HYDROGEN PEROXIDE SOLUTION, 30%

MSDS Number: H4065 — Effective Date: 08/02/00

1. Product Identification

   Synonyms: Peroxide; 100 volume peroxide; Hydrogen dioxide solution; Hydrogen peroxide, 30%, unstabilized; Hydrogen Peroxide, 30%, Ultrex(R)
   CAS No.: 7722-84-1
   Molecular Weight: 34.01
   Chemical Formula: H2O2
   Product Codes:
   J.T. Baker: 2186, 2189, 2190, 2200, 2201, 2204, 5155, 5170, 5369, 5803, 5816, 5836, 5846, 5847, 5857, 5899
   Mallinckrodt: 5240, H021, V340

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Peroxide</td>
<td>7722-84-1</td>
<td>29 - 32%</td>
<td>Yes</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>68 - 71%</td>
<td>No</td>
</tr>
</tbody>
</table>

3. Hazards Identification

   Emergency Overview
   ............................
   DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CORROSIVE. CAUSES BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.

   J.T. Baker SAF-T-DATA(tm) Ratings (Provided here for your convenience)
   ............................
   Health Rating: 2 - Moderate
   Flammability Rating: 0 - None
   Reactivity Rating: 3 - Severe (Oxidizer)
   Contact Rating: 4 - Extreme (Corrosive)
   Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
   Storage Color Code: Yellow (Reactive)

   Potential Health Effects
   ............................
   Inhalation:
   Vapors are corrosive and irritating to the respiratory tract. Inhalation of mist may burn the mucous membrane of the nose and throat. In severe cases, exposures may result in pulmonary edema and death.
   Ingestion:
   Corrosive and irritating to the mouth, throat, and abdomen. Large doses may cause symptoms of abdominal pain, vomiting, and diarrhea as well as blistering or tissue destruction. Stomach distention (due to rapid liberation of oxygen), and risk of stomach perforation, convulsions, pulmonary edema, coma, possible cerebral edema (fluid on the brain), and death are possible.
   Skin Contact:
   Corrosive. Symptoms of redness, pain, and severe burn can occur.
   Eye Contact:
   Vapors are very corrosive and irritating to the eyes. Symptoms include pain, redness and blurred vision. Splashes can cause permanent tissue destruction.
   Chronic Exposure:
   No information found.
   Aggravation of Pre-existing Conditions:
   Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

4. First Aid Measures
Inhalation:
Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse. If allowed to dry on clothing, evaporation leads to concentration and increased possibility of ignition.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
Pulmonary edema may be delayed for 24 to 72 hours; keep under observation. Gastric lavage may be necessary if swallowed. Analysis of body fluids (particularly gastric aspirates) using the titanium chloride reaction, if done immediately, will reveal peroxides.

5. Fire Fighting Measures

Fire:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Increases the flammability of combustible, organic and readily oxidizable materials.

Explosion:
Contact with oxidizable substances may cause extremely violent combustion. Drying of concentrated hydrogen peroxide on clothing or other combustible materials may cause fire or explosion. Sealed containers may rupture when heated.

Fire Extinguishing Media:
Water spray may be used to extinguish surrounding fire and cool exposed containers. Water spray will also reduce fume and irritant gases.

Special Information:
In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

CAUTION! Caustic material. Causes fires with organic material. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. Do not return spilled material to original container. Larger Spills: Dilute with a large amount of water and hold in a pond or dyked area until the peroxide decomposes followed by discharge into a suitable treatment system. May be neutralized with sodium metabisulfite or sodium sulfite after diluting to 5-10% peroxide. Do not flush undiluted material to sewer. This oxidizing material can increase the flammability of adjacent combustible materials. Empty containers should be rinsed with water before discarding.

7. Handling and Storage

Store in a cool(< 35°C), well-ventilated dark area separated from combustible substances, reducing agents, strong bases, organics. Do not store on wooden shelves or floors. Suggest rotation of stock. Containers must be vented, but check periodically for bulging containers which can burst from pressure. Protect containers from physical damage, contamination, heat and incompatibles. Contamination from any source (dust, metals) may cause rapid decomposition with generation of large quantities of oxygen gas and high pressures. Rinse empty containers thoroughly with clean water. Glass, polyethylene, stainless steel and aluminum are recommended materials for storage containers. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL):
  1 ppm (TWA).
- ACGIH Threshold Limit Value (TLV):
  1 ppm (TWA), A3: Animal carcinogen.

