SAFETY DATA SHEET

1. Identification
Product Name: Hydrogen Peroxide (30% in water)
Cat No.: BP2633-500; NC1592410
Synonyms: Hydrogen Dioxide; Peroxide; Carbamide Peroxide
Recommended Use: Laboratory chemicals.
Uses advised against: Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet
Company: Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number
For information US call: 001-800-ACROS-01 / Europe call: +32 14 57 52 11
Emergency Number US: 001-201-796-7100 / Europe: +32 14 57 52 99
CHEMTREC Tel. No. US: 001-800-424-9300 / Europe: 001-703-527-3887

2. Hazard(s) identification

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

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxidizing liquids</td>
<td>Category 2</td>
</tr>
<tr>
<td>Acute oral toxicity</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute Inhalation Toxicity - Dusts and Mists</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin Corrosion/Irritation</td>
<td>Category 1 A</td>
</tr>
<tr>
<td>Serious Eye Damage/Eye Irritation</td>
<td>Category 1</td>
</tr>
</tbody>
</table>

Label Elements

Signal Word
Danger

Hazard Statements
May intensify fire; oxidizer
Harmful if swallowed or if inhaled
Causes severe skin burns and eye damage
Hydrogen Peroxide (30% in water)

Precautionary Statements
Prevention
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep/Store away from clothing/ other combustible materials
Take any precaution to avoid mixing with combustibles
Response
Immediately call a POISON CENTER or doctor/physician

Inhalation
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Skin
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
Wash contaminated clothing before reuse
Eyes
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
Ingestion
Rinse mouth
Do NOT induce vomiting
Fire
In case of fire: Use water spray/fog or regular foam to extinguish
Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed
Disposal
Dispose of contents/container to an approved waste disposal plant
Hazards not otherwise classified (HNOC)
None identified

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

General Advice
Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

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. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician
Inhalation

If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

Ingestion

Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Most important symptoms and effects

Causes severe eye damage. 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

Water spray. Foam. Carbon dioxide (CO₂).

Unsuitable Extinguishing Media

Dry chemical

Flash Point

Not applicable

Method -

No information available

Autoignition Temperature

No information available

Explosion Limits

Upper

No data available

Lower

No data available

Oxidizing Properties

Oxidizer

Sensitivity to Mechanical Impact

No information available

Sensitivity to Static Discharge

No information available

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. In the event of fire and/or explosion do not breathe fumes. Containers may explode when heated. May ignite combustibles (wood paper, oil, clothing, etc.).

Hazardous Combustion Products

Hydrogen. Oxygen.

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. Thermal decomposition can lead to release of irritating gases and vapors.

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 as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental Precautions

Should not be released into the environment. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling

Wear personal protective equipment/focus protection. Do not get in eyes, on skin, or on clothing. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek
immediate medical assistance. Ensure adequate ventilation.

Storage.

8. Exposure controls / personal protection

Exposure Guidelines

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH</th>
<th>Mexico OEL (TWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>TWA: 1 ppm (Vacated) TWA: 1 ppm (Vacated) TWA: 1.4 mg/m³</td>
<td>TWA: 1 ppm</td>
<td>IDLH: 75 ppm TWA: 1 ppm TWA: 1.4 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

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

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

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.

Recommended Filter type:
Particulates filter conforming to EN 143. Inorganic gases and vapours filter. Type B. Grey.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Physical State</th>
<th>Liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Clear</td>
</tr>
<tr>
<td>Odor</td>
<td>pungent</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No information available</td>
</tr>
<tr>
<td>pH</td>
<td>3.3 (30 %)</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>Not applicable</td>
</tr>
<tr>
<td>Flammability or explosive limits</td>
<td>No data available</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>Specific Gravity</td>
<td>1.11</td>
</tr>
</tbody>
</table>
Hydrogen Peroxide (30% in water)

Solubility: Miscible with water
Partition coefficient; n-octanol/water: No data available
Autoignition Temperature: No information available
Decomposition Temperature: No information available
Viscosity: No information available
Molecular Formula: H2O2
Molecular Weight: 34.01

10. Stability and reactivity

Reactive Hazard: Yes
Stability: Oxidizer: Contact with combustible/organic material may cause fire. Light sensitive.
Incompatible Materials: Finely powdered metals, copper, Reducing Agent, Strong bases, Combustible material, Organic materials
Hazardous Decomposition Products: Hydrogen, Oxygen
Hazardous Polymerization: Hazardous polymerization does not occur.
Hazardous Reactions: None under normal processing.

