1. IDENTIFICATION

Product identifier
Product Name
Dissolved Oxygen 1 Reagent

Other means of identification
Product Code(s) 98199

Safety data sheet number M00029

UN/ID no UN3077

Recommended use of the chemical and restrictions on use
Recommended Use Laboratory Use.
Uses advised against None.
Restrictions on use None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company P.O.Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number
+1(303) 623-5716 - 24 Hour Service +1(515)232-2533 - 8am - 4pm CST

2. HAZARDS IDENTIFICATION

Classification

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

<table>
<thead>
<tr>
<th>Hazard Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin corrosion/irritation</td>
</tr>
<tr>
<td>Category 1</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
</tr>
<tr>
<td>Skin sensitization</td>
</tr>
<tr>
<td>Mutagenicity</td>
</tr>
<tr>
<td>Carcinogenicity</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
</tr>
<tr>
<td>Specific target organ toxicity (single exposure)</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
</tr>
<tr>
<td>Category 2</td>
</tr>
</tbody>
</table>

Hazards not otherwise classified (HNOC)
Not applicable

Label elements

Signal word - Danger
Hazard statements
H318 - Causes serious eye damage
H373 - May cause damage to organs through prolonged or repeated exposure
H411 - Toxic to aquatic life with long lasting effects

Precautionary statements
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P273 - Avoid release to the environment
P391 - Collect spillage
P501 - Dispose of contents/container to an approved waste disposal plant

Other Information
May be harmful if swallowed

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Chemical Name</th>
<th>Chemical Family</th>
<th>Formula</th>
<th>CAS No</th>
<th>Alternate CAS Number</th>
<th>Alternate CAS Number</th>
<th>Type</th>
<th>Percent Range</th>
<th>HMRIC #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>Manganese Sulfate</td>
<td>Inorganic salt.</td>
<td>MnSO₄</td>
<td>7785-87-7</td>
<td>10034-96-5 - Monohydrate</td>
<td>10101-68-5</td>
<td>Tetrahydrate</td>
<td>100%</td>
<td>-</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

Description of first aid measures

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

Inhalation
Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact
Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact
Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion
Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider
Avoid contact with skin, eyes or clothing.

Most important symptoms and effects, both acute and delayed

Symptoms
Burning sensation.

Indication of any immediate medical attention and special treatment needed

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Hazardous combustion products
This material will not burn.

Special protective equipment for fire-fighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

Personal precautions, protective equipment and emergency procedures

Personal precautions
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas.

Other Information
Refer to protective measures listed in Sections 7 and 8.
Environmental precautions

Environmental precautions
Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so.

Methods for cleaning up
Pick up and transfer to properly labeled containers.

Prevention of secondary hazards
Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

Flammability class
Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate CAS#: 7785-87-7</td>
<td>TWA: 0.02 mg/m³ TWA: 0.1 mg/m³ (vacated) Ceiling: 5 mg/m³ Ceiling: 5 mg/m³ IDLH: 500 mg/m³ Mn TWA: 1 mg/m³ Mn STEL: 3 mg/m³ Mn</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Appropriate engineering controls

Engineering Controls
Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection
No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection
Wear suitable gloves.

Eye/face protection
Tight sealing safety goggles.

Skin and body protection
Wear suitable protective clothing.

General Hygiene Considerations
Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.
Environmental exposure controls
Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards
None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>powder</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>pink</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td></td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Molecular weight</td>
<td>151.01 g/mole</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>3.7</td>
<td>5% Solution</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>&gt; 400 °C / 752 °F</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>850 °C / 1562 °F</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Vapor density (air = 1)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Specific gravity (water = 1 / air = 1)</td>
<td>3.25</td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>log K_{ow} ~ 0</td>
<td></td>
</tr>
<tr>
<td>Soil Organic Carbon-Water Partition Coefficient</td>
<td>log K_{oc} ~ 0</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>850 °C / 1562 °F</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

Solubility(ies)

Water solubility

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely soluble</td>
<td>629000 mg/L</td>
<td>20 °C / 68 °F</td>
</tr>
</tbody>
</table>

Solubility in other solvents

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Solubility classification</th>
<th>Solubility</th>
<th>Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acids</td>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
<tr>
<td>Methanol</td>
<td>Slightly soluble</td>
<td>&gt; 0.1 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>Insoluble</td>
<td>&lt; 0.1 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
<tr>
<td>Ether</td>
<td>Insoluble</td>
<td>&lt; 0.1 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Other Information

Metal Corrosivity
Volatile Organic Compounds (VOC) Content
This Product is by Weight 100% an Individual Pure Chemical Substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>CAA (Clean Air Act)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>7785-87-7</td>
<td>-</td>
</tr>
</tbody>
</table>

Explosive properties

Upper explosion limit: No data available
Lower explosion limit: No data available

Flammable properties

Flash point: Not applicable
Method: No information available

Flammability Limit in Air
Upper flammability limit: No data available
Lower flammability limit: No data available

Oxidizing properties
No data available.

Bulk density: No data available
Particle Size: No information available
Particle Size Distribution: No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability: Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact: None
Sensitivity to Static Discharge: None.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid
None known based on information supplied.

Incompatible materials

Hazardous Decomposition Products
Sulfur oxides. Manganese oxides.
11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

**Inhalation**
Specific test data for the substance or mixture is not available.

**Eye contact**
Specific test data for the substance or mixture is not available. Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes.

**Skin contact**
Specific test data for the substance or mixture is not available. May cause irritation.

**Ingestion**
Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

**Symptoms**
Redness. Burning. May cause blindness.

**Aggravated Medical Conditions**

**Toxicologically synergistic products**
None known.

**Toxicokinetics, metabolism and distribution**
This Product is by Weight 100% an Individual Pure Chemical Substance. See ingredients information below.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Toxicokinetics, metabolism and distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate (100%)</td>
<td>Available data indicate that exposure to excess manganese for 14 days or less (acute duration) or up to a year (intermediate duration) has an effect on the respiratory system and the nervous system, with little to no effect on other organ systems.</td>
</tr>
<tr>
<td>CAS#: 7785-87-7</td>
<td></td>
</tr>
</tbody>
</table>

**Product Acute Toxicity Data**

- **Oral Exposure Route**
  - If available, see ingredient data below

- **Dermal Exposure Route**
  - If available, see ingredient data below

- **Inhalation (Dust/Mist) Exposure Route**
  - If available, see ingredient data below

- **Inhalation (Vapor) Exposure Route**
  - If available, see ingredient data below

- **Inhalation (Gas) Exposure Route**
  - If available, see ingredient data below

**Unknown Acute Toxicity**

0% of the mixture consists of ingredient(s) of unknown toxicity.

