1. Product and Company Identification

Material name: HYDROGEN PEROXIDE

Version #: 04

Revision date: 04-11-2011

CAS #: Mixture

Product Codes: J.T.Baker: 2002, 2186, 2190, 2191, 2192, 2200, 2201, 2202, 2203, 2204, 3664, 5155, 5170, 5369, 5516, 5803, 5816, 5846, 5853, 5898
Macron: 5236, 5240, H021, V340

Synonym(s): Peroxide; 100 volume peroxide * Hydrogen dioxide solution * Hydrogen peroxide, 30%, unstabilized * Hydrogen Peroxide, 30%, Ultrex®

Manufacturer Address: Avantor Performance Materials, Inc.
222 Red School Lane
Phillipsburg, NJ  08865
US

Customer Service: 800-582-2537

24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

2. Hazards Identification

Emergency overview: DANGER -- OXIDIZER
Oxidizing material. Contact with combustible material may cause fire.
Corrosive. Causes skin and eye burns. Causes digestive tract burns. Harmful if inhaled or swallowed. Mist or vapor irritating to eyes and respiratory tract. Prolonged exposure may cause chronic effects.

OSHA regulatory status: This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

Potential health effects:
Routes of exposure: Ingestion. Inhalation. Skin contact. Eye contact.

Eyes: Corrosive. Causes eye burns. Vapor or spray may cause eye damage, impaired sight or blindness.

Skin: Corrosive. Causes skin burns.

Inhalation: Harmful if inhaled. Causes burns. Vapors irritate the respiratory system, and may cause coughing and difficulties in breathing.

Ingestion: Corrosive. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.

Target organs: Eyes. Skin. Lungs. Respiratory system.

Chronic effects: Strongly irritating. Prolonged contact may cause burns. Contains a substance which may have a mutagenic effect.

Potential environmental effects: Toxic to aquatic organisms.

3. Composition / Information on Ingredients

<table>
<thead>
<tr>
<th>Hazardous components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN PEROXIDE</td>
<td>7722-84-1</td>
<td>25 - 35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-hazardous components</th>
<th>CAS #</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>65 - 75</td>
</tr>
</tbody>
</table>
4. First Aid Measures

First aid procedures

Eye contact
Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

Skin contact
Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician or poison control center immediately. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes.

Inhalation
Move to fresh air. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen. Call a physician or poison control center immediately.

Ingestion
Call a physician or poison control center immediately. Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Notes to physician
Keep victim under observation. Treat symptomatically.

General advice
In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties
This product is not flammable.

Extinguishing media

Suitable extinguishing media
Water. Carbon dioxide (CO2). Dry chemical powder. Foam.

Unsuitable extinguishing media
None known.

Protection of firefighters

Specific hazards arising from the chemical
OXIDIZING! May explode from heat or contamination. Contact with combustible material may cause fire. These substances will accelerate burning when involved in a fire. Some will react explosively with hydrocarbons (fuels). Some may decompose explosively when heated or involved in a fire. Runoff may create fire or explosion hazard. Fire may produce irritating, corrosive and/or toxic gases.

Protective equipment and precautions for firefighters
Use water spray to cool unopened containers. Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters
Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires.

Specific methods
In the event of fire and/or explosion do not breathe fumes.

6. Accidental Release Measures

Personal precautions
Eliminate all sources of ignition. Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

Methods for containment
Stop the flow of material, if this is without risk. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Dike the spilled material, where this is possible. Prevent entry into waterways, sewer, basements or confined areas.
**Methods for cleaning up**

Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Absorb spillage with non-combustible, absorbent material. Collect in a non-combustible container for prompt disposal. Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations. Collect in a non-combustible container for prompt disposal.

**7. Handling and Storage**

**Handling**

Keep away from clothing and other combustible materials. Do not get in eyes, on skin, on clothing. Avoid prolonged exposure. Do not taste or swallow. Wash thoroughly after handling. Do not eat, drink or smoke when using the product. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight.

**Storage**

Keep away from heat and sources of ignition. Do not store near combustible materials. Keep tightly closed in a dry, cool and well-ventilated place.

