1. Identification

Product identifier HYDROGEN PEROXIDE SOLUTION, 3%

Other means of identification

Product code 9321

Recommended use professional, scientific and technical activities: scientific research and development

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name GFS Chemicals, Inc.

Address P.O. Box 245

Powell

OH

43065

US

Telephone Phone 740-881-5501

Toll Free 800-858-9682

Fax 740-981-5989

Website www.gfschemicals.com

E-mail service@gfschemicals.com

Emergency phone number Emergency Assistance Chemtrec 800-424-9300

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Acute toxicity, inhalation Classification not possible

Serious eye damage/eye irritation Classification not possible

Reproductive toxicity Classification not possible

Specific target organ toxicity, single exposure Classification not possible

Specific target organ toxicity, repeated exposure Not classified

OSHA hazard(s) Not classified.

Label elements

Hazard symbol No symbol.

Signal word Not available.

Hazard statement Not available.

Precautionary statement

Prevention Wash thoroughly after handling.

Response Not available.

Storage Not available.

Disposal Not available.

Hazard(s) not otherwise classified (HNOC) Not classified.

Environmental hazards Hazardous to the aquatic environment, acute hazard Not applicable

3. Composition/information on ingredients

Mixtures

Hazardous components HYDROGEN PEROXIDE

Chemical name HYDROGEN PEROXIDE

CAS number 7722-84-1

% 3
Non-hazardous components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER</td>
<td>7732-18-5</td>
<td>97</td>
</tr>
</tbody>
</table>

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

**Inhalation**
Move to fresh air. Call a physician if symptoms develop or persist.

**Skin contact**
Wash off immediately with plenty of water. Get medical attention if irritation develops and persists.

**Eye contact**
Rinse with water. Get medical attention if irritation develops and persists.

**Ingestion**
Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed**
Not available.

**Indication of immediate medical attention and special treatment needed**
Treat symptomatically.

5. Fire-fighting measures

**Suitable extinguishing media**

**Unsuitable extinguishing media**
Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards arising from the chemical**
None known.

**Special protective equipment and precautions for firefighters**
Wear suitable protective equipment.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak. Keep upwind. Keep out of low areas.

**Methods and materials for containment and cleaning up**
Dilute with water. Dilute with water. Should not be released into the environment. Large Spills: Stop leak if you can do so without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Prevent entry into waterways, sewer, basements or confined areas. Clean up in accordance with all applicable regulations.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see section 13 of the MSDS. Allow the hydrogen peroxide to decompose. Allow the hydrogen peroxide to decompose. Flush to sewer if local regulations permit. Flush to sewer if local regulations permit.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

**Precautions for safe handling**
Avoid prolonged exposure. Avoid release to the environment.

**Conditions for safe storage, including any incompatibilities**
Store in original vented container.

8. Exposure controls/personal protection

**Occupational exposure limits**

| US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) |
|-------------------------------------------------|-------|-----|
| Components | Type   | Value |
| HYDROGEN PEROXIDE (CAS 7722-84-1)               | PEL   | 1.4 mg/m3 |

Material name: HYDROGEN PEROXIDE SOLUTION, 3%
US. ACGIH Threshold Limit Values

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

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN PEROXIDE (CAS 7722-84-1)</td>
<td>TWA</td>
<td>1.4 mg/m3</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate 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.

Individual protection measures, such as personal protective equipment

**Eye/face protection**
Chemical goggles are recommended. Eye wash fountain is recommended.

**Skin protection**
- **Hand protection**
  Wear protective gloves.
- **Other**
  Wear appropriate chemical resistant clothing.

**Respiratory protection**
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

**Thermal hazards**
Not available.

**General hygiene considerations**
Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

**Appearance**
Clear.

**Physical state**
Liquid.

**Form**
Aqueous solution.

**Color**
Colorless.

**Odor**
Odorless.

**Odor threshold**
Not available.

**pH**
4 - 6

**Melting point/freezing point**
< 32 °F (< 0 °C)

**Initial boiling point and boiling range**
> 212 °F (> 100 °C)

**Flash point**
Not available.

**Evaporation rate**
Not available.

**Flammability (solid, gas)**
Not applicable.

**Upper/lower flammability or explosive limits**
- **Flammability limit - lower (%)**
  Not available.
- **Flammability limit - upper (%)**
  Not available.
- **Explosive limit - lower (%)**
  Not available.
- **Explosive limit - upper (%)**
  Not available.

**Vapor density**
Not available.

**Relative density**
Not available.

**Solubility(ies)**
Not available.

**Partition coefficient (n-octanol/water)**
Not available.

**Auto-ignition temperature**
Not available.

**Decomposition temperature**
Not available.

**Viscosity**
Not available.
Other information

Density 1.01 g/cm³ estimated
Molecular formula H₂O₂
Molecular weight 34.02
Percent volatile 100 %
Specific gravity 1.01 estimated

10. Stability and reactivity

Reactivity Not available.
Chemical stability Material is stable under normal conditions.
Possibility of hazardous reactions Hazardous polymerization does not occur.
Conditions to avoid Heat. Contamination.
Incompatible materials Reducing agents. Combustible material.
Hazardous decomposition products Oxygen.