**Acute Toxicity Estimations (ATE)**

Not applicable

The following values are calculated based on chapter 3.1 of the GHS document

**Ingredient Acute Toxicity Data**

- **Oral Exposure Route**
  - If available, see data below

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>Rat LD₅₀</td>
<td>2150 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Dermal Exposure Route**
  - If available, see data below

- **Inhalation (Dust/Mist) Exposure Route**
  - If available, see data below

- **Inhalation (Vapor) Exposure Route**
  - If available, see data below

- **Inhalation (Gas) Exposure Route**
  - If available, see data below

**Product Specific Target Organ Toxicity Single Exposure Data**

- **Oral Exposure Route**
  - If available, see ingredient data below

- **Dermal Exposure Route**
  - If available, see ingredient data below

- **Inhalation (Dust/Mist) Exposure Route**
  - If available, see ingredient data below

- **Inhalation (Vapor) Exposure Route**
  - If available, see ingredient data below

- **Inhalation (Gas) Exposure Route**
  - If available, see ingredient data below
Ingredient Specific Target Organ Toxicity Single Exposure Data

- **Oral Exposure Route**: If available, see data below
- **Dermal Exposure Route**: If available, see data below
- **Inhalation (Dust/Mist) Exposure Route**: If available, see data below
- **Inhalation (Vapor) Exposure Route**: If available, see data below
- **Inhalation (Gas) Exposure Route**: If available, see data below

Aspiration Toxicity
If available, see data below

Kinematic Viscosity
Not applicable

Product Skin Corrosion/Irritation Data
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

### Ingredient Skin Corrosion/Irritation Data

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate (100%) CAS#: 7785-87-7</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>500 mg</td>
<td>4 hours</td>
<td>Not corrosive or irritating to skin</td>
<td>ECHA (The European Chemicals Agency)</td>
</tr>
</tbody>
</table>

Product Serious Eye Damage/Eye Irritation Data
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

### Ingredient Eye Damage/Eye Irritation Data

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate (100%) CAS#: 7785-87-7</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>80 mg</td>
<td>72 hours</td>
<td>Corrosive to eyes</td>
<td>ECHA (The European Chemicals Agency)</td>
</tr>
</tbody>
</table>

Sensitization Information

Product Sensitization Data

**Skin Sensitization Exposure Route**
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

**Respiratory Sensitization Exposure Route**
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

### Ingredient Sensitization Data

**Skin Sensitization Exposure Route**
If available, see data below.

**Respiratory Sensitization Exposure Route**
If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

- **Oral Exposure Route**: If available, see ingredient data below.
- **Dermal Exposure Route**: If available, see ingredient data below.
- **Inhalation (Dust/Mist) Exposure Route**: If available, see ingredient data below.
- **Inhalation (Vapor) Exposure Route**: If available, see ingredient data below.
- **Inhalation (Gas) Exposure Route**: If available, see ingredient data below.

### Ingredient Specific Target Organ Toxicity Repeat Exposure Data

- **Oral Exposure Route**: If available, see data below
- **Dermal Exposure Route**: If available, see data below
- **Inhalation (Dust/Mist) Exposure Route**: If available, see data below
Inhalation (Vapor) Exposure Route
If available, see data below

Inhalation (Gas) Exposure Route
If available, see data below

Product Carcinogenicity Data
Oral Exposure Route
If available, see ingredient data below
Dermal Exposure Route
If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route
If available, see ingredient data below
Inhalation (Vapor) Exposure Route
If available, see ingredient data below
Inhalation (Gas) Exposure Route
If available, see ingredient data below

Ingredient Carcinogenicity Data
<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>7785-87-7</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend
ACGIH (American Conference of Governmental Industrial Hygienists) Does not apply
IARC (International Agency for Research on Cancer) Does not apply
NTP (National Toxicology Program) Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor) Does not apply

Oral Exposure Route
If available, see data below
Dermal Exposure Route
If available, see data below
Inhalation (Dust/Mist) Exposure Route
If available, see data below
Inhalation (Vapor) Exposure Route
If available, see data below
Inhalation (Gas) Exposure Route
If available, see data below

Product Germ Cell Mutagenicity invitro Data
This Product is by Weight 100% an Individual Pure Chemical Substance. If available, see ingredient data below.

Ingredient Germ Cell Mutagenicity invitro Data
If available, see data below

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>Mutation in microorganisms</td>
<td>Salmonella typhimurium</td>
<td>1775 nmol/tubes</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>DNA repair</td>
<td>Bacillus subtilis</td>
<td>50 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product Germ Cell Mutagenicity invivo Data
Oral Exposure Route
If available, see ingredient data below
Dermal Exposure Route
If available, see ingredient data below
Inhalation (Dust/Mist) Exposure Route
If available, see ingredient data below
Inhalation (Vapor) Exposure Route
If available, see ingredient data below
Inhalation (Gas) Exposure Route
If available, see ingredient data below

Ingredient Germ Cell Mutagenicity invivo Data
Oral Exposure Route
If available, see data below
Dermal Exposure Route
If available, see data below
Inhalation (Dust/Mist) Exposure Route
If available, see data below
Inhalation (Vapor) Exposure Route
If available, see data below

ENG / AGHS
Inhalation (Gas) Exposure Route

If available, see data below

Product Reproductive Toxicity Data

Oral Exposure Route

If available, see ingredient data below

Dermal Exposure Route

If available, see ingredient data below

Inhalation (Dust/Mist) Exposure Route

If available, see ingredient data below

Inhalation (Vapor) Exposure Route

If available, see ingredient data below

Inhalation (Gas) Exposure Route

If available, see ingredient data below

Ingredient Reproductive Toxicity Data

Oral Exposure Route

If available, see data below

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>Mouse</td>
<td>15000 mg/kg</td>
<td>3 weeks</td>
<td>Effects on Fertility Post-implantation mortality (e.g. dead and/or resorbed implants</td>
<td>RTECS (Registry of Toxic Effects of Chemical</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td>TDₐ₀</td>
<td></td>
<td></td>
<td>per total number of implants)</td>
<td>Substances)</td>
</tr>
<tr>
<td></td>
<td>Mouse</td>
<td></td>
<td></td>
<td>Effects on Newborn</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TDₐ₀</td>
<td></td>
<td></td>
<td>Growth statistics (e.g. % reduced weight gain)</td>
<td></td>
</tr>
</tbody>
</table>

Inhalation (Dust/Mist) Exposure Route

If available, see data below

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>Rat</td>
<td>0.0005 mg/L</td>
<td>None reported</td>
<td>Effects on Newborn</td>
<td>RTECS (Registry of Toxic Effects of Chemical</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td>TCₐ₀</td>
<td></td>
<td></td>
<td>Metabolic effects</td>
<td>Substances)</td>
</tr>
</tbody>
</table>

Inhalation (Vapor) Exposure Route

If available, see data below

Inhalation (Gas) Exposure Route

If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Toxic to aquatic life with long lasting effects

Product Ecological Data

This Product is by Weight 100% an Individual Pure Chemical Substance

Aquatic toxicity

Fish

If available, see ingredient data below

Crustacea

If available, see ingredient data below

Algae

If available, see ingredient data below

Ingredient Ecological Data

Aquatic toxicity

Fish

If available, see ingredient data below

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>96 hours</td>
<td>Oncorhynchus mykiss</td>
<td>LCₐ₀</td>
<td>3.17 mg/L</td>
<td>PEEN (Pan European Ecological Network)</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Crustacea

If available, see ingredient data below

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>48 Hours</td>
<td>Daphnia magna</td>
<td>ECₐ₀</td>
<td>5.7 mg/L</td>
<td>PEEN (Pan European Ecological Network)</td>
</tr>
<tr>
<td>(100%) CAS#: 7785-87-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Algae

If available, see ingredient data below
Other Information

Persistence and degradability

Product Biodegradability Data
This Product is by Weight 100% an Individual Pure Chemical Substance.