**8. Exposure Controls / Personal Protection**

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN PEROXIDE (7722-84-1)</td>
<td>TWA</td>
<td>1.0000 ppm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U.S. - OSHA</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN PEROXIDE (7722-84-1)</td>
<td>PEL</td>
<td>1.0000 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.4000 mg/m³</td>
</tr>
</tbody>
</table>

**Engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Personal protective equipment**

**Eye / face protection**

Wear safety glasses with side shields (or goggles) and a face shield.

**Skin protection**

Wear appropriate chemical resistant clothing. Wear appropriate chemical resistant gloves.

**Respiratory protection**

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with acid gas cartridge.

**General hygiene considerations**

Provide eyewash station and safety shower. Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

**General**

Wear chemical protective equipment that is specifically recommended by the manufacturer. Launder contaminated clothing before reuse.

**9. Physical & Chemical Properties**

**Appearance**

Clear.

**Color**

Colorless.

**Odor**

Slight. Pungent.
### Odor threshold
Not available.

### Physical state
Liquid.

### Form
Liquid.

### pH
3.3

### Melting point
-13 °F (-25 °C)

### Freezing point
-13 °F (-25 °C)

### Boiling point
226.4 °F (108 °C)

### Flash point
Not available.

### Evaporation rate
<= 1 BuAc

### Flammability limits in air, upper, % by volume
Not available.

### Flammability limits in air, lower, % by volume
Not available.

### Vapor pressure
3.33 kPa

### Vapor density
1.17

### Specific gravity
1.11

### Relative density
Not available.

### Solubility (water)
Miscible

### Partition coefficient (n-octanol/water)
Not available

### Auto-ignition temperature
Not available.

### Decomposition temperature
Not available.

### Molecular weight
34.01

### Molecular formula
H₂O₂

### 10. Chemical Stability & Reactivity Information

**Chemical stability**
Stable, however, may decompose if heated.

**Conditions to avoid**

**Incompatible materials**

**Hazardous decomposition products**
May decompose upon heating to produce corrosive and/or toxic fumes.

**Possibility of hazardous reactions**
Hazardous polymerization does not occur.

### 11. Toxicological Information

#### Toxicological data

**Product**
HYDROGEN PEROXIDE (Mixture)

**Test Results**
- Acute Dermal LD50 Rat: 3000 mg/kg
- Acute Inhalation LC50 Rat: 6667 mg/m³
- Acute Oral LD50 Rat: 1253 mg/kg

**Components**

**Product**
HYDROGEN PEROXIDE (7722-84-1)

**Test Results**
- Acute Inhalation LC50 Rat: 2000 mg/m³ 4.00 hours
- Acute Oral LD50 Rat: 376 mg/kg

**Sensitization**
Not a skin sensitizer.

**Acute effects**
Harmful if inhaled or swallowed.

**Local effects**
Causes skin and eye burns. Irritating to respiratory system.

**Chronic effects**
Strongly irritating. Prolonged contact may cause burns.

**Carcinogenicity**
This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
ACGIH Carcinogens
HYDROGEN PEROXIDE (CAS 7722-84-1) A3 Confirmed animal carcinogen with unknown relevance to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity
HYDROGEN PEROXIDE (CAS 7722-84-1) 3 Not classifiable as to carcinogenicity to humans.

Skin corrosion/irritation
Causes skin burns.

Epidemiology
No epidemiological data is available for this product.

Mutagenicity
May cause genetic defects.

Neurological effects
No data available for this product.

Reproductive effects
Contains no ingredient listed as toxic to reproduction.

Teratogenicity
No data available to indicate product or any components present at greater than 0.1% may cause birth defects.

Symptoms and target organs
Corrosive effects.

Further information
Danger of very serious irreversible effects. Symptoms may be delayed.

