

SAFETY DATA SHEET

HYDROGEN PEROXIDE 35%

SDS # : 7722-84-1--35
Revision date: 2015-03-18
Format: NA
Version 1



1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name HYDROGEN PEROXIDE 35%

Other means of identification

CAS-No 7722-84-1

Recommended use of the chemical and restrictions on use

Recommended Use:

Restrictions on Use: Use as recommended by the label.

Manufacturer/Supplier

PeroxyChem LLC
2005 Market Street
Suite 3200
Philadelphia, PA 19103
Phone: +1 267/ 422-2400 (General Information)
E-Mail: sdsinfo@peroxychem.com

PeroxyChem Canada
PG Pulp Mill Road
Prince George, BC V2N2S6
1+ 250/ 561-4200 (General Information)

Emergency telephone number

For leak, fire, spill or accident emergencies, call:
1 800 / 424 9300 (CHEMTREC - U.S.A.)
1 703 / 527 3887 (CHEMTREC - Collect - All Other Countries)
1 613/ 996-6666 (CANUTEC - Canada)
1 303/ 389-1409 (Medical - U.S. - Call Collect)

1 281 / 474-8750 (Bayport, Texas Plant)
1 250 / 561-4221 (Prince George, BC, Canada Plant)

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

| | |
|--------------------------------------|---------------------------|
| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Inhalation (Vapors) | Category 4 |
| Skin corrosion/irritation | Category 2 Sub-category B |
| Serious eye damage/eye irritation | Category 1 |

HYDROGEN PEROXIDE 35%

SDS # : 7722-84-1--35

Revision date: 2015-03-18

Version 1

| | |
|--|------------|
| Specific target organ toxicity (single exposure) | Category 3 |
| Oxidizing Liquids | Category 2 |

GHS Label elements, including precautionary statements

EMERGENCY OVERVIEW

Danger

Hazard Statements

H318 - Causes serious eye damage

H302 - Harmful if swallowed

H332 - Harmful if inhaled

H335 - May cause respiratory irritation

H315 - Causes skin irritation

H270 - May cause or intensify fire; oxidizer



Precautionary Statements - Prevention

P271 - Use only outdoors or in a well-ventilated area

P261 - Avoid breathing mist/vapors/spray

P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection

P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking

P221 - Take any precaution to avoid mixing with combustibles/flammables

P220 - Keep/Store away from clothing/flammable materials/combustibles

Precautionary Statements - Response

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a POISON CENTER or doctor

P302 + P352 - IF ON SKIN: Wash with plenty of water and soap

P332 + P313 - If skin irritation occurs: Get medical advice/ attention

P362 + P364 - Take off all contaminated clothing and wash it before reuse

P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing

P312 - Call a POISON CENTER or doctor if you feel unwell

P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

P330 - Rinse mouth

P370 + P378 - In case of fire: Use water for extinction

Hazards not otherwise classified (HNOC)

No hazards not otherwise classified were identified.

Other Information

Keep container in a cool place out of direct sunlight. Store only in vented containers. Do not store on wooden pallets. Do not return unused material to its original container. Avoid contamination - Contamination could cause decomposition and generation of oxygen which may result in high pressure and possible container rupture. Empty drums should be triple rinsed with water before discarding.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula HO - OH

| Chemical name | CAS-No | Weight % |
|-------------------|-----------|----------|
| Hydrogen peroxide | 7722-84-1 | 35 |
| Water | 7732-18-5 | 65 |

