Material Safety Data Sheet for Hydrogen Peroxide

Section 1 - Chemical Product and Company Identification

Hydrogen Peroxide, 35 wt. % Solution in Water, Stabilized, P.A.

Section 2 - Composition, Information on Ingredients

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>RINECS#</th>
</tr>
</thead>
<tbody>
<tr>
<td>7722-84-1</td>
<td>Hydrogen peroxide</td>
<td></td>
</tr>
<tr>
<td>7713-18-5</td>
<td>Water</td>
<td></td>
</tr>
</tbody>
</table>

Section 3 - Hazard Identification

Emergency Overview
Appearance: Clear, colorless liquid.
Storage: Store only in the original container.

Potential Health Effects
Skin: Causes severe skin irritation and possible burns. May cause discoloration, erythema, swelling, and the formation of vesicles.
Inhalation: Causes gastrointestinal irritation with nausea, vomiting, and diarrhea. Causes gastrointestinal tract burns. May cause vascular collapse and shock. May cause difficulty in swallowing, stomach distention, and death. May cause pain in the stomach and ulcer formation.
Ingestion: Causes chemical burns to the respiratory tract. May cause ulceration of nasal tissue, inunction of the eye, and damage to the respiratory system. May cause chemical pneumonitis, unconsciousness, and death. At high concentrations, respiratory effects may include acute lung damage and delayed pulmonary edema.

Section 4 - First Aid Measures

Skin: Get medical aid immediately. Do not allow victim to rub or keep eyes closed. Extensive irritation of skin with water is required (at least 3 minutes).

Section 5 - Fire Fighting Measures

Extinguishing Media:
Do not use water only. Do not use dry chemical.

 Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash immediately in water. Use only in well-ventilated area. Keep container tightly closed when not in use. Keep away from incompatible materials. Contamination with incompatible materials may lead to the formation of heat, flammable gases, and toxic substances. Treatment of the incompatible materials and the compatible materials should be returned to the container. Use only in well-ventilated area.

Section 7 - Handling and Storage

Storage:
Keep away from heat, sparks, and flame. Do not use near open flame. Do not store near heat. Store in cool, dry, well-ventilated area away from incompatible substances. Use only in well-ventilated area. Keep away from incompatible materials. Keep containers closed when not in use. Store in cool, dry, well-ventilated area away from incompatible substances. Use only in well-ventilated area.

Engineering Controls:
Use local exhaust ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash station and an emergency shower. Use adequate general ventilation to keep airborne concentrations below the permissible exposure limits.
OSHA Vacated PELs: Hydrogen peroxide: 1 ppm TWA: 1.4 mg/m³ TWA; 75 ppm IDLH.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA’s 29 CFR 1910.149 must be followed whenever workplace conditions warrant a respirator’s use.

Physical State: Liquid

Color: Clear, colorless

Odor: Slight acid odor

Vapor Pressure: 23 mm Hg @ 30°C

Evaporation Rate: 1.10

Boiling Point: 108 deg C @ 760 mm

Decomposition Temperature: Not available

Solubility in Water: Miscible in water

Specific Gravity/Density: 1.17 (10-50°C)

Molecular Formula: H₂O₂

Molecular Weight: 34.0128

Chemical Stability: Decomposes slowly to release oxygen. Unstable when heated or contaminated with heavy metals, reducing agents, alkali materials, strong oxidants, rust, dust, pH > 4.0.

Conditions to Avoid: Mechanical shock, incompatible materials, light, ignition sources, dust generation, excess heat, combustible materials, reducing agents, alkali materials, strong oxidants, rust, dust, pH > 4.0.

Incompatibilities with Other Materials: Strong oxidizing agents, strong reducing agents, acetic anhydride, alcohols, brass, copper, copper alloys, finely powdered metals, galvanized iron, hydrazine, iron, magnesium, nitric acid, sodium carbonate, potassium permanganate, cyanides (i.e., potassium cyanide, sodium cyanide), ethers (e.g., dioxane, furfural, tetrahydrofuran (THF)), urea, chloroacetaldehyde, lead, nitrogen compounds, triethylammonium, silver, nickel, palladium, organic matter, chlorinated, or sodium borate, aniline, phenol, formaldehyde, cyclopentanadiene, activated carbon, butyl-alcohol, hydrogen sulfide, acrylonitrile, mercaptans, ethylamine, carbonyl sulfide, carbon disulfide, gaseous chlorine, rust, ketones, carboxylic acids, aldehydes, copper, pyrophosphate, acrylamide, hydrofluoric acid, tetrakis (methylene) phosphoric acid, salts of iron, copper, chromium, vanadium, tungsten, molybdenum, and platinum.