Ingredient Biodegradability Data
No data available

Bioaccumulation

Product Bioaccumulation Data
This Product is by Weight 100% an Individual Pure Chemical Substance.

Partition Coefficient (n-octanol/water)
$\log K_{ow} \sim 0$

Ingredient Bioaccumulation Data
No data available

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Partition Coefficient (n-octanol/water)</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate (100%)</td>
<td>$\log K_{ow} \sim 0$</td>
<td>No information available</td>
</tr>
<tr>
<td>CAS#: 7785-87-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mobility

Product Information

Soil Organic Carbon-Water Partition Coefficient
$\log K_{oc} \sim 0$

Water solubility

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completely soluble</td>
<td>629000 mg/L</td>
<td>20 °C / 68 °F</td>
</tr>
</tbody>
</table>

Ingredient Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Soil Organic Carbon-Water Partition Coefficient</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate (100%)</td>
<td>$\log K_{oc} \sim 0$</td>
<td>No information available</td>
</tr>
<tr>
<td>CAS#: 7785-87-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water solubility temperature °C</th>
<th>Water solubility temperature °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate</td>
<td>Completely soluble</td>
<td>629000 mg/L</td>
<td>20 °C</td>
<td>68 °F</td>
</tr>
<tr>
<td>CAS#: 7785-87-7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods
Waste from residues/unused products | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
Contaminated packaging | Do not reuse empty containers.

Special instructions for disposal | If permitted by regulation. Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Open cold water tap completely, slowly pour the material to the drain. Flush system with plenty of water. Dispose of material in an E.P.A. approved hazardous waste facility.

### 14. TRANSPORT INFORMATION

**U.S. DOT**
- **UN/ID no**: UN3077
- **Proper shipping name**: Environmentally hazardous substances, solid, n.o.s.
- **Hazard Class**: 9
- **Packing Group**: III

**TDG**
- **UN/ID no**: UN3077
- **Proper shipping name**: Environmentally hazardous substances, solid, n.o.s.
- **Hazard Class**: 9
- **Packing Group**: III

**IATA**
- **UN/ID no**: UN3077
- **Hazard Class**: 9
- **Packing Group**: III

**IMDG**
- **UN/ID no**: UN3077
- **Hazard Class**: 9
- **Packing Group**: III
- **Marine pollutant**: This material meets the definition of a marine pollutant

**Note:**
- No special precautions necessary.

**Additional information**
- There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.
- If the item is part of a reagent set or kit the classification would change to the following:
  - UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
- If the item is not regulated, the Chemical Kit classification does not apply.

### 15. REGULATORY INFORMATION

**National Inventories**
- **TSCA**: Complies
- **DSL/NDSL**: Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**International Inventories**
- **EINECS/ELINCS**: Complies
- **ENCS**: Complies
- **IECSC**: Complies
- **KECL**: Complies
- **PICCS**: Complies
US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate (CAS #: 7785-87-7)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories
- Acute health hazard: Yes
- Chronic Health Hazard: Yes
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

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

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate 7785-87-7</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>FIFRA</th>
<th>FDA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG / AGHS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Chemical name

<table>
<thead>
<tr>
<th>Manganese(II) sulfate</th>
<th>FIFRA</th>
<th>FDA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>21 CFR 184.1461</td>
</tr>
</tbody>
</table>

## 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

### Special Comments

None

### Additional information

Global Automotive Declarable Substance List (GADSL)

Not applicable

### NFPA and HMIS Classifications

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS</td>
<td>Health hazards</td>
<td>Flammability</td>
<td>Physical Hazards</td>
<td>Personal protection</td>
</tr>
<tr>
<td></td>
<td>- 3</td>
<td>- 0</td>
<td>- 0</td>
<td>X</td>
</tr>
</tbody>
</table>

### Key or legend to abbreviations and acronyms used in the safety data sheet

- **NIOSH IDLH**: Immediately Dangerous to Life or Health
- **ACGIH**: ACGIH (American Conference of Governmental Industrial Hygienists)
- **NDF**: no data

### Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- **TWA**: TWA (time-weighted average)
- **MAC**: Maximum Allowable Concentration
- **X**: Listed
- **SKN***: Skin designation
- **RSP**+: Respiratory sensitization
- **C**: Carcinogen
- **M**: Mutagen
- **SKN**+**: Skin sensitization
- **R**: Hazard Designation
- **Reproductive toxicant**

- **TWA** (time-weighted average)
- **STEL** (Short Term Exposure Limit)
- **Ceiling** Limit Value
- **Vacated**: These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.

### Prepared By

Hach Product Compliance Department

### Issue Date

18-May-2016

### Revision Date

07-Dec-2017

### Revision Note

None

### Disclaimer

**USER RESPONSIBILITY**: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.
THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY©2017

End of Safety Data Sheet
1. IDENTIFICATION

Product identifier
Product Name
Dissolved Oxygen 2 Reagent

Other means of identification
Product Code(s)
98299

Safety data sheet number
M00028

UN/ID no
UN2680

Component of Kits or Sets
143801; 143801RGT; 146900; 146900RGT; 180202; 180202RGT; 188703; 188703RGT; 243001; 243001RGT; 243002; 243002RGT; 243003; 243003RGT; 2439802; 2482100; 2482400; 2559800; 2559800RGT; 2559833; 2559833RGT; 2712000; 2712000RGT

Recommended use of the chemical and restrictions on use
Recommended Use
Laboratory reagent. Determination of dissolved oxygen.
Uses advised against
None.
Restrictions on use
None.

Details of the supplier of the safety data sheet

Manufacturer Address
Hach Company
P.O.Box 389  Loveland, CO 80539 USA
(970) 669-3050

Emergency telephone number
(303) 623-5716 - 24 Hour Service  (515)232-2533 - 8am - 4pm CST

Product Information
Chemical Name
Not applicable
Formula
Not applicable
CAS No
Not applicable
Alternate CAS Number
Not applicable
NIOSH (RTECS) Number
None reported

2. HAZARDS IDENTIFICATION

Classification

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

| Corrosive to metals | Category 1 |
| Acute toxicity - Oral | Category 3 |
| Acute toxicity - Dermal | Category 3 |
| Acute toxicity - Inhalation (Vapors) | Category 3 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 3 |
Skin corrosion/irritation | Category 1 Sub-category A
Serious eye damage/eye irritation | Category 1
Specific target organ toxicity (repeated exposure) | Category 2

**Hazard statements**

H290 - May be corrosive to metals
H301 - Toxic if swallowed
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H373 - May cause damage to organs through prolonged or repeated exposure

**Precautionary statements**

P234 - Keep only in original container
P264 - Wash face, hands and any exposed skin thoroughly after handling
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303 + P361 + P353 - IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P363 - Wash contaminated clothing before reuse
P390 - Absorb spillage to prevent material damage
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to an approved waste disposal plant

**Other Information**

Harmful to aquatic life with long lasting effects
Harmful to aquatic life
3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture
Chemical Family  Mixture.

Percent ranges are used where confidential product information is applicable.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Percent Range</th>
<th>HMRC #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide monohydrate</td>
<td>1310-66-3</td>
<td>50 - 100</td>
<td>-</td>
</tr>
<tr>
<td>Potassium iodide (KI)</td>
<td>7681-11-0</td>
<td>30 - 50</td>
<td>-</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>26628-22-8</td>
<td>1 - 5</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Skin contact
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

Inhalation
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a physician immediately.