Occupational exposure limits, if available, are listed in section 8

4. FIRST AID MEASURES

| | |
|---|---|
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing. Seek immediate medical attention/advice. |
| Skin Contact | Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for further treatment advice. |
| Inhalation | Move to fresh air. If person is not breathing, contact emergency medical services, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice. |
| Ingestion | Rinse mouth. Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention. Never give anything by mouth to an unconscious person. |
| Most important symptoms and effects, both acute and delayed | In case of accidental ingestion, necrosis may result from mucous membrane burns (mouth, esophagus and stomach). Oxygen rapid release may cause stomach swelling and hemorrhaging, which may product major, or even fatal, injury to organs if a large amount has been ingested. In case of skin contact, may cause burns, erythema, blisters or even necrosis. Hydrogen Peroxide irritates respiratory system and, if inhaled, may cause inflammation and pulmonary edema. The effects may not be immediate. |
| Indication of immediate medical attention and special treatment needed, if necessary | Hydrogen peroxide at these concentrations is a strong oxidant. Direct contact with the eye is likely to cause corneal damage especially if not washed immediately. Careful ophthalmologic evaluation is recommended and the possibility of local corticosteroid therapy should be considered. Because of the likelihood of corrosive effects on the gastrointestinal tract after ingestion, and the unlikelihood of systemic effects, attempts at evacuating the stomach via emesis induction or gastric lavage should be avoided. There is a remote possibility, however, that a nasogastric or orogastric tube may be required for the reduction of severe distension due to gas formation. |

5. FIRE-FIGHTING MEASURES

| | |
|--|--|
| Suitable Extinguishing Media | Water. Do not use any other substance. |
| Specific Hazards Arising from the Chemical | In closed unventilated containers, risk of rupture due to the increased pressure from decomposition. Contact with combustible material may cause fire |
| Hazardous Combustion Products | On decomposition product releases oxygen which may intensify fire. |
| Explosion data | |
| Sensitivity to Mechanical Impact | Not sensitive. |
| Sensitivity to Static Discharge | Not sensitive. |
| Protective equipment and precautions for firefighters | Use water spray to cool fire exposed surfaces and protect personnel. Move containers from fire area if you can do it without risk. As in any fire, wear self-contained breathing apparatus and full protective gear. |

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Isolate and post spill area. Keep people away from and upwind of spill/leak. Eliminate all sources of ignition and remove combustible materials.

Other Combustible materials exposed to hydrogen peroxide should be immediately submerged in or rinsed with large amounts of water to ensure that all hydrogen peroxide is removed. Residual hydrogen peroxide that is allowed to dry (upon evaporation hydrogen peroxide can concentrate) on organic materials such as paper, fabrics, cotton, leather, wood or other combustibles can cause the material to ignite and result in fire.

Environmental Precautions Do not flush into surface water or sanitary sewer system; if discharged into sewers or watercourses, dilute with plenty of water. See Section 12 for additional Ecological Information.

Methods for Containment Dike to collect large liquid spills. Stop leak and contain spill if this can be done safely. Small spillage: Dilute with large quantities of water.

Methods for cleaning up Flush area with flooding quantities of water. Hydrogen peroxide may be decomposed by adding sodium metabisulfite or sodium sulfite after diluting to about 5%.

7. HANDLING AND STORAGE

Handling Keep/Store away from clothing/ combustible materials. Wear personal protective equipment. Reference to other sections. Never return unused hydrogen peroxide to original container. Contamination may cause decomposition and generation of oxygen gas which could result in high pressures and possible container rupture. Empty drums should be triple rinsed with water before discarding. Utensils used for handling hydrogen peroxide should only be made of glass, stainless steel, aluminum or plastic. Pipes and equipment should be passivated before first use. Use only in well-ventilated areas. Hydrogen peroxide should be stored only in vented containers and transferred only in a prescribed manner.

Storage Keep containers in cool areas out of direct sunlight and away from combustibles. Provide mechanical general and/or local exhaust ventilation to prevent release of vapor or mist into work environment. Containers must be vented. Keep/store only in original container. Store rooms or warehouses should be made of non-combustible materials with impermeable floors. In case of release, spillage should flow to safe area. Containers should be visually inspected on a regular basis to detect any abnormalities (swollen drums, increases in temperature, etc.).

Incompatible products Combustible materials. Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines Ingredients with workplace control parameters.

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH | Mexico |
|--------------------------------|------------------|--|--|--|
| Hydrogen peroxide 7722-84-1 | TWA: 1 ppm | TWA: 1 ppm TWA: 1.4 mg/m ³ | IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m ³ | Mexico: TWA 1 ppm Mexico: TWA 1.5 mg/m ³ Mexico: STEL 2 ppm Mexico: STEL 3 mg/m ³ |
| Chemical name | British Columbia | Quebec | Ontario TWAEV | Alberta |
| Hydrogen peroxide 7722-84-1 | TWA: 1 ppm | TWA: 1 ppm TWA: 1.4 mg/m ³ | TWA: 1 ppm | TWA: 1 ppm TWA: 1.4 mg/m ³ |

Appropriate engineering controls

Engineering measures Ensure that eyewash stations and safety showers are close to the workstation location.
Ensure adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Use chemical splash-type monogoggles and a full-face shield made of polycarbonate, acetate, polycarbonate/acetate, PETG or thermoplastic.

