

Hydrogen Peroxide

sc-203336



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Hydrogen Peroxide

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

Santa Cruz Biotechnology, Inc.
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EMERGENCY:

ChemWatch
Within the US & Canada: 877-715-9305
Outside the US & Canada: +800 2436 2255
(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

H₂O₂, "hydro peroxide", "hydrogen dioxide"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	
Toxicity:	2	
Body Contact:	3	
Reactivity:	2	
Chronic:	0	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Harmful if swallowed.
Risk of serious damage to eyes.
Irritating to respiratory system and skin.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.
- Ingestion may result in nausea, abdominal irritation, pain and vomiting.

EYE

- If applied to the eyes, this material causes severe eye damage.

SKIN

- This material can cause inflammation of the skin on contact in some persons.
- Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
- Skin contact will result in rapid drying, bleaching, leading to chemical burns on prolonged contact.
- Bare unprotected skin should not be exposed to this material.
- The material may accentuate any pre-existing skin condition.

INHALED

- If inhaled, this material can irritate the throat and lungs of some persons.
- Although inhalation is not thought to produce harmful effects, the material may still produce health damage, especially where pre-existing organ (e.g. liver, kidney) damage is evident.

CHRONIC HEALTH EFFECTS

- Principal routes of exposure are usually by skin contact/eye contact with the material and inhalation of vapor. Severe systemic poisoning can cause tremors and numbness of the extremities, shock, convulsions, unconsciousness.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
hydrogen peroxide	7722-84-1	20-40
water	7732-18-5	60-80

Section 4 - FIRST AID MEASURES

SWALLOWED

■ Rinse mouth out with plenty of water. ■ If poisoning occurs, contact a doctor or Poisons Information Center. · If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. · Observe the patient carefully. · Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious · Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. · Seek medical advice.

EYE

■ If this product comes in contact with the eyes: · Immediately hold eyelids apart and flush the eye continuously with running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

SKIN

■ If skin or hair contact occurs: · Immediately flush body and clothes with large amounts of water, using safety shower if available. · Quickly remove all contaminated clothing, including footwear.

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	1.07-1.13
Lower Explosive Limit (%):	Not applicable
Relative Vapor Density (air=1):	Not available

EXTINGUISHING MEDIA

- Flooding quantities of water only in the early stages of a fire.
- Water spray or fog.
- DO NOT use halogenated fire extinguishing agents.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water courses.

Use fire fighting procedures suitable for surrounding area.

Cool fire exposed containers with water spray from a protected location.

DO NOT approach containers suspected to be hot.

If safe to do so, remove containers from path of fire.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

- Non combustible liquid.

Will not burn but increases intensity of fire.

Contact with readily oxidizable organic material may cause ignition /fire.

Heating may cause expansion or decomposition leading to violent rupture of containers.

FIRE INCOMPATIBILITY

- Avoid contact with organic materials / compounds, particularly finely divided combustible materials as ignition may result.

Violent catalytic decomposition will occur in contact with certain metals such as iron, copper, chromium, brass, bronze, lead, silver, manganese or their salts.

PERSONAL PROTECTION

Glasses:

Full face- shield.

Gloves:

1.NEOPRENE 2.NATURAL RUBBER

Respirator:

Type B-P Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Clean up all spills immediately.
- Avoid contact with skin and eyes.
- Wear impervious gloves and safety glasses.
- Remove all ignition sources.
- Small quantities may be discharged to sewer with a large excess of water.
- Wipe up.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water and water courses.
- No smoking, naked lights or ignition sources. Increase ventilation.
- Stop leak if safe to do so.
- Contain spill with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- DO NOT return unused product to containers.
- Absorb remaining product with sand, earth or vermiculite.
- Collect residues and place in labelled plastic containers with vented lids.

Wash spill area with large quantities of water.
 After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
 If contamination of drains or waterways occurs, advise emergency services.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- Avoid generating and breathing mist · Handle and open container with care.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.
- Use good occupational work practice. Observe manufacturer's storing and handling recommendations.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Avoid smoking, naked lights, heat or ignition sources.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- DO NOT return unused product to containers.
- Avoid sources of heat.
- Mild steel, brass, bronze and copper equipment should not be used.
- When handling, DO NOT eat, drink or smoke.
- Always wash hands with soap and water after handling. Work clothes should be laundered separately.
- Launder contaminated clothing before re-use.

RECOMMENDED STORAGE METHODS

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Container to have vented cap.
- Properly passivated aluminium or stainless steel containers.
- Porcelain, vitreous stoneware.