Ingestion
IF SWALLOWED: Rinse Mouth. Call a physician immediately. Do NOT induce vomiting.

Self-protection of the first aider
Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms
See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Carbon dioxide. Dry chemical. Water.

Unsuitable extinguishing media  Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties
During a fire, corrosive and toxic gases may be generated by thermal decomposition.

Specific hazards arising from the chemical
The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic
gases and vapors. In the event of fire and/or explosion do not breathe fumes.

**Hazardous combustion products**
No information available.

**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.

### 6. ACCIDENTAL RELEASE MEASURES

**U.S. Notice**
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

**EC Notice**
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

**WHMIS Notice**
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions**
Evacuate personnel to safe areas. Remove all sources of ignition. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

**For emergency responders**
Use personal protection recommended in Section 8.

**Environmental precautions**

**Environmental precautions**
Avoid release to the environment. See Section 12 for additional ecological information.

**Methods and material for containment and cleaning up**

**Methods for containment**
Prevent further leakage or spillage if safe to do so. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up**
Take necessary precautions in observance of pertinent physical hazards. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

**Emergency Response Guide Number**
154

### 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on safe handling**
Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**
Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Keep/store only in original container.

**Flammability class**
Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 - 50</td>
<td>TWA: 0.01 ppm</td>
<td>NDF</td>
<td>NDF</td>
</tr>
<tr>
<td>Sodium azide</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 - 5</td>
<td>Ceiling: 0.29 mg/m³ Ceiling: 0.11 ppm</td>
<td>(vacated) SKN* Ceiling: 0.1 ppm (vacated) Ceiling: 0.3 mg/m³</td>
<td>Ceiling: 0.1 ppm HN3 Ceiling: 0.3 mg/m³ NaN3</td>
</tr>
</tbody>
</table>

Other Information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Legend

See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls

- Showers
- Eyewash stations
- Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection: Wear tight sealing safety goggles and/or face protection shield.

Skin and body protection: Wear protective gloves and protective clothing.

Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations: Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. Take off all contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Regular cleaning of equipment, work area
Environmental exposure controls
Avoid creating dust. Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state
- Solid

Gas Under Pressure
- Not classified according to GHS criteria

Appearance
- crystalline

Color
- white

Odor
- Slight

Odor threshold
- No data available

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>12.6</td>
<td>5% Solution</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>110 °C / 230 °F</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Vapor density (air = 1)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Specific gravity (water = 1 / air = 1)</td>
<td>1.94</td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Soil Organic Carbon-Water Partition Coefficient</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Kinematic viscosity</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>

Solubility(ies)

Water solubility

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Solubility in other solvents

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Solubility classification</th>
<th>Solubility</th>
<th>Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>
10. STABILITY AND REACTIVITY

Reactivity properties
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Chemical stability
Stable under recommended storage conditions.

Special dangers of the product
None reported

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Excess moisture. Extreme temperatures. Contact with acid or acid fumes. Contact with oxidizers. Exposure to air or moisture over prolonged periods. Poor Ventilation.

**Incompatible materials**  

**Hazardous Decomposition Products**  
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

**Explosive properties**  
Not classified according to GHS criteria.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**Autoignition temperature**  
No data available

**Sensitivity to Static Discharge**  
None reported

**Sensitivity to Mechanical Impact**  
None reported

## 11. TOXICOLOGICAL INFORMATION

### Information on Likely Routes of Exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product Information</strong></td>
<td>Toxic by ingestion. Toxic in contact with skin. Toxic if inhaled. Corrosive to skin. Corrosive to eyes.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>Avoid breathing dust/fume/gas/mist/vapors/spray. Toxic by inhalation. Immediate medical attention is required. Causes burns. Corrosive by inhalation.</td>
</tr>
<tr>
<td><strong>Eye contact</strong></td>
<td>Corrosive to the eyes and may cause severe damage including blindness. Causes burns. Corrosive to eyes.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>Toxic in contact with skin. Cause severe skin burns and eye damage. Causes burns.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>Toxic if swallowed. Ingestion causes burns of the upper digestive and respiratory tracts. Causes burns.</td>
</tr>
<tr>
<td><strong>Aggravated Medical Conditions</strong></td>
<td>Eye disorders. Skin disorders. Respiratory disorders.</td>
</tr>
<tr>
<td><strong>Toxicologically synergistic products</strong></td>
<td>None known.</td>
</tr>
<tr>
<td><strong>Toxicokinetics, metabolism and distribution</strong></td>
<td>See ingredients information below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicokinetics, metabolism and distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI)</td>
<td>May cross placenta and be excreted in breast milk. May react synergistically with mercury.</td>
</tr>
<tr>
<td>(30 - 50) CAS#: 7681-11-0</td>
<td></td>
</tr>
<tr>
<td>Sodium azide</td>
<td>Human data indicates that the most common health effect of sodium azide is hypotension, almost independent of route of exposure.</td>
</tr>
<tr>
<td>(1 - 5) CAS#: 26628-22-8</td>
<td></td>
</tr>
</tbody>
</table>

**Product Acute Toxicity Data**  
Test data reported below

**Oral Exposure Route**
<table>
<thead>
<tr>
<th>Endpoint type</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat LD$_{50}$</td>
<td></td>
<td>Outside testing</td>
</tr>
<tr>
<td></td>
<td>Behavioral</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flaccid muscle tone</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lethargy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Endocrine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormalities of the spleen</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eye</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ptosis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gastrointestinal</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excess fluid in the peritoneal cavity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liver</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormalities of the liver</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lungs, Thorax, or Respiration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Abnormalities of the lungs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chromorrhinorrhea</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Excess fluid in the the pleural cavity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red or brown staining of the nose/mouth area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nutritional and Gross Metabolic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Emaciation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reproductive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Soiling and wetness of the anogenital area</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin and Appendages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piloerection</td>
<td></td>
</tr>
</tbody>
</table>

Dermal Exposure Route  
No data available

Inhalation (Dust/Mist) Exposure Route  
No data available

Inhalation (Vapor) Exposure Route  
No data available

Inhalation (Gas) Exposure Route  
No data available

The following values are calculated based on chapter 3.1 of the GHS document

- $\text{ATEmix (dermal)}$ 866.00 mg/kg
- $\text{ATEmix (inhalation-dust/mist)}$ 0.90 mg/L
- $\text{ATEmix (inhalation-vapor)}$ 4.00 mg/L

**Ingredient Acute Toxicity Data**

**Oral Exposure Route**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide monohydrate (50 - 100) CAS#: 1310-66-3</td>
<td>Rat LD$_{50}$</td>
<td>225 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
</tbody>
</table>
**Potassium iodide (KI)**  
(30 - 50)  
CAS#: 7681-11-0  

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide</td>
<td>Rat LD&lt;sub&gt;50&lt;/sub&gt;</td>
<td>27 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Potassium iodide (KI)</td>
<td>Rat LD&lt;sub&gt;50&lt;/sub&gt;</td>
<td>2779 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Dermal Exposure Route**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide</td>
<td>Rabbit LD&lt;sub&gt;50&lt;/sub&gt;</td>
<td>20 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Inhalation (Dust/Mist) Exposure Route**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide monohydrate</td>
<td>Rat LC&lt;sub&gt;50&lt;/sub&gt;</td>
<td>0.96 mg/L</td>
<td>4 hours</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
</tbody>
</table>
| Sodium azide  | Rat LC<sub>50</sub> | 0.037 mg/L | None reported | Eye Other effects Behavioral  
Convulsions or effect on seizure threshold  
Lungs, Thorax, or Respiration Structural or functional change in trachea or bronchi | RTECS (Registry of Toxic Effects of Chemical Substances) |

**Inhalation (Vapor) Exposure Route**

**Inhalation (Gas) Exposure Route**  
No data available

**Product Skin Corrosion/Irritation Data**

No data available.