Skin and Body Protection For body protection wear impervious clothing such as an approved splash protective suit made of SBR rubber, PVC (PVC Outershell w/Polyester Substrate), Gore-Tex (Polyester trilaminate w/Gore-Tex), or a specialized HAZMAT Splash or Protective Suite (Level A, B, or C). For foot protection, wear approved boots made of NBR, PVC, Polyurethane, or neoprene. Overboots made of Latex or PVC, as well as firefighter boots or specialized HAZMAT boots are also permitted. DO NOT wear any form of boot or overboot made of nylon or nylon blends. DO NOT USE cotton, wool or leather as these materials react rapidly with higher concentrations of hydrogen peroxide. Completely submerge hydrogen peroxide contaminated clothing or other materials in water prior to drying. Residual hydrogen peroxide, if allowed to dry on materials such as paper, fabrics, cotton, leather, wood or other combustibles, can cause the material to ignite and result in a fire.

Hand Protection For hand protection, wear approved gloves made of nitrile, PVC, or neoprene. DO NOT use cotton, wool or leather for these materials react RAPIDLY with higher concentrations of hydrogen peroxide. Thoroughly rinse the outside of gloves with water prior to removal. Inspect regularly for leaks.

Respiratory Protection If concentrations in excess of 10 ppm are expected, use NIOSH/DHHS approved self-contained breathing apparatus (SCBA) or other approved air-supplied respirator (ASR) equipment (e.g., a full-face airline respirator (ALR)). DO NOT use any form of air-purifying respirator (APR) or filtering facepiece (dust mask), especially those containing oxidizable sorbants such as activated carbon.

Hygiene measures Avoid breathing vapors, mist or gas. Clean water should be available for washing in case of eye or skin contamination. .

General information Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

| | |
|-------------------------------------|-------------------------------|
| Appearance | Clear, colorless liquid |
| Physical State | Liquid |
| Color | Colorless |
| Odor | odorless |
| Odor threshold | Not applicable |
| pH | <= 3.7 |
| Melting point/freezing point | -33 °C |
| Boiling Point/Range | 108 °C |
| Flash point | Not flammable |
| Evaporation Rate | > 1 (n-butyl acetate=1) |
| Flammability (solid, gas) | Not flammable |
| Flammability Limit in Air | Not applicable |
| Upper flammability limit: | |
| Lower flammability limit: | |
| Vapor pressure | 23 mm Hg @ 30 °C |
| Vapor density | No information available |
| Density | 1.13 g/cm ³ @ 20°C |
| Specific gravity | 1.13 |
| Water solubility | completely soluble |
| Solubility in other solvents | No information available |
| Partition coefficient | log Kow = -1.5 @ 20 °C |
| Autoignition temperature | Not combustible |
| Decomposition temperature | 100 °C (adiabatic) |

| | |
|----------------------|--------------------------|
| Viscosity, kinematic | 1.10 cP @ 20 °C |
| Viscosity, dynamic | No information available |
| Explosive properties | No information available |
| Oxidizing properties | Strong oxidizer |
| Molecular weight | 34 |
| Bulk density | Not applicable |

10. STABILITY AND REACTIVITY

| | |
|---|--|
| Reactivity | Reactive and oxidizing agent. |
| Chemical Stability | Stable under normal conditions. Decomposes on heating. Stable under recommended storage conditions. |
| Possibility of Hazardous Reactions | Contact with organic substances may cause fire or explosion. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition. |
| Hazardous polymerization | Hazardous polymerization does not occur. |
| Conditions to avoid | Excessive heat; Contamination; Exposure to UV-rays; pH variations. |
| Incompatible materials | Combustible materials. Copper alloys, galvanized iron. Strong reducing agents. Heavy metals. Iron. Copper alloys. Contact with metals, metallic ions, alkalis, reducing agents and organic matter (such as alcohols or terpenes) may produce self-accelerated thermal decomposition. |
| Hazardous Decomposition Products | Oxygen which supports combustion. Liable to produce overpressure in container. |