12. Ecological Information

Ecotoxicological data

<table>
<thead>
<tr>
<th>Components</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN PEROXIDE (7722-84-1)</td>
<td>EC50 Algae: 2.5 mg/l 72.00 hours</td>
</tr>
<tr>
<td></td>
<td>EC50 Daphnia: 2.4 mg/l 48.00 hours</td>
</tr>
<tr>
<td></td>
<td>LC50 Fish: 16.4 mg/l 96.00 hours</td>
</tr>
<tr>
<td></td>
<td>NOEC Daphnia: 1 mg/l 48.00 hours</td>
</tr>
</tbody>
</table>

Ecotoxicity
Toxic to aquatic life.

Persistence and degradability
Expected to be readily biodegradable.

Partition coefficient (n-octanol/water)
Not available

13. Disposal Considerations

Disposal instructions
Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.

Contaminated packaging
Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

14. Transport Information

DOT

Basic shipping requirements:

<table>
<thead>
<tr>
<th>UN number</th>
<th>Hazard class</th>
<th>Subsidiary hazard class</th>
<th>Packing group</th>
<th>Additional Information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>5.1</td>
<td>8</td>
<td>II</td>
<td>Special provisions: 12, B53, B80, B81, B85, IB2, T7, TP2, TP6, TP24, TP37</td>
</tr>
</tbody>
</table>

Basic shipping requirements:

<table>
<thead>
<tr>
<th>Labels required</th>
<th>Packaging exceptions</th>
<th>Packaging non bulk</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1, 8</td>
<td>None</td>
<td>202</td>
</tr>
</tbody>
</table>
Packaging bulk: 243
ERG number: 140

IATA
Basic shipping requirements:
UN number: 2014
Proper shipping name: Hydrogen peroxide, aqueous solution with 20% or more but 40% or less hydrogen peroxide
Hazard class: 5.1
Subsidiary hazard class: 8
Packing group: II

Additional information:
ERG code: 5C

IMDG
Basic shipping requirements:
UN number: 2014
Proper shipping name: HYDROGEN PEROXIDE, AQUEOUS SOLUTION with not less than 20% but not more than 60% hydrogen peroxide
Hazard class: 5.1
Subsidiary hazard class: 8
Packing group: II

15. Regulatory Information
US federal regulations
This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.
CERCLA/SARA Hazardous Substances - Not applicable.

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Spill: Reportable quantity
HYDROGEN PEROXIDE (CAS 7722-84-1) 1000 LBS

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity
HYDROGEN PEROXIDE (CAS 7722-84-1) 1000 LBS

CERCLA (Superfund) reportable quantity
None

Superfund Amendments and Reauthorization Act of 1986 (SARA)
Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - Yes

Section 311 hazardous chemical
Yes
Inventory status

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European Inventory of Existing Commercial Chemical Substances (EINECS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Europe</td>
<td>European List of Notified Chemical Substances (ELINCS)</td>
<td>No</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

HYDROGEN PEROXIDE (CAS 7722-84-1) 500 LBS

US - Pennsylvania RTK - Hazardous Substances: Listed substance

HYDROGEN PEROXIDE (CAS 7722-84-1) Listed.

Saf-T-Data

Health: 3 - Severe (Life)
Flammability: 0 - None
Reactivity: 3 - Severe (Oxidizer)
Contact: 4 - Extreme (Corrosive)
Lab Protective Equip: D - GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code: W - White (Corrosive)

16. Labeling Info

Label Hazard Warning

DANGER -- OXIDIZER
Contact with combustible material may cause fire. Corrosive. Causes severe skin and eye burns. Causes digestive tract burns. Irritating to respiratory system.

Label Precautions

Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed. Keep from contact with clothing and other combustible materials. Remove and wash contaminated clothing promptly.

Label First Aid

Immediately flush eyes with plenty of water for at least 15 minutes. Immediately flush skin with plenty of water. If gas/fume/vapor/dust/mist from the material is inhaled, remove the affected person immediately to fresh air. Get medical attention immediately. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance.

17. Other Information

NFPA ratings

Health: 3
Flammability: 0
Instability: 1
Special hazards: OX
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Issue date: 04-11-2011

This data sheet contains changes from the previous version in section(s):

This document has undergone significant changes and should be reviewed in its entirety.

Material name: HYDROGEN PEROXIDE
MSDS ID: H4065
Version #: 04
Revision date: 04-11-2011