**Ingredient Skin Corrosion/Irritation Data**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide</td>
<td>Existing human</td>
<td>Human</td>
<td>None</td>
<td>None</td>
<td>Corrosive to skin</td>
<td>ERMA (New Zealands)</td>
</tr>
</tbody>
</table>
monohydrate (50 - 100) CAS#: 1310-66-3 experience reported reported Environmental Risk Management Authority Potassium iodide (KI) (30 - 50) CAS#: 7681-11-0 Standard Draize Test Rabbit None reported None reported Skin irritant No information available

Sodium azide (1 - 5) CAS#: 26628-22-8 Organization for Economic Co-operation and Development (OECD) - Test 404: Acute Dermal Corrosion/Irritation Rabbit 500 mg 1 hours Corrosive to skin ECHA (The European Chemicals Agency)

### Chemical Name

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide</td>
<td>Organization for Economic Co-operation and Development (OECD) - Test 404: Acute Dermal Corrosion/Irritation</td>
<td>Rabbit</td>
<td>500 mg</td>
<td>4 hours</td>
<td>Corrosive to skin</td>
<td>ECHA (The European Chemicals Agency)</td>
</tr>
</tbody>
</table>

**Product Serious Eye Damage/Eye Irritation Data**

No data available.

**Ingredient Eye Damage/Eye Irritation Data**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>None reported</td>
<td>Rabbit</td>
<td>None reported</td>
<td>None reported</td>
<td>Eye irritant</td>
<td>HSDB (Hazardous Substances Data Bank)</td>
</tr>
</tbody>
</table>

**Sensitization Information**

**Product Sensitization Data**

**Skin Sensitization Exposure Route**

No data available.

**Respiratory Sensitization Exposure Route**

No data available.

**Ingredient Sensitization Data**

**Skin Sensitization Exposure Route**

Toxicological data for ingredients is not indicative of likely harm.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide</td>
<td>Patch test</td>
<td>Human</td>
<td>Not confirmed to be a skin sensitizer</td>
<td>ERMA (New Zealand's Environmental Risk Management Authority)</td>
</tr>
</tbody>
</table>

**Respiratory Sensitization Exposure Route**

No data available.

**Chronic Toxicity Information**

**Product Repeat Dose Toxicity Data**

**Oral Exposure Route**

No data available.
Dermal Exposure Route
No data available.

Inhalation (Dust/Mist) Exposure Route
No data available.

Inhalation (Vapor) Exposure Route
No data available.

Inhalation (Gas) Exposure Route
No data available.

Ingredient Repeat Dose Toxicity Data

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide monohydrate</td>
<td>1310-66-3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Potassium iodide (KI)</td>
<td>7681-11-0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>26628-22-8</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)  
Does not apply

IARC (International Agency for Research on Cancer)  
Does not apply

NTP (National Toxicology Program)  
Does not apply

OSHA (Occupational Safety and Health Administration of the US Department of Labor)  
X - Present

Product Carcinogenicity Data
No data available

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

Ingredient Carcinogenicity Data

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

Product Germ Cell Mutagenicity invitroData
No data available.

**Ingredient Germ Cell Mutagenicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI)</td>
<td>Cytogenetic analysis</td>
<td>Rat ascites tumor</td>
<td>500 mg/kg</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide (1 - 5)</td>
<td>DNA damage</td>
<td>Human leukocyte</td>
<td>3 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>DNA damage</td>
<td>Human mammary gland</td>
<td>5.2 mg/L</td>
<td>24 hours</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>DNA inhibition</td>
<td>Human HeLa Cell</td>
<td>30 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Oral Exposure Route**
- No data available

**Dermal Exposure Route**
- No data available

**Inhalation (Dust/Mist) Exposure Route**
- No data available

**Inhalation (Vapor) Exposure Route**
- No data available

**Inhalation (Gas) Exposure Route**
- No data available

**Ingredient Germ Cell Mutagenicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI)</td>
<td>Cytogenetic analysis</td>
<td>Rat ascites tumor</td>
<td>500 mg/kg</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide (1 - 5)</td>
<td>DNA damage</td>
<td>Human leukocyte</td>
<td>3 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>DNA damage</td>
<td>Human mammary gland</td>
<td>5.2 mg/L</td>
<td>24 hours</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>DNA inhibition</td>
<td>Human HeLa Cell</td>
<td>30 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Oral Exposure Route**
- No data available

**Dermal Exposure Route**
- No data available

**Inhalation (Dust/Mist) Exposure Route**
- No data available

**Inhalation (Vapor) Exposure Route**
- No data available

**Inhalation (Gas) Exposure Route**
- No data available

**Ingredient Germ Cell Mutagenicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI)</td>
<td>Cytogenetic analysis</td>
<td>Rat ascites tumor</td>
<td>500 mg/kg</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide (1 - 5)</td>
<td>DNA damage</td>
<td>Human leukocyte</td>
<td>3 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>DNA damage</td>
<td>Human mammary gland</td>
<td>5.2 mg/L</td>
<td>24 hours</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sodium azide</td>
<td>DNA inhibition</td>
<td>Human HeLa Cell</td>
<td>30 mmol/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

**Oral Exposure Route**
- No data available

**Dermal Exposure Route**
- No data available

**Inhalation (Dust/Mist) Exposure Route**
- No data available

**Inhalation (Vapor) Exposure Route**
- No data available

**Inhalation (Gas) Exposure Route**
- No data available

**Ingredient Germ Cell Mutagenicity**
Ingredient Reproductive Toxicity Data

### Oral Exposure Route

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI) (30 - 50) CAS#: 7681-11-0</td>
<td>Human TD&lt;sub&gt;Lo&lt;/sub&gt;</td>
<td>2700 mg/kg</td>
<td>39 weeks</td>
<td>Specific Developmental Abnormalities Endocrine System</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Potassium iodide (KI) (30 - 50) CAS#: 7681-11-0</td>
<td>Human TD&lt;sub&gt;Lo&lt;/sub&gt;</td>
<td>3240 mg/kg</td>
<td>39 weeks</td>
<td>Effects on Newborn Other neonatal measures or effects Physical Specific Developmental Abnormalities Endocrine system</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

### Dermal Exposure Route

No data available

### Inhalation (Dust/Mist) Exposure Route

No data available

### Inhalation (Vapor) Exposure Route

No data available

### Inhalation (Gas) Exposure Route

No data available

#### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

Harmful to aquatic life with long lasting effects.

