Ingestion** : Get medical attention immediately. Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Container explosion may occur under fire conditions or when heated. May explode when heated.

6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Eliminate all ignition sources. Keep unnecessary personnel away. Use suitable protective equipment. Do not touch or walk through spilled material.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, contain spilled material. For small spills, add absorbent (soil may be used in the absence of other suitable materials) and use a non-sparking or explosion-proof means to transfer material to a sealable, appropriate container for disposal. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Place spilled material in an appropriate container for disposal.

7 . Handling and storage

- Handling** : Do not ingest. Do not get in eyes or on skin or clothing. Keep container closed. Use only with adequate ventilation. Do not breathe vapor or mist. Store in tightly-closed container. Avoid contact with combustible materials. Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles.

8 . Exposure controls/personal protection

Product name

United States

Hydrogen peroxide solution

Exposure limits

ACGIH (United States, 1996).

TWA: 1.4 mg/m³

OSHA (United States, 1989).

TWA: 1.4 mg/m³

NIOSH REL (United States, 2001).

TWA: 1.4 mg/m³ 10 hour/hours.

TWA: 1 ppm 10 hour/hours.

OSHA PEL (United States, 1993).

TWA: 1.4 mg/m³ 8 hour/hours.

TWA: 1 ppm 8 hour/hours.

OSHA PEL 1989 (United States, 1989).

TWA: 1.4 mg/m³ 8 hour/hours.

TWA: 1 ppm 8 hour/hours.

ACGIH TLV (United States, 2003). Notes: 1996 Adoption Refers to Appendix A -- Carcinogens.

TWA: 1.4 mg/m³ 8 hour/hours.

TWA: 1 ppm 8 hour/hours.

Consult local authorities for acceptable exposure limits.

- Engineering measures** : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Skin

- : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory

- : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

8 . Exposure controls/personal protection

- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

9 . Physical and chemical properties

- Component** : Not available.
- Physical state** : Liquid. (Supplied as a stabilized 30% solution.)
- Molecular weight** : 34 g/mole
- Molecular formula** : H₂O₂
- Boiling/condensation point** : 141.16°C (286.1°F)
- Melting/freezing point** : -11.06°C (12.1°F)
- Relative density** : 1.39 (Water = 1)
- Vapor pressure** : 3.1 kPa (23.3 mm Hg) (at 20°C)
- Vapor density** : >1 (Air = 1)
- Dispersibility properties** : See solubility in water.
- Solubility** : Easily soluble in cold water.

10 . Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Reactive or incompatible with the following materials: reducing materials, organic materials and metals.
Incompatible with finely powdered metals. Incompatible with lead and silver salts.
- Conditions of reactivity** : Container explosion may occur under fire conditions or when heated. May explode when heated.
Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and organic materials.

11 . Toxicological information

Toxicity data

United States

<u>Product/ingredient name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
Hydrogen peroxide solution	LD50	376 mg/kg	Oral	Rat
	LD50	910 mg/kg	Oral	Rat
	LD50	1518 mg/kg	Oral	Rat
	LD50	4060 mg/kg	Dermal	Rat
	LDLo	8500 mg/kg	Oral	child
	LDLo	1429 mg/kg	Oral	man
	LDLo	500 mg/kg	Dermal	Rabbit

- Chronic effects on humans** : **CARCINOGENIC EFFECTS** Classified A3 (Proven for animals.) by ACGIH. Classified None. by NIOSH. 3 (Not classifiable for humans.) by IARC.
Causes damage to the following organs: skin, eyes, eye, lens or cornea.
May cause damage to the following organs: lungs, gastrointestinal tract, upper respiratory tract, head.

- Other toxic effects on humans** : Very hazardous in case of skin contact (corrosive), of eye contact (corrosive), of inhalation (lung corrosive).

- Special remarks on other toxic effects on humans** : Exposure can cause nausea, headache and vomiting. Material is destructive to tissue of the mucous membranes and upper respiratory tract. Exposure can cause lung irritation, chest pain and oedema which may be fatal.

11 . Toxicological information

Specific effects

- Carcinogenic effects** : No known significant effects or critical hazards.
Mutagenic effects : No known significant effects or critical hazards.
Teratogenicity / Reproductive toxicity : No known significant effects or critical hazards.

Sensitization

- Ingestion** : May cause burns to mouth, throat and stomach.
Inhalation : Corrosive to the respiratory system.
Eyes : Corrosive to eyes.
Skin : Corrosive to the skin.