STORAGE REQUIREMENTS

- Keep cool. Store below 25 deg.C.
- Observe manufacturer's storing and handling recommendations.
- Store in original containers and Store under cover.
- No smoking, naked lights, heat or ignition sources.
- Store in a cool, dry and well-ventilated area.
- Store in a cool area and away from sunlight.
- Store away from incompatible materials.
- DO NOT use mild steel or galvanised containers.
- Store in an upright position Protect containers against physical damage.
- Check regularly for spills and leaks.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
US NIOSH Recommended Exposure Limits (RELs)	hydrogen peroxide (Hydrogen peroxide)	1	1.4						
Canada - Alberta Occupational Exposure Limits	hydrogen peroxide (Hydrogen peroxide)	1	1.4						
US ACGIH Threshold Limit Values (TLV)	hydrogen peroxide (Hydrogen peroxide)	1							TLV Basis: eye, upper respiratory tract & skin irritation
Canada - Quebec Permissible Exposure Values for Airborne Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4						

(English)

US OSHA Permissible Exposure Levels (PELs) - Table Z1	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
Canada - British Columbia Occupational Exposure Limits	hydrogen peroxide (Hydrogen peroxide)	1			
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
US - Minnesota Permissible Exposure Limits (PELs)	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
US - California Permissible Exposure Limits for Chemical Contaminants	hydrogen peroxide (Hydrogen peroxide, as H2O2)	1	1.4		
US - Hawaii Air Contaminant Limits	hydrogen peroxide (Hydrogen peroxide)	1	1.4	2	3
US - Alaska Limits for Air Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	hydrogen peroxide (Hydrogen peroxide)	1		2	
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	hydrogen peroxide (Hydrogen peroxide)	1	1.5	2	2.8
US - Washington Permissible exposure limits of air contaminants	hydrogen peroxide (Hydrogen peroxide)	1		3	

US - Michigan Exposure Limits for Air Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
Canada - Prince Edward Island Occupational Exposure Limits	hydrogen peroxide (Hydrogen peroxide)	1			TLV Basis: eye, upper respiratory tract & skin irritation
US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
Canada - Nova Scotia Occupational Exposure Limits	hydrogen peroxide (Hydrogen peroxide)	1			TLV Basis: eye, upper respiratory tract & skin irritation
US - Oregon Permissible Exposure Limits (Z-1)	hydrogen peroxide (Hydrogen peroxide)	1	1.4		
Canada - Northwest Territories Occupational Exposure Limits (English)	hydrogen peroxide (Hydrogen peroxide)	1	1.4	2	2.8

ENDOELTABLE

The following materials had no OELs on our records

- water: CAS:7732-18-5

PERSONAL PROTECTION



RESPIRATOR

- type b-p filter of sufficient capacity.

EYE

- Chemical goggles.
- Full face shield.

HANDS/FEET

- Barrier cream and • PVC gloves.

Rubber boots.

OTHER

- DO NOT allow clothing wet with material to stay in contact with skin.

Overalls, PVC apron and • Impervious apron.

- Eyewash unit.

Ensure there is ready access to a safety shower.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

Use appropriate NIOSH-certified respirator based on informed professional judgement. In conditions where no reasonable estimate of exposure can be made, assume the exposure is in a concentration IDLH and use NIOSH-certified full face pressure demand SCBA with a minimum service life of 30 minutes, or a combination full facepiece pressure demand SAR with auxiliary self-contained air supply. Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.

ENGINEERING CONTROLS

- Use in a well-ventilated area.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

Corrosive.

State	Liquid	Molecular Weight	Not applicable.
Melting Range (°F)	59- 91	Boiling Range (°F)	217- 226
Solubility in water (g/L)	Miscible	Flash Point (°F)	Not applicable
pH (1% solution)	5.0-6.0	Decomposition Temp (°F)	Not available
pH (as supplied)	2.0-3.5	Autoignition Temp (°F)	Not applicable
Vapor Pressure (mmHg)	22.952	Upper Explosive Limit (%)	Not applicable
Specific Gravity (water=1)	1.07-1.13	Lower Explosive Limit (%)	Not applicable
Relative Vapor Density (air=1)	Not available	Volatile Component (%vol)	100
Evaporation Rate	>1 BuAc=1		

APPEARANCE

Clear, colourless, odourless water-like liquid; mixes with water. Hydrogen peroxide readily decomposes and requires stabilization. Soluble in ether, insoluble in hydrocarbons and decomposed by many organic solvents. Material hazard increases as concentration of peroxide, H₂O₂ increases.

log Kow -1.36 Hydrogen peroxide (log Kow < -1) is an inorganic substance and therefore shows little potential to bioaccumulate.

Material	Value
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Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.
- Presence of heat source and direct sunlight.

Solutions of hydrogen peroxide decompose slowly releasing oxygen. Heat or contaminants will accelerate decomposition. Containers may be pressurised.

Hydrogen peroxide is decomposed by alkalis and even ordinary dust or rust.