**Product Ecological Data**

**Aquatic toxicity**

- **Fish**
  - No data available
- **Crustacea**
  - No data available
- **Algae**
  - No data available

**Terrestrial toxicity**

- **Soil**
  - No data available
- **Vertebrates**
  - No data available
- **Invertebrates**
  - No data available

**Ingredient Ecological Data**

**Aquatic toxicity**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium iodide (KI) (30 - 50) CAS#: 7681-11-0</td>
<td>96 hours</td>
<td>Oncorhynchus mykiss</td>
<td>LC&lt;sub&gt;50&lt;/sub&gt;</td>
<td>896 mg/L</td>
<td>PEEN (Pan European Ecological Network)</td>
</tr>
<tr>
<td>Sodium azide (1 - 5)</td>
<td>96 hours</td>
<td>Lepomis macrochirus</td>
<td>LC&lt;sub&gt;50&lt;/sub&gt;</td>
<td>0.68 mg/L</td>
<td>PEEN (Pan European Ecological Network)</td>
</tr>
</tbody>
</table>
**Chemical Name** | **Exposure time** | **Species** | **Endpoint type** | **Reported dose** | **Key literature references and sources for data**
--- | --- | --- | --- | --- | ---
Sodium azide (1 - 5) CAS#: 26628-22-8 | 96 hours | *Oncorhynchus mykiss* | LC$_{50}$ | 0.8 mg/L | PEEN (Pan European Ecological Network)

### Crustacea

**Chemical Name** | **Exposure time** | **Species** | **Endpoint type** | **Reported dose** | **Key literature references and sources for data**
--- | --- | --- | --- | --- | ---
Sodium azide (1 - 5) CAS#: 26628-22-8 | 48 Hours | *Daphnia pulex* | EC$_{50}$ | 4.2 mg/L | PEEN (Pan European Ecological Network)

### Algae

**Chemical Name** | **Exposure time** | **Species** | **Endpoint type** | **Reported dose** | **Key literature references and sources for data**
--- | --- | --- | --- | --- | ---
Sodium azide (1 - 5) CAS#: 26628-22-8 | 96 hours | *Selenastrum capricornutum* | EC$_{50}$ | 0348 mg/L | PEEN (Pan European Ecological Network)

### Terrestrial toxicity

- **Soil**: No data available
- **Vertebrates**: No data available
- **Invertebrates**: No data available

### Other Information

**Canadian Environmental Protection Act (CEPA) - Domestic Substances List (DSL): Environmentally Hazardous Substances Categorizations**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Category</th>
<th>Persistent</th>
<th>Bioaccumulation</th>
<th>Inherently Toxic to Aquatic Organisms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide (1 - 5) CAS#: 26628-22-8</td>
<td>Inorganics</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Persistence and degradability

None known.

**Product Biodegradability Data**

No data available.

**Ingredient Biodegradability Data**

No data available

### Bioaccumulation

None known.

**Product Bioaccumulation Data**

No data available.

**Ingredient Bioaccumulation Data**

No data available
Additional information

**Product Information**
No data available

**Partition Coefficient (n-octanol/water)**
No data available

**Ingredient Information**

**Mobility**
Mobility in soil: Moderate to high mobility. If available, see ingredient data below.

**Product Information**
No data available

**Soil Organic Carbon-Water Partition Coefficient**
No data available

**Ingredient Information**
No data available

Additional information

**Water solubility**

**Product Information**

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

**Ingredient Information**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water solubility temperature °C</th>
<th>Water solubility temperature °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide monohydrate</td>
<td>Completely soluble</td>
<td>128000 mg/L</td>
<td>20 °C</td>
<td>68 °F</td>
</tr>
<tr>
<td>(50 - 100) CAS#: 1310-66-3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium iodide (KI)</td>
<td>Completely soluble</td>
<td>1400000 mg/L</td>
<td>20 °C</td>
<td>68 °F</td>
</tr>
<tr>
<td>(30 - 50) CAS#: 7681-11-0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium azide</td>
<td>Completely soluble</td>
<td>401700 mg/L</td>
<td>0 °C</td>
<td>32 °F</td>
</tr>
<tr>
<td>(1 - 5) CAS#: 26628-22-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other adverse effects**
Contains a substance with an endocrine-disrupting potential.

13. DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Disposal of wastes**
Disposal should be in accordance with applicable regional, national, and local laws and regulations.

**Contaminated packaging**
Do not reuse container.

**US EPA Waste Number**
D002, P105
**Chemical Name** | **RCRA - Halogenated Organic Compounds** | **RCRA - P Series Wastes** | **RCRA - F Series Wastes** | **RCRA - K Series Wastes**
---|---|---|---|---
Sodium azide 26628-22-8 | - | P105 | - | -

**Special instructions for disposal**
Never put unreacted azides down the drain! Dispose of material in an E.P.A. approved hazardous waste facility.

### 14. TRANSPORT INFORMATION

**DOT**
- **UN/ID no**: UN2680
- **Proper shipping name**: Lithium Hydroxide Mixture
- **Hazard Class**: 8
- **Packing Group**: II
- **Special Provisions**: Contact with acids forms toxic fumes.
- **Emergency Response Guide Number**: 154

**TDG**
- **UN/ID no**: UN2680
- **Hazard Class**: 8
- **Packing Group**: II

**IATA**
- **UN/ID no**: UN2680
- **Proper shipping name**: Lithium Hydroxide Mixture
- **Hazard Class**: 8
- **Packing Group**: II
- **ERG Code**: 154

**IMDG**
- **UN/ID no**: UN2680
- **Proper shipping name**: Lithium Hydroxide Mixture
- **Hazard Class**: 8
- **Packing Group**: II

**Note:**
No special precautions necessary.

**Additional information**
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III. If the item is not regulated, the Chemical Kit classification does not apply.

### 15. REGULATORY INFORMATION

**National Inventories**
- **TSCA**: Complies
- **DSL/NDSL**: Complies

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**International Inventories**
- **EINECS/ELINCS**: Complies
- **ENCS**: Complies
- **IECSC**: Complies
- **KECL**: Complies
- **PICCS**: Complies
- **TCSI**: Complies
AICS  Complies
NZIoC  Complies

**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**TCSI** - Taiwan Chemical Substances Inventory
**AICS** - Australian Inventory of Chemical Substances
**NZIoC** - New Zealand Inventory of Chemicals

**US Federal Regulations**

**SARA 313**
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide (CAS #: 26628-22-8)</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SARA 311/312 Hazard Categories**
- Acute health hazard: Yes
- Chronic Health Hazard: Yes
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: No

**CWA (Clean Water Act)**
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide 26628-22-8</td>
<td>1000 lb</td>
<td>1000 lb</td>
<td>RQ 1000 lb final RQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>RQ 454 kg final RQ</td>
</tr>
</tbody>
</table>

**U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>U.S. - Department of Homeland Security - Chemical Facility Anti-Terrorism Standards (CFATS) - Security Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium azide</td>
<td>Theft - Explosives/Improvised Explosive Device Precursors</td>
</tr>
<tr>
<td>(1 - 5)</td>
<td></td>
</tr>
<tr>
<td>CAS#: 26628-22-8</td>
<td></td>
</tr>
</tbody>
</table>

**US State Regulations**

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

**U.S. State Right-to-Know Regulations**
**Product Code(s)** 98299  
**Issue Date** 26-May-2016  
**Product Name** Dissolved Oxygen 2 Reagent  
**Revision Date** 02-Sep-2016  
**Version** 3  
**Page** 19 / 20

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium hydroxide monohydrate</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>1310-66-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium azide</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>26628-22-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**U.S. EPA Label Information**  
**EPA Pesticide Registration Number** Not applicable

### 16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

**NFPA and HMIS Classifications**

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>HMIS</td>
<td>Health hazards</td>
<td>Flammability</td>
<td></td>
<td>Personal protection</td>
</tr>
</tbody>
</table>

**Key or legend to abbreviations and acronyms used in the safety data sheet**

- **NIOSH IDLH** Immediately Dangerous to Life or Health  
- **ACGIH** ACGIH (American Conference of Governmental Industrial Hygienists)  
- **NDF** no data

**Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

- **TWA** TWA (time-weighted average)  
- **MAC** Maximum Allowable Concentration  
- **X** Listed  
- **STEL** STEL (Short Term Exposure Limit)  
- **Ceiling** Ceiling Limit Value  
- **Vacated** These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these “liberated” exposure limits in their state regulations.