12 . Ecological information

Ecotoxicity data

United States

Product/ingredient name

Hydrogen peroxide solution

Species

Daphnia magna (EC50)

Oncorhynchus mykiss (LC50)

Lepomis macrochirus (LC50)

Period

48 hour/hours

96 hour/hours

96 hour/hours

Result

24 mg/l

22 mg/l

26.7 mg/l

- Environmental precautions** : No known significant effects or critical hazards.
Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

13 . Disposal considerations


- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.


The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	UN2014	Hydrogen peroxide, aqueous solution	5.1	II		-
TDG Classification	Not available.	Not available.	Not available.	Not available.		-
ADR/RID Class	Not available.	Not available.	Not available.	Not available.		-

14 . Transport information

IATA-DGR Class	UN2014	Hydrogen peroxide, aqueous solution	5.1	II		Passenger and Cargo Aircraft Quantity limitation: 1 L Cargo Aircraft Only Quantity limitation: 5 L Limited Quantities - Passenger Aircraft Quantity limitation: 0.5 L
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PG* : Packing group

15 . Regulatory information

United States

HCS Classification

: Oxidizing material
Toxic material
Corrosive material
Target organ effects

U.S. Federal regulations

: TSCA 8(b) inventory: This product is being sent to you as a Research and Development product as defined by the Toxic Substances Act (TSCA) of 1976. Due to TSCA's R&D exemption, this product is not listed on the U.S. EPA's Toxic Substances Control Act (TSCA's) inventory. As a TSCA-exempt R&D substance, this product must be used by or directly under the supervision of a technically qualified individual(s) as defined by TSCA. This product may not be used for commercial purposes or in formulations used for commercial purposes.

SARA 302/304/311/312 extremely hazardous substances: Hydrogen peroxide solution

SARA 302/304 emergency planning and notification: Hydrogen peroxide solution

SARA 302/304/311/312 hazardous chemicals: Hydrogen peroxide solution

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Hydrogen peroxide solution: Fire hazard, reactive, Immediate (acute) health hazard, Delayed (chronic) health hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.

Clean Air Act (CAA) 112 regulated flammable substances: No products were found.

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

State regulations

: Pennsylvania RTK: Hydrogen peroxide solution: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Hydrogen peroxide solution
New Jersey: Hydrogen peroxide solution

Canada

WHMIS (Canada)

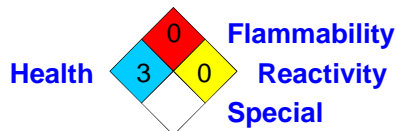
: Class C: Oxidizing material.
Class E: Corrosive material
Class F: Dangerously reactive material.
CEPA DSL: Hydrogen peroxide solution

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Mexico

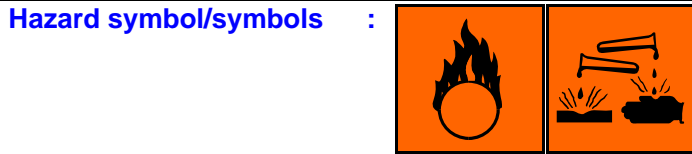
Classification

:



EU regulations

15 . Regulatory information



Risk phrases : R34- Causes burns.

Safety phrases : S3- Keep in a cool place.S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

International regulations

- International lists** :
- Australia (NICNAS): Hydrogen peroxide solution
 - China: Hydrogen peroxide solution
 - Germany water class: Hydrogen peroxide solution
 - Japan (METI): Hydrogen peroxide solution
 - Korea (TCCL): Hydrogen peroxide solution
 - Philippines (RA6969): Hydrogen peroxide solution

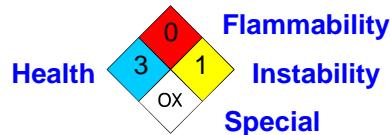
16 . Other information

Label requirements : CAUSES RESPIRATORY TRACT, EYE AND SKIN BURNS.
OXIDIZER.
HARMFUL IF SWALLOWED.
CAUSES DAMAGE TO THE FOLLOWING ORGANS: SKIN, EYES, EYE, LENS OR CORNEA.
MAY CAUSE DAMAGE TO THE FOLLOWING ORGANS: LUNGS, GASTROINTESTINAL TRACT, RESPIRATORY TRACT, HEAD.
CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

Hazardous Material Information System (U.S.A.) :

Health	*	3
Fire hazard		0
Reactivity		1
Personal protection		C

National Fire Protection Association (U.S.A.) :



Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.