11. Toxicological information

Acute Toxicity
Product Information
Oral LD50: Category 4. ATE = 300 - 2000 mg/kg.
Dermal LD50: Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.
Mist LC50: Category 4. ATE = 1 - 5 mg/l.

Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>376 mg/kg ( Rat ) (90%)</td>
<td>910 mg/kg ( Rat ) (20-60%)</td>
<td>1518 mg/kg ( Rat ) (8-20% sol)</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: Causes burns by all exposure routes
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>A3</td>
<td>A3</td>
<td>A3</td>
<td>A3</td>
</tr>
</tbody>
</table>

IARC (International Agency for Research on Cancer)
ACGIH: (American Conference of Governmental Industrial Hygienists)
Mexico - Occupational Exposure Limits - Carcinogens
Hydrogen Peroxide (30% in water)

Revision Date 24-Dec-2021

A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen

Mutagenic Effects No information available
Reproductive Effects No information available.
Developmental Effects No information available.
Teratogenicity No information available.
STOT - single exposure None known
STOT - repeated exposure None known
Aspiration hazard No information available
Symptoms / effects, both acute and delayed Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Endocrine Disruptor Information No information available
Other Adverse Effects The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity Contains a substance which is: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Do not empty into drains. Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system.

<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>LC50: 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 Persistence is unlikely based on information available. Miscible with water
Bioaccumulation/ Accumulation No information available.
Mobility Will likely be mobile in the environment due to its water solubility.

<table>
<thead>
<tr>
<th>Component</th>
<th>log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>-1.1</td>
</tr>
</tbody>
</table>

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>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>HYDROGEN PEROXIDE, AQUEOUS SOLUTIONS</td>
</tr>
<tr>
<td>Hazard Class</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Subsidiary Hazard Class</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Packing Group</td>
<td></td>
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<tr>
<td>II</td>
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</table>

TDG

<table>
<thead>
<tr>
<th>UN-No</th>
<th>Proper Shipping Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2014</td>
<td>HYDROGEN PEROXIDE, AQUEOUS SOLUTION</td>
</tr>
<tr>
<td>Hazard Class</td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Subsidiary Hazard Class</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
Hydrogen Peroxide (30% in water)

Packing Group II

IATA
UN-No UN2014
Proper Shipping Name HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard Class 5.1
Subsidiary Hazard Class 8
Packing Group II

IMDG/IMO
UN-No UN2014
Proper Shipping Name HYDROGEN PEROXIDE, AQUEOUS SOLUTION
Hazard Class 5.1
Subsidiary Hazard Class 8
Packing Group II

15. Regulatory information

United States of America Inventory

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>TSCA</th>
<th>TSCA Inventory notification - Active-Inactive</th>
<th>TSCA - EPA Regulatory Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>X</td>
<td>ACTIVE</td>
<td></td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>X</td>
<td>ACTIVE</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)
X - Listed
'-' - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) 
Not applicable

TSCA 12(b) - Notices of Export 
Not applicable

International Inventories
Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>PICCS</th>
<th>ENCS</th>
<th>ISHL</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>X</td>
<td>-</td>
<td>231-791-2</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-35400</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>KE-20204</td>
</tr>
</tbody>
</table>

KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

U.S. Federal Regulations

SARA 313 
Not applicable

SARA 311/312 Hazard Categories 
See section 2 for more information

CWA (Clean Water Act) 
Not applicable

Clean Air Act 
Not applicable

OSHA - 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.

U.S. State Right-to-Know Regulations

<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:
Legend - STQs = Screening Threshold Quantities, APA = A placarded amount

<table>
<thead>
<tr>
<th>Component</th>
<th>DHS Chemical Facility Anti-Terrorism Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen peroxide</td>
<td>Theft STQs - 400lb (concentration &gt;=35%)</td>
</tr>
</tbody>
</table>

Other International Regulations

Mexico - Grade
No information available

Authorisation/Restrictions according to EU REACH

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No</th>
<th>OECD HPV</th>
<th>Persistent Organic Pollutant</th>
<th>Ozone Depletion Potential</th>
<th>Restriction of Hazardous Substances (RoHS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Listed</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>Listed</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Safety, health and environmental regulations/legislation specific for the substance or mixture

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>7722-84-1</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

16. Other information
End of SDS