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation: A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. This substance has unknown warning properties.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
9. Physical and Chemical Properties

**Appearance:**
Clear, colorless liquid.

**Odor:**
Slight acrid odor.

**Solubility:**
Infinitely soluble.

**Density:**
1.11

**pH:**
3.3

**% Volatiles by volume @ 21C (70F):**
100

**Boiling Point:**
108C (226F)

**Melting Point:**
-25C (-13F)

**Vapor Density (Air=1):**
1.17

**Vapor Pressure (mm Hg):**
25 @ 30C (86F)

**Evaporation Rate (BuAc=1):**
< 1

10. Stability and Reactivity

**Stability:**
Normally stable if uncontaminated, but slowly decomposes to release oxygen. Unstable with heat, may result in dangerous pressures. A strong oxidizer, reacts violently upon contact with many organic substances, particularly textile and paper. Avoid light and keep in a closed but vented container to prevent evaporation (concentration) and contamination.

**Hazardous Decomposition Products:**
Decomposes to water and oxygen with rapid heat release. Use vented containers. The solution can decompose violently upon heating.

**Hazardous Polymerization:**
Will not occur.

**Incompatibilities:**
Heat, reducing agents, organic materials, dirt, alkalis, rust, and many metals. Spontaneous combustion may occur on standing in contact with readily flammable materials.

**Conditions to Avoid:**
Avoid excess heat and contact with combustible or organic materials. Light and incompatibles.

11. Toxicological Information

For Hydrogen peroxide: No LD50/LC50 information found relating to normal routes of occupational exposure. Investigated as a tumorigen and mutagen.

<table>
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<tr>
<th>Ingredient</th>
<th>Known Carcinogen</th>
<th>Anticipated Carcinogen</th>
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<tr>
<td>Water (7732-18-5)</td>
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12. Ecological Information

**Environmental Fate:**
No information found.

**Environmental Toxicity:**
No information found.

13. Disposal Considerations
14. Transport Information

**Domestic (Land, D.O.T.)**

**Proper Shipping Name:** HYDROGEN PEROXIDE, AQUEOUS SOLUTION (WITH NOT LESS THAN 20% BUT NOT MORE THAN 40% HYDROGEN PEROXIDE)

**Hazard Class:** 5.1, 8

**UN/NA:** UN2014

**Packing Group:** II

**Information reported for product/size:** 470LB

**International (Water, I.M.O.)**

**Proper Shipping Name:** HYDROGEN PEROXIDE, AQUEOUS SOLUTION (WITH NOT LESS THAN 20% BUT NOT MORE THAN 40% HYDROGEN PEROXIDE)

**Hazard Class:** 5.1, 8

**UN/NA:** UN2014

**Packing Group:** II

**Information reported for product/size:** 470LB

15. Regulatory Information

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**Chemical Inventory Status - Part 1**

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<td>Yes</td>
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**Chemical Inventory Status - Part 2**

--Canada--

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**Federal, State & International Regulations - Part 1**

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**Federal, State & International Regulations - Part 2**

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<td>Water (7732-18-5)</td>
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**Chemical Weapons Convention:** No

**SARA 311/312:** Acute: Yes Chronic: No

**Reactivity:** Yes (Mixture / Liquid)

**Australian Hazchem Code:** 2P

**Poison Schedule:** S6

**WHMIS:**

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16. Other Information

NFPA Ratings:
- Health: 3
- Flammability: 0
- Reactivity: 1
- Other: Oxidizer

Label Hazard Warning:
DANGER! STRONG OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. CORROSIVE. CAUSES BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. HARMFUL IF SWALLOWED OR INHALED.

Label Precautions:
- Keep from contact with clothing and other combustible materials.
- Do not store near combustible materials.
- Do not get in eyes, on skin, or on clothing.
- Do not breathe vapor or mist.
- Store in a tightly closed container.
- Use only with adequate ventilation.
- Remove and wash contaminated clothing promptly.
- Avoid contamination from any source, metals, dust, and organic materials that may cause rapid decomposition, generation of large quantities of oxygen gas and high pressure. Drying of product on clothing or combustible materials may cause fire.

Label First Aid:
In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

Product Use:
Laboratory Reagent.

Revision Information:
No changes.

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