STORAGE INCOMPATIBILITY

- Rotate all stock to prevent ageing. Use on FIFO (First In-First Out) basis.
 - Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.
- Segregate from combustible materials, particularly finely divided combustible materials and reducing agents.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

Caterpillar Hydrogen Peroxide (20-40%)

TOXICITY AND IRRITATION

CATERPILLAR HYDROGEN PEROXIDE (20-40%):

- Not available. Refer to individual constituents.

HYDROGEN PEROXIDE:

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Dermal (rabbit) LD50: 4060 mg/kg	Nil Reported
Dermal (rabbit) LDLo: 500 mg/kg	
Inhalation (mouse) LC50: 2000 mg/kg/4h	

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A

reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

For hydrogen peroxide:

Hazard increases with peroxide concentration, high concentrations contain an additive stabiliser.

Pharmacokinetics

Hydrogen peroxide is a normal product of metabolism. It is readily decomposed by catalase in normal cells. In experimental animals exposed to hydrogen peroxide, target organs affected include the lungs, intestine, thymus, liver, and kidney, suggesting its distribution to those sites.

Hydrogen peroxide has been detected in breath.

- Absorption: Hydrogen peroxide is decomposed in the bowel before absorption. When applied to tissue, solutions of hydrogen peroxide have poor penetrability.

- Distribution Hydrogen peroxide is produced metabolically in intact cells and tissues. It is formed by reduction of oxygen either directly in a two-electron transfer reaction, often catalysed by flavoproteins, or by an initial one-electron step to O₂ followed by dismutation to hydrogen peroxide.

- Hydrogen peroxide has been detected in serum and in intact liver. based on the results of toxicity studies, the lungs, intestine, thymus, liver, and kidney may be distribution sites. In rabbits and cats that died after intravenous administration of hydrogen peroxide, the lungs were pale and emphysematous. Following intraperitoneal injection of hydrogen peroxide in mice, pyknotic nuclei were induced in the intestine and thymus (IARC 1985). Degeneration of hepatic and renal tubular epithelial tissue was observed following oral administration of hydrogen peroxide to mice.

- Metabolism Glutathione peroxidase, responsible for decomposing hydrogen peroxide, is present in normal human tissues (IARC 1985). When hydrogen peroxide comes in contact with catalase, an enzyme found in blood and most tissues, it rapidly decomposes into oxygen and water.

- Excretion Hydrogen peroxide has been detected in human breath at levels ranging from 1.0+/- .5 g/L to 0.34+/-0.17 g/L.

Carcinogenicity

Gastric and duodenal lesions including adenomas, carcinomas, and adenocarcinomas have been observed in mice treated orally with hydrogen peroxide. Marked strain differences in the incidence of tumors have been observed. Papilloma development has been observed in mice treated by dermal application.

Genotoxicity

Hydrogen peroxide induced DNA damage, sister chromatid exchanges and chromosomal aberrations in mammalian cells in vitro . Hydrogen peroxide induced DNA damage in bacteria (E. coli), and was mutagenic to bacteria (Salmonella typhimurium) and the fungi, Neurospora crassa and Aspergillus chevallieri, but not to Streptomyces griseoflavus. It was not mutagenic to Drosophila melanogaster or to mammalian cells in vitro.

Developmental Toxicity

Malformations have been observed in chicken embryos treated with hydrogen peroxide, but experiments with mice and rats have been negative.

Female rats that received 0.45% hydrogen peroxide (equivalent to approximately 630 mg/kg/day)⁷ as the sole drinking fluid for five weeks produced normal litters when mated with untreated males.

Doses of 1.4 to 11 mol/egg hydrogen peroxide (purity 30%) dissolved in water were injected into the airspace of groups of 20-30 white leghorn chicken eggs on day 3 of incubation.

Embryos were examined on day 14. The incidence of embryonic deaths and malformations was dose-related and detected at doses of 2.8 mol/egg and above. The combined ED₅₀ was 2.7 mol/egg.

Reproductive Toxicity

A 1% solution of hydrogen peroxide (equivalent to 1900 mg/kg/day) given as the sole drinking fluid to three-month-old male mice for 7-28 days did not cause infertility.

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

WATER:

- No significant acute toxicological data identified in literature search.

CARCINOGEN

hydrogen peroxide	US - Rhode Island Hazardous Substance List	IARC
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Section 12 - ECOLOGICAL INFORMATION

This material and its container must be disposed of as hazardous waste.

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
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Caterpillar
Hydrogen
Peroxide
(20-40%)
hydrogen
peroxide

No Data Available No Data Available

LOW

No Data Available LOW

HIGH

Section 13 - DISPOSAL CONSIDERATIONS

US EPA Waste Number & Descriptions

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

Corrosivity characteristic: use EPA hazardous waste number D002 (waste code C)

Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ Recycle wherever possible. Consult manufacturer for recycling options.