11. Toxicological information

Information on likely routes of exposure

Ingestion Based on available data, the classification criteria are not met.
Inhalation Due to lack of data the classification is not possible.
Skin contact Due to lack of data the classification is not possible.
Eye contact Due to lack of data the classification is not possible.

Symptoms related to the physical, chemical and toxicological characteristics Not available.

Information on toxicological effects

Acute toxicity Not available.
Skin corrosion/irritation Due to lack of data the classification is not possible.
Serious eye damage/eye irritation Due to lack of data the classification is not possible.
Respiratory sensitization Due to lack of data the classification is not possible.
Skin sensitization Due to lack of data the classification is not possible.
Germ cell mutagenicity Due to lack of data the classification is not possible.
Carcinogenicity

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

Reproductive toxicity Due to lack of data the classification is not possible.
Specific target organ toxicity - single exposure Due to lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.
Aspiration hazard Due to lack of data the classification is not possible.
Chronic effects Prolonged inhalation may be harmful.
Further information This product has no known adverse effect on human health.

12. Ecological information

Ecotoxicity Contains a substance which causes risk of hazardous effects to the environment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN PEROXIDE SOLUTION, 3% (CAS Mixture)</td>
<td>Fish</td>
<td>LC50 4067 mg/l, 24 Hours</td>
</tr>
<tr>
<td>Components</td>
<td>Species</td>
<td>Test Results</td>
</tr>
<tr>
<td>HYDROGEN PEROXIDE (CAS 7722-84-1) Aquatic</td>
<td>Fish</td>
<td>LC50 Chameleon goby (Tridentiger trigonocephalus) 155 mg/l, 24 hours</td>
</tr>
<tr>
<td>Components</td>
<td>Species</td>
<td>Test Results</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td>Jack Mackerel (Trachurus japonicus)</td>
<td>89 mg/l, 24 hours</td>
</tr>
</tbody>
</table>

* Estimates for product may be based on additional component data not shown.

### Persistence and degradability
- None known.

### Bioaccumulative potential
- Not available.

### Mobility in soil
- Not available.

### Other adverse effects
- Not available.

#### 13. Disposal considerations

**Disposal instructions**
Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations. Dilute with lots of water and discharge to sewer after decomposition.

**Local disposal regulations**
Not available.

**Hazardous waste code**
Not available.

**Waste from residues / unused products**
Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging**
Empty containers should be taken to an approved waste handling site for recycling or disposal.

#### 14. Transport information

**DOT**
Not regulated as a hazardous material by DOT.

**IATA**
Not regulated as a dangerous good.

**IMDG**
Not regulated as a dangerous good.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
No information available.

#### 15. Regulatory information

**US federal regulations**
- CERCLA/SARA Hazardous Substances - Not applicable.
- All components are on the U.S. EPA TSCA Inventory List.

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**
- Not regulated.

- Not on regulatory list.

**CERCLA Hazardous Substance List (40 CFR 302.4)**
- Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

<table>
<thead>
<tr>
<th>Hazard categories</th>
<th>Immediate Hazard</th>
<th>Delayed Hazard</th>
<th>Fire Hazard</th>
<th>Pressure Hazard</th>
<th>Reactivity Hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>SARA 302 Extremely hazardous substance</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SARA 311/312 Hazardous chemical</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other federal regulations**

- **Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**
  - Not regulated.

- **Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**
  - Not regulated.

- **Safe Drinking Water Act (SDWA)**
  - Not regulated.
Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number
Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))
Not regulated.

DEA Exempt Chemical Mixtures Code Number
Not regulated.

Food and Drug Administration (FDA)

US state regulations
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List
HYDROGEN PEROXIDE (CAS 7722-84-1)

US. New Jersey Worker and Community Right-to-Know Act
HYDROGEN PEROXIDE (CAS 7722-84-1) 500 LBS

US. Pennsylvania RTK - Hazardous Substances
HYDROGEN PEROXIDE (CAS 7722-84-1)

US. Rhode Island RTK
HYDROGEN PEROXIDE (CAS 7722-84-1)

US. California Proposition 65
US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance
Not listed.

International Inventories

<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 this product complies with the inventory requirements administered by the governing country(s)

16. Other information, including date of preparation or last revision

Issue date            March-25-2013
Version #             01
Further information   Not available.

Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered 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 materials or in any process, unless specified in the text.

Revision Information
Product and Company Identification: Alternate Trade Names
Hazards Identification: US Hazard Categories
Composition / Information on Ingredients: Ingredients
Physical & Chemical Properties: Multiple Properties
Regulatory Information: Canada
GHS: Classification