1. Identification

Product Name
Hydrogen peroxide, 30%

Cat No.:
H325-4, H325-4LC, H325-30GAL, H325-100, H325-500, H325-500LC

Synonyms
No information available

Recommended Use
Laboratory chemicals.

Uses advised against
No Information available

2. Hazard(s) identification

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

Oxidizing liquids
Category 1

Acute oral toxicity
Category 4

Acute dermal toxicity
Category 4

Acute Inhalation Toxicity - Vapors
Category 4

Skin Corrosion/irritation
Category 1

Serious Eye Damage/Eye Irritation
Category 1

Specific target organ toxicity (single exposure)
Category 3

Target Organs - Respiratory system.

Signal Word
Danger

Hazard Statements
May cause fire or explosion; strong oxidizer
Harmful if swallowed
Harmful in contact with skin
Harmful if inhaled
Causes severe skin burns and eye damage
Causes serious eye damage
May cause respiratory irritation
Precautionary Statements

Prevention
Keep/Store away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area

Response
Call a POISON CENTER or doctor/physician if you feel unwell

Inhalation
If Inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Skin
Immediately call a POISON CENTER or doctor/physician
Wash contaminated clothing before reuse
If on Skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

Eyes
If in Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Immediately call a POISON CENTER or doctor/physician

Ingestion
Rinse mouth
Do NOT induce vomiting

Fire
Explosion risk in case of fire
In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion
Evacuate area

Storage
Store locked up
Store in a closed container
Store in a well-ventilated place. Keep cool

Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)
Harmful to aquatic life with long lasting effects

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>65-80</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>20-35</td>
</tr>
</tbody>
</table>

4. First-aid measures

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

Ingestion
Do not induce vomiting. Call a physician or Poison Control Center immediately.

Most important symptoms/effects
Causes burns by all exposure routes. Causes eye burns. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media
No information available

Flash Point
Not applicable

Autoignition Temperature
No information available

Specific Hazards Arising from the Chemical
Oxidizer: Contact with combustible/organic material may cause fire. Corrosive Material. Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
oxygen Hydrogen

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>2</td>
<td>OX</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

Environmental Precautions
Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Keep combustibles (wood, paper, oil, etc) away from spilled material. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist. Do not ingest. Contents may develop pressure upon prolonged storage. Keep away from clothing and other combustible materials.

Storage
To maintain product quality. Keep refrigerated. Keep container tightly closed in a dry and
well-ventilated place. Keep away from direct sunlight.

**8. Exposure controls / personal protection**

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>TWA: 1 ppm</td>
<td>(Vacated) TWA: 1 ppm</td>
<td>(Vacated) TWA: 1 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 1.4 mg/m³</td>
<td>TWA: 1 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA: 1 ppm</td>
<td>TWA: 1.4 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>TWA: 1 ppm</td>
<td>TWA: 1 ppm</td>
<td>TWA: 1 ppm</td>
</tr>
<tr>
<td></td>
<td>TWA: 1.4 mg/m³</td>
<td>TWA: 1.5 mg/m³</td>
<td>TWA: 1 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 2 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL: 3 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health

**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

**Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

**9. Physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>3.3</td>
</tr>
<tr>
<td>Melting Point/Range</td>
<td>-33 °C / -27.4 °F</td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>108 °C / 226.4 °F @ 760 mmHg</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>&gt;1.0 (Butyl Acetate = 1.0)</td>
</tr>
<tr>
<td>Flammability (solid,gas)</td>
<td>No information available</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td></td>
</tr>
<tr>
<td>Upper</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>23 mmHg @ 30°C</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>1.10</td>
</tr>
<tr>
<td>Relative Density</td>
<td>1.110</td>
</tr>
<tr>
<td>Solubility</td>
<td>Miscible with water</td>
</tr>
<tr>
<td>Partition coefficient; n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition Temperature</td>
<td>No information available</td>
</tr>
</tbody>
</table>
Hydrogen peroxide, 30%  

**Decomposition Temperature**  
> 125°C  

**Viscosity**  
No information available

### 10. Stability and reactivity

**Reactive Hazard**  
Yes

**Stability**  
Stable under normal conditions. Light sensitive.

**Conditions to Avoid**  

**Incompatible Materials**  
Strong oxidizing agents, Metals, Reducing agents, Alcohols, Ammonia, copper, Copper alloys, lead oxides, Cyanides, Sulfides, lead, Acetone