- **SKN*** Skin designation  
- **SKN+** Skin sensitization  
- **RSP+** Respiratory sensitization  
- **R** Hazard Designation  
- **C** Carcinogen  
- **M** mutagen  
- **** Reproductive toxicant

**Prepared By** Hach Product Compliance Department  
**Issue Date** 26-May-2016  
**Revision Date** 02-Sep-2016  
**Revision Note** None

**Disclaimer**  
USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.
THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY©2015

End of Safety Data Sheet
### 1. IDENTIFICATION

**Product identifier**

**Product Name**
Dissolved Oxygen 3 Powder Pillows

**Other means of identification**

**Product Code(s)**
98799

**Safety data sheet number**
M00007

**UN/ID no**
UN2967

**Recommended use of the chemical and restrictions on use**

**Recommended Use**
Laboratory reagent.

**Uses advised against**
None.

**Restrictions on use**
None.

**Details of the supplier of the safety data sheet**

**Manufacturer Address**
Hach Company
P.O.Box 389  Loveland, CO 80539 USA
(970) 669-3050

**Emergency telephone number**
(303) 623-5716 - 24 Hour Service (515)232-2533 - 8am - 4pm CST

### 2. HAZARDS IDENTIFICATION

**Classification**

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

<table>
<thead>
<tr>
<th>Hazard Class</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosive to metals</td>
<td>Category 1</td>
</tr>
<tr>
<td>Acute toxicity - Oral</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin corrosion/iritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td>Category 2A</td>
</tr>
<tr>
<td>Aquatic Acute Toxicity</td>
<td>Category 3</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</td>
<td>Category 3</td>
</tr>
</tbody>
</table>

**Hazards not otherwise classified (HNOC)**
Not applicable

**Label elements**

**Signal word** - Warning
Hazard statements
H290 - May be corrosive to metals
H302 - Harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H412 - Harmful to aquatic life with long lasting effects

Precautionary statements
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P273 - Avoid release to the environment
P234 - Keep only in original container
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P330 - Rinse mouth
P390 - Absorb spillage to prevent material damage
P406 - Store in corrosive resistant stainless steel container with a resistant inliner
P501 - Dispose of contents/container to an approved waste disposal plant

Other Information
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Percent ranges are used where confidential product information is applicable.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Percent Range</th>
<th>HMRIC #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid</td>
<td>5329-14-6</td>
<td>&gt;99%</td>
<td>-</td>
</tr>
</tbody>
</table>
5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Material is not classified as flammable according to GHS criteria.

Specific hazards arising from the chemical
The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating and toxic gases and vapors. In the event of fire and/or explosion do not breathe fumes.

Hazardous combustion products No information available.

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.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and
guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

EC Notice
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

WHMIS Notice
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions
Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders
Use personal protection recommended in Section 8.

Environmental precautions
Prevent entry into waterways, sewers, basements or confined areas. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Cover with plastic sheet to prevent spreading.

Methods for cleaning up
Take necessary precautions in observance of pertinent physical hazards. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number
Not applicable

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Absorb spillage to prevent material damage.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep out of the reach of children. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Flammability class
Not applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines
This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Legend
See section 16 for terms and abbreviations
Appropriate engineering controls

Engineering Controls
- Showers
- Eyewash stations
- Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection
- Wear tight sealing safety goggles and/or face protection shield. Avoid contact with eyes.

Skin and body protection
- Wear protective gloves and protective clothing.

Respiratory protection
- In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations
- Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
- Wash face, hands and any exposed skin thoroughly after handling. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice. Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product.

Environmental exposure controls
- Do not allow into any sewer, on the ground or into any body of water. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
<td></td>
</tr>
<tr>
<td>Gas Under Pressure</td>
<td>Not classified according to GHS criteria</td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>crystalline</td>
<td>Color white</td>
</tr>
<tr>
<td>Odor</td>
<td>Odorless</td>
<td>Odor threshold No data available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Boiling point / boiling range</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Vapor density (air = 1)</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Specific gravity (water = 1 / air = 1)</td>
<td>2.15</td>
<td></td>
</tr>
<tr>
<td>Partition Coefficient (n-octanol/water)</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Soil Organic Carbon-Water Partition Coefficient</td>
<td>No data available</td>
<td></td>
</tr>
</tbody>
</table>
Solubility(ies)

Water solubility

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>80 °C / 176 °F</td>
</tr>
</tbody>
</table>

Solubility in other solvents

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Solubility classification</th>
<th>Solubility</th>
<th>Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
<tr>
<td>Methanol</td>
<td>Slightly soluble</td>
<td>&gt; 0.1 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
<tr>
<td>Ethyl alcohol</td>
<td>Slightly soluble</td>
<td>&gt; 0.1 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Other Information

Metal Corrosivity

Classified as corrosive to metal according to GHS criteria

GHS Metal Corrosivity Classification

Category 1, H290

Steel Corrosion Rate

20.68 mm/yr / 0.81 in/yr

Aluminum Corrosion Rate

5.38 mm/yr / 0.21 in/yr

Volatile Organic Compounds (VOC) Content

Not applicable.

Bulk density

No data available

Explosive properties

Not classified according to GHS criteria.

Explosion data

No data available

Upper explosion limit

No data available

Lower explosion limit

No data available

Flammable properties

During a fire, irritating and highly toxic gases may be generated by thermal decomposition. Material is not classified as flammable according to GHS criteria.

Flammability Limit in Air

Upper flammability limit: No data available

Lower flammability limit: No data available

Flash point

Not applicable

Oxidizing properties

Not classified according to GHS criteria.

Reactivity properties

Not classified as self-reactive, pyrophoric, self-heating or emitting
10. STABILITY AND REACTIVITY

Reactivity properties
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Chemical stability
Stable under recommended storage conditions.

Special dangers of the product
None reported

Possibility of Hazardous Reactions
None under normal processing.

Hazardous polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Hazardous Decomposition Products
Thermal decomposition can lead to release of irritating and toxic gases and vapors.

Explosive properties
Not classified according to GHS criteria.

Upper explosion limit
No data available

Lower explosion limit
No data available

Autoignition temperature
No data available

Sensitivity to Static Discharge
None reported

Sensitivity to Mechanical Impact
None reported

11. TOXICOLOGICAL INFORMATION

NIOSH (RTECS) Number
None reported

Information on Likely Routes of Exposure

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Information</td>
<td>Causes skin irritation. Causes serious eye irritation. Harmful if swallowed.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Severely irritating to eyes.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Harmful if swallowed. Ingestion may cause irritation to mucous</td>
</tr>
</tbody>
</table>
membranes.