Consult Waste Management Authority for disposal.

Decompose small amounts by slowly adding to warm caustic solution.

‡ Puncture containers to prevent re-use.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 5.1

Identification Numbers: UN2014 PG: II

Label Codes: 5.1, 8 Special provisions: 12, A60,

B53, B80,

B81, B85,

IB2, IP5,

T7, TP2,

TP6, TP24,

TP37

Packaging: Exceptions: None Packaging: Non- bulk: 202

Packaging: Exceptions: None Quantity limitations: Forbidden

Passenger aircraft/rail:

Quantity Limitations: Cargo Forbidden Vessel stowage: Location: D

aircraft only:

Vessel stowage: Other: 25, 66, 75

Hazardous materials descriptions and proper shipping names:

Hydrogen, peroxide, aqueous solutions with more than 40 percent but not more than 60 percent hydrogen peroxide (stabilized as necessary)

Air Transport IATA:

ICAO/IATA Class: 5.1 (8) ICAO/IATA Subrisk: None

UN/ID Number: 2014 Packing Group: II

Special provisions: None

Cargo Only

Packing Instructions: 5 L Maximum Qty/Pack: 554

Passenger and Cargo Passenger and Cargo

Packing Instructions: 1 L Maximum Qty/Pack: 550

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 0.5 L Maximum Qty/Pack: Y540

Shipping Name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION WITH 20% OR MORE BUT 40% OR LESS HYDROGEN PEROXIDE (STABILIZED AS NECESSARY)

Maritime Transport IMDG:

IMDG Class: 5.1 IMDG Subrisk: 8

UN Number: 2014 Packing Group: II

EMS Number: F-H , S-Q Special provisions: None

Limited Quantities: 1 L

Shipping Name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide (stabilized as necessary)

Section 15 - REGULATORY INFORMATION

Regulations for ingredients

hydrogen peroxide (CAS: 7722-84-1) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits", "Canada - British Columbia Occupational Exposure Limits", "Canada - Northwest Territories Occupational Exposure Limits (English)", "Canada - Nova Scotia Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits", "Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens", "Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)", "Canada - Saskatchewan Industrial Hazardous Substances", "Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits", "Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances", "Canada Ingredient Disclosure List (SOR/88-64)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Air Transport Association (IATA) Dangerous Goods Regulations", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - Alaska Limits for Air Contaminants", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - California Permissible Exposure Limits for Chemical Contaminants", "US - Connecticut Hazardous Air Pollutants", "US - Hawaii Air Contaminant Limits", "US - Massachusetts Oil & Hazardous Material List", "US - Michigan Exposure Limits for Air Contaminants", "US - Minnesota Hazardous Substance List", "US - Minnesota Permissible Exposure Limits (PELs)", "US - New Jersey Right to Know Hazardous Substances", "US - Oregon Hazardous Materials", "US - Oregon Permissible Exposure Limits (Z-1)", "US - Pennsylvania - Hazardous Substance List", "US - Rhode Island Hazardous Substance List", "US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants", "US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants", "US - Washington Permissible exposure limits of air contaminants", "US - Wyoming List of Highly Hazardous Chemicals, Toxics and Reactives", "US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants", "US ACGIH Threshold Limit Values (TLV)", "US ACGIH Threshold Limit Values (TLV) - Carcinogens", "US Department of Homeland Security Chemical Facility Anti-Terrorism Standards - Chemicals of Interest", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US EPA Master Testing List - Index I Chemicals Listed", "US FDA Indirect Food Additives: Adhesives and Components of Coatings - Substances for Use Only as Components of Adhesives - Adhesives", "US Food Additive Database", "US Inventory of Effective Food Contact Substance Notifications", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US NFPA 1 Annex B Typical Oxidizers", "US NIOSH Recommended Exposure Limits (RELs)", "US OSHA List of Highly Hazardous Chemicals, Toxics and Reactives", "US OSHA Permissible Exposure Levels (PELs) - Table Z1", "US SARA Section 302 Extremely Hazardous Substances", "US Toxic Substances Control Act (TSCA) - Inventory", "USA: Chemical Facility Anti-Terrorism Standards - List Appendix A - 6CFR 27"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals", "US - Pennsylvania - Hazardous Substance List", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US NFPA 30B Manufacture and Storage of Aerosol Products - Chemical Heat of Combustion", "US Toxic Substances Control Act (TSCA) - Inventory", "US TSCA Section 8 (a) Inventory Update Rule (IUR) - Partial Exemptions"

No data for Caterpillar Hydrogen Peroxide (20-40%) (CW: 5030-22)

Section 16 - OTHER INFORMATION

Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.

■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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