11. TOXICOLOGICAL INFORMATION

Product Information

| | |
|--|---|
| LD50 Oral | 50% solution: LD50 > 225 mg/kg bw (rat) 35 % solution: LD50 1193 mg/kg bw (rat) 70 % solution: LD50 1026 mg/kg bw (rat) |
| LD50 Dermal | 35% solution: LD50 > 2000 mg/kg bw (rabbit) 70 % solution: LD50 9200 mg/kg bw (rabbit) |
| LC50 Inhalation | 50% solution: LC50 > 170 mg/m ³ (rat) (4-hr) Hydrogen Peroxide vapors: LC0 9400 mg/m ³ (mouse) (5 - 15 minutes) Hydrogen Peroxide vapors: LC50 > 2160 mg/m ³ (mouse) |
| Serious eye damage/eye irritation | Corrosive. Risk of serious damage to eyes. |
| Skin corrosion/irritation | Moderately irritating (rabbit). |
| Sensitization | Did not cause sensitization on laboratory animals. |

Information on toxicological effects

| | |
|-----------------|---|
| Symptoms | Vapors, mists, or aerosols of hydrogen peroxide can cause upper airway irritation, inflammation of the nose, hoarseness, shortness of breath, and a sensation of burning or tightness in the chest. Prolonged exposure to concentrated vapor or to dilute solutions can cause irritation and temporary bleaching of skin and hair. Exposure to vapor, mist, or aerosol can cause stinging pain and tearing of eyes. |
|-----------------|---|

Delayed and immediate effects as well as chronic effects from short and long-term exposure

| | |
|------------------------|--|
| Carcinogenicity | This product contains hydrogen peroxide. The International Agency for Research on Cancer (IARC) has concluded that there is inadequate evidence for carcinogenicity of hydrogen peroxide in humans, but limited evidence in experimental animals (Group 3 - not classifiable as to its carcinogenicity to humans). The American Conference of Governmental Industrial Hygienists (ACGIH) has concluded that hydrogen peroxide is a |
|------------------------|--|

HYDROGEN PEROXIDE 35%

SDS # : 7722-84-1--35

Revision date: 2015-03-18

Version 1

'Confirmed Animal Carcinogen with Unknown Relevance to Humans' (A3).

| Chemical name | ACGIH | IARC | NTP | OSHA |
|--------------------------------|-------|------|-----|------|
| Hydrogen peroxide 7722-84-1 | A3 | 3 | | |

Mutagenicity This product is not recognized as mutagenic by Research Agencies
In vivo tests did not show mutagenic effects

Reproductive toxicity No toxicity to reproduction in animal studies.

STOT - single exposure May cause respiratory irritation.
STOT - repeated exposure Not classified.

Target organ effects Eyes, Respiratory System, Skin.

Aspiration hazard Aspiration risk: may cause lung damage if swallowed.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects Hydrogen peroxide is naturally produced by sunlight (between 0.1 and 4 ppb in air and 0.001 to 0.1 mg/L in water). Not expected to have significant environmental effects.

| Hydrogen peroxide (7722-84-1) | | | | |
|-------------------------------|-----------|----------------------------|-------|-------|
| Active Ingredient(s) | Duration | Species | Value | Units |
| Hydrogen peroxide | 96 h LC50 | Fish Pimephales promelas | 16.4 | mg/L |
| Hydrogen peroxide | 72 h LC50 | Fish Leuciscus idus | 35 | mg/L |
| Hydrogen peroxide | 48 h EC50 | Daphnia pulex | 2.4 | mg/L |
| Hydrogen peroxide | 24 h EC50 | Daphnia magna | 7.7 | mg/L |
| Hydrogen peroxide | 72 h EC50 | Algae Skeletonema costatum | 1.38 | mg/L |
| Hydrogen peroxide | 21 d NOEC | Daphnia magna | 0.63 | mg/L |

Persistence and degradability Hydrogen peroxide in the aquatic environment is subject to various reduction or oxidation processes and decomposes into water and oxygen. Hydrogen peroxide half-life in freshwater ranged from 8 hours to 20 days, in air from 10 - 20 hours, and in soils from minutes to hours depending upon microbiological activity and metal contamination.