Hazardous Decomposition Products: Oxygen, hydrogen gas, water, heat, steam.

Hazardous Polymerization: Will not occur.

ECOTOXICITY: Fish: Carp; LC₅₀ = 42 mg/L; 48 hr; Unsuspected. Plankton: Sphaerocystis sp. LC₅₀ = 96 mg/L; 96 hr; Fresh water: Fish: Fathead Minnow; NOEC = 5 mg/L; 96 hr; Fresh water: Toad; NOEC = 5 mg/L; 96 hr; Fresh water: Daphnia; EC₅₀ = 2.4 mg/L; 48 hr; Fresh water: Channel catfish; LC₅₀ = 37.4 mg/L; 96 hr; Fresh water

US DOT

Shipping Name: HYDROGEN PEROXIDE, AQUEOUS SOLUTIONS

Hazard class: 3.1

UN Number: 3090

Packing Group: III

Canadian: TDG

No information available

US FEDERAL

TSCA

CAS #: 7722-84-1 is listed on the TSCA inventory.

SARA Section 311:

SARA Section 312:

SARA Section 313

None of the chemicals in this material have a SNUR under TSCA.

SARA

CERCLA Hazardous Substances and corresponding RCRA

None of the chemicals in this material have an RCRA

SARA Section 302 Exempted Hazardous Substance

SARA P-3

CAS #: 7722-84-1 acute, flammable

Section 302:

No chemicals are reportable under Section 313.

Clean Air Act

This material does not contain any hazardous air pollutants.

No material is reportable under Section 313.

Clean Water Act

None of the chemicals in this product are listed as Hazardous

6.87%
Substance under the CWA:
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.

STATE:
Hydrogen peroxide can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.
Water is not present on state lists from CA, PA, MA, FL, or NJ.
California No Significant Risk Level:
None of the chemicals in this product are listed.

European/International Regulations:
European Labeling in Accordance with EC Directives
Hazard Symbols: 0 C
Risk Phrases:
R 34 Causes burns.
R 8 Contact with combustible material may cause fire.

Safety Phrases:
S 3 Keep in a cool place.
S 26 Avoid contact with skin, wash immediately with:...
S 36/37 Wear suitable protective clothing and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

NCGK (Water Danger/Protection):
CAS# 7732-84-1: 0
CAS# 7732-18-5: No information available.

United Kingdom Occupational Exposure Limits:
CAS# 7732-84-1: OES-United Kingdom, TWA 1 ppm STEL 2 ppm STEL 2.8 mg/m³ STEL

United Kingdom Maximum Exposure Limits:
Canada
CAS# 7732-84-1 is listed on Canada’s DEL List.
CAS# 7732-18-5 is listed on Canada’s DEL List.
This product has a WHMIS classification of C, E, F.
CAS# 7732-84-1 is listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada’s Ingredient Disclosure List.

Exposure Data:
CAS# 7732-84-1: OEL-AUSTRALIA: TWA 1 ppm (1.5 mg/m³)
OEL-NORWAY: TWA 1 ppm (1.4 mg/m³)
OEL-SWITZERLAND: TWA 1 ppm (1.4 mg/m³)
OEL-France: TWA 1 ppm (1.4 mg/m³)
OEL-NEUTRAL: TWA 1 ppm (1.4 mg/m³)
OEL-Spain: TWA 1 ppm (1.4 mg/m³)
OEL-UK: TWA 1 ppm (1.4 mg/m³)
OEL-THAILAND: TWA 1 ppm (1.4 mg/m³)
OEL-South America: TWA 1 ppm (1.4 mg/m³)
OEL-UNITED KINGDOM: TWA 1 ppm (1.5 mg/m³)

****SECTION 16 - ADDITIONAL INFORMATION****

MSDS Creation Date: 7/08/1999 Revision 42 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, however arising, even if the company has been advised of the possibility of such damages.