**Hazardous Decomposition Products**  
Oxygen, Hydrogen

**Hazardous Polymerization**  
Hazardous polymerization does not occur.

**Hazardous Reactions**  
None under normal processing.

### 11. Toxicological information

**Acute Toxicity**

**Product Information**
- Oral LD50  
  Category 4.
- Dermal LD50  
  Category 4.
- Vapor LC50  
  Category 4.

**Component Information**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (Rat)</th>
<th>LD50 Dermal (Rabbit)</th>
<th>LC50 Inhalation (Rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>801 mg/kg</td>
<td>2000 mg/kg</td>
<td>2 g/m³ 4 h</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**  
No information available

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

**Irritation**  
Causes burns by all exposure routes

**Sensitization**  
No information available

**Carcinogenicity**  
The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>Not listed</td>
<td>Not listed</td>
<td>A3</td>
<td>Not listed</td>
<td>A3</td>
</tr>
</tbody>
</table>

**IARC: (International Agency for Research on Cancer)**  
Group 1 - Carcinogenic to Humans  
Group 2A - Probably Carcinogenic to Humans  
Group 2B - Possibly Carcinogenic to Humans

**ACGIH: (American Conference of Governmental Industrial Hygienists)**  
A1 - Known Human Carcinogen  
A2 - Suspected Human Carcinogen  
A3 - Animal Carcinogen

**Mutagenic Effects**  
No information available

**Reproductive Effects**  
No information available.

**Developmental Effects**  
No information available.

**Teratogenicity**  
No information available.
Hydrogen peroxide, 30%

STOT - single exposure
Respiratory system

STOT - repeated exposure
None known

Aspiration hazard
No information available

Symptoms / effects, both acute and delayed
Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation

Endocrine Disruptor Information
No information available

Other Adverse Effects
See actual entry in RTECS for complete information.

12. Ecological information
Ecotoxicity
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>EC50 2.5 mg/L/72h</td>
<td>LO50: 16.4 mg/L/96h (P. promelas)</td>
<td>Not listed</td>
<td>EC50 7.7 mg/L/24h</td>
</tr>
</tbody>
</table>

Persistence and Degradability
Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation
No information available.

Mobility
Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations
Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Subsidiary Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>HYDROGEN PEROXIDE, AQUEOUS SOLUTION</td>
<td>5.1</td>
<td>8</td>
<td>II</td>
</tr>
</tbody>
</table>

TDG

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Subsidiary Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>HYDROGEN PEROXIDE, AQUEOUS SOLUTION</td>
<td>5.1</td>
<td>8</td>
<td>II</td>
</tr>
</tbody>
</table>

IATA

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Subsidiary Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>HYDROGEN PEROXIDE, AQUEOUS SOLUTION</td>
<td>5.1</td>
<td>8</td>
<td>II</td>
</tr>
</tbody>
</table>

IMDG/IMO

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
<th>Hazard Class</th>
<th>Subsidiary Hazard Class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>HYDROGEN PEROXIDE, AQUEOUS SOLUTION</td>
<td>5.1</td>
<td>8</td>
<td>II</td>
</tr>
</tbody>
</table>

15. Regulatory information
International Inventories
<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-791-2</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>231-765-0</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable
SARA 313 Not applicable

SARA 311/312 Hazardous Categorization

| Acute Health Hazard |  Yes |
| Chronic Health Hazard |  No |
| Fire Hazard          |  No |
| Sudden Release of Pressure Hazard |  No |
| Reactive Hazard      |  Yes |

Clean Water Act Not applicable
Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration
OSHA - United States Occupational Safety and Health Administration

<table>
<thead>
<tr>
<th>Component</th>
<th>Specifically Regulated Chemicals</th>
<th>Highly Hazardous Chemicals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>-</td>
<td>TQ: 7500 lb</td>
</tr>
</tbody>
</table>

CERCLA
This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

<table>
<thead>
<tr>
<th>Component</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA EHS RQs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>-</td>
<td>1000 lb</td>
</tr>
</tbody>
</table>

California Proposition 65
This product does not contain any Proposition 65 chemicals

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant N
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security
This product contains the following DHS chemicals:
DHS Chemical Facility Anti-Terrorism Standard

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>2000 lb STQ (concentration of at least 30%)</td>
</tr>
</tbody>
</table>

Other International Regulations

Mexico - Grade
No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
- C Oxidizing materials
- D2B Toxic materials
- E Corrosive material
- D1B Toxic materials

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
25-Aug-2011

Revision Date
22-Dec-2014

Print Date
22-Dec-2014

Revision Summary
This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

Disclaimer
The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of SDS