Bioaccumulation Material may have some potential to bioaccumulate but will likely degrade in most environments before accumulation can occur.

Mobility Will likely be mobile in the environment due to its water solubility but will likely degrade over time.

Other Adverse Effects Decomposes into oxygen and water. No adverse effects.

13. DISPOSAL CONSIDERATIONS

Waste disposal methods Dispose of in accordance with local regulations. Can be disposed as waste water, when in compliance with local regulations.

US EPA Waste Number D001

Contaminated Packaging Dispose of in accordance with local regulations.
Drums - Empty as thoroughly as possible. Triple rinse drums before disposal. Avoid contamination; impurities accelerate decomposition. Never return product to original

container.

14. TRANSPORT INFORMATION

DOT

UN/ID no 2014
 Proper Shipping Name HYDROGEN PEROXIDE, AQUEOUS SOLUTION
 Hazard class 5.1
 Subsidiary class 8
 Packing Group II

TDG

UN/ID no UN 2014
 Proper Shipping Name HYDROGEN PEROXIDE, AQUEOUS SOLUTION
 Hazard class 5.1
 Subsidiary class 8
 Packing Group II

ICAO/IATA

Air regulation permit shipment of Hydrogen Peroxide (<=40%) in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all PeroxyChem Hydrogen Peroxide containers are vented and therefore, air shipments of PeroxyChem H2O2 are not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

IMDG/IMO

UN/ID no UN 2014
 Proper Shipping Name HYDROGEN PEROXIDE, AQUEOUS SOLUTION
 Hazard class 5.1
 Subsidiary Hazard Class 8
 Packing Group II

OTHER INFORMATION

Protect from physical damage. Keep drums in upright position. Drums should not be stacked in transit. Do not store drums on wooden pallets.

15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Acute health hazard Yes
 Chronic health hazard No
 Fire hazard Yes
 Sudden release of pressure hazard No
 Reactive Hazard No

Clean Water Act

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

| Chemical name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | SARA RQ |
|--------------------------------|--------------------------|------------------------------------|---------|
| Hydrogen peroxide 7722-84-1 | | 1000 lb | |

HYDROGEN PEROXIDE 35%

SDS # : 7722-84-1--35
Revision date: 2015-03-18
Version 1

Hydrogen Peroxide RQ is for concentrations of > 52% only

International Inventories

| Component | TSCA (United States) | DSL (Canada) | EINECS/EL INCS (Europe) | ENCS (Japan) | China (IECSC) | KECL (Korea) | PICCS (Philippines) | AICS (Australia) | NZIoC (New Zealand) |
|---------------------------------------|-------------------------|-----------------|-------------------------------|-----------------|------------------|-----------------|----------------------------|---------------------|------------------------|
| Hydrogen peroxide 7722-84-1 (35) | X | X | X | X | X | X | X | X | X |

Mexico - Grade Serious risk, Grade 3

CANADA

WHMIS Hazard Class C - Oxidizing materials
D1B - Toxic materials
E - Corrosive material
F - Dangerously reactive material



16. OTHER INFORMATION

| | | | | |
|-------------|-------------------------|-----------------------|--------------------------|------------------------------|
| NFPA | Health Hazards 3 | Flammability 0 | Stability 1 | Special Hazards OX |
| HMIS | Health Hazards 3 | Flammability 0 | Physical hazard 1 | Special precautions H |

NFPA/HMIS Ratings Legend Severe = 4; Serious = 3; Moderate = 2; Slight = 1; Minimal = 0
Special Hazards: OX = Oxidizer
Protection = H (Safety goggles, gloves, apron, the use of supplied air or SCBA respirator is required in lieu of a vapor cartridge respirator)

Uniform Fire Code Oxidizer: Class 2--Liquid

Revision date: 2015-03-18
Revision note Initial Release

Disclaimer

PeroxyChem 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 specified product designated and may not be applicable 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 PeroxyChem, PeroxyChem expressly disclaims any and all liability as to any results obtained or arising from any use of the products or reliance on such information.

Prepared By:

PeroxyChem
© 2015 PeroxyChem. All Rights Reserved.
End of Safety Data Sheet