Aggravated Medical Conditions
Skin disorders. Eye disorders.

Toxicologically synergistic products
None known.

Toxicokinetics, metabolism and distribution
No information available.

Product Acute Toxicity Data

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral) 1,456.00 mg/kg

Ingredient Acute Toxicity Data

Oral Exposure Route
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%)</td>
<td>Rat LD₅₀</td>
<td>1450 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>CAS#: 5329-14-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%)</td>
<td>Standard Draize Test</td>
<td>Human</td>
<td>40 mg</td>
<td>5 days</td>
<td>Mild skin irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>CAS#: 5329-14-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%)</td>
<td></td>
<td>Human</td>
<td>40 mg</td>
<td>5 days</td>
<td>Mild skin irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>CAS#: 5329-14-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Product Code(s) 98799
Issue Date 07-Sep-2016
Version 4
Product Name Dissolved Oxygen 3 Powder Pillows
Revision Date 28-Sep-2016
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<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%) CAS#: 5329-14-6</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>20 mg</td>
<td>None reported</td>
<td>Eye irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>Sulfamic acid (&gt;99%) CAS#: 5329-14-6</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>0.250 mg</td>
<td>24 hours</td>
<td>Corrosive to eyes</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route
No data available.

Respiratory Sensitization Exposure Route
No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route
No data available.

Respiratory Sensitization Exposure Route
No data available.

Chronic Toxicity Information

Product Repeat Dose Toxicity Data

Oral Exposure Route
No data available.

Dermal Exposure Route
No data available.

Inhalation (Dust/Mist) Exposure Route
No data available.

Inhalation (Vapor) Exposure Route
No data available.

Inhalation (Gas) Exposure Route
No data available.

Ingredient Repeat Dose Toxicity Data

Oral Exposure Route
No data available.

Dermal Exposure Route
No data available.

Inhalation (Dust/Mist) Exposure Route
No data available.

Inhalation (Vapor) Exposure Route
No data available.

Inhalation (Gas) Exposure Route
No data available.
### Chemical Name

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid</td>
<td>5329-14-6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Legend

- **ACGIH (American Conference of Governmental Industrial Hygienists)**: Does not apply
- **IARC (International Agency for Research on Cancer)**: Does not apply
- **NTP (National Toxicology Program)**: Does not apply
- **OSHA (Occupational Safety and Health Administration of the US Department of Labor)**: Does not apply

### Product Carcinogenicity Data

- **Oral Exposure Route**: No data available
- **Dermal Exposure Route**: No data available
- **Inhalation (Dust/Mist) Exposure Route**: No data available
- **Inhalation (Vapor) Exposure Route**: No data available
- **Inhalation (Gas) Exposure Route**: No data available

### Ingredient Carcinogenicity Data

- **Oral Exposure Route**: No data available
- **Dermal Exposure Route**: No data available
- **Inhalation (Dust/Mist) Exposure Route**: No data available
- **Inhalation (Vapor) Exposure Route**: No data available
- **Inhalation (Gas) Exposure Route**: No data available

### Product Germ Cell Mutagenicity **invitro** Data

- No data available.

### Ingredient Germ Cell Mutagenicity **invitro** Data

- No data available.

### Product Germ Cell Mutagenicity **invivo** Data

- **Oral Exposure Route**: No data available
- **Dermal Exposure Route**: No data available
- **Inhalation (Dust/Mist) Exposure Route**: No data available
- **Inhalation (Vapor) Exposure Route**: No data available
- **Inhalation (Gas) Exposure Route**: No data available

### Ingredient Germ Cell Mutagenicity **invivo** Data

- **Oral Exposure Route**: No data available
- **Dermal Exposure Route**: No data available
- **Inhalation (Dust/Mist) Exposure Route**: No data available
12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life with long lasting effects.

Product Ecological Data

Aquatic toxicity

Fish

No data available

Crustacea

No data available

Algae

No data available

Terrestrial toxicity

Soil

No data available

Vertebrates

No data available

Invertebrates

No data available

Ingredient Ecological Data

Aquatic toxicity

Fish

If available, see ingredient data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%)</td>
<td>96 hours</td>
<td><em>Pimephales promelas</em></td>
<td>LC_{50}</td>
<td>42.2 mg/L</td>
<td>ERMA (New Zealand Environmental Risk Management Authority)</td>
</tr>
</tbody>
</table>

Crustacea

If available, see ingredient data below
Product Code(s) 98799
Issue Date 07-Sep-2016
Version 4

Product Name Dissolved Oxygen 3 Powder Pillows
Revision Date 28-Sep-2016
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Algae
If available, see ingredient data below

Terrestrial toxicity

Soil
No data available

Vertebrates
No data available

Invertebrates
No data available

Other Information

Persistence and degradability
None known.

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data
No data available

Bioaccumulation
If available, see ingredient data below.

Product Bioaccumulation Data
No data available.

Ingredient Bioaccumulation Data
No data available

Additional information

Product Information
No data available

Partition Coefficient (n-octanol/water)
No data available

Ingredient Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition Coefficient (n-octanol/water)</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%)</td>
<td>log $K_{ow} = .?$</td>
<td>No information available</td>
</tr>
<tr>
<td>CAS#: 5329-14-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mobility
Mobility in soil: Moderate to high mobility. If available, see ingredient data below.

Product Information
No data available

Soil Organic Carbon-Water Partition Coefficient
No data available

Ingredient Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Soil Organic Carbon-Water Partition Coefficient</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid (&gt;99%)</td>
<td>log $K_{oc} = .?$</td>
<td>Estimation through KOCWIN v2.00 part of the Estimation Programs Interface (EPI) Suite™</td>
</tr>
<tr>
<td>CAS#: 5329-14-6</td>
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<td></td>
</tr>
</tbody>
</table>
Additional information

Water solubility

Product Information

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>80 °C / 176 °F</td>
</tr>
</tbody>
</table>

Ingredient Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water solubility temperature °C</th>
<th>Water solubility temperature °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid</td>
<td>Completely soluble</td>
<td>213000 mg/L</td>
<td>20 °C</td>
<td>68 °F</td>
</tr>
<tr>
<td>CAS#: 5329-14-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Contaminated packaging
Do not reuse container.

US EPA Waste Number
D002

14. TRANSPORT INFORMATION

U.S. DOT

<table>
<thead>
<tr>
<th>UN/ID no</th>
<th>Proper shipping name</th>
<th>Hazard Class</th>
<th>Subsidiary class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2967</td>
<td>Sulphamic Acid</td>
<td>8</td>
<td>NA</td>
<td>III</td>
</tr>
</tbody>
</table>

TDG

<table>
<thead>
<tr>
<th>UN/ID no</th>
<th>Proper shipping name</th>
<th>Hazard Class</th>
<th>Subsidiary class</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2967</td>
<td>Sulphamic Acid</td>
<td>8</td>
<td>NA</td>
<td>III</td>
</tr>
</tbody>
</table>

IATA

<table>
<thead>
<tr>
<th>UN/ID 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>UN2967</td>
<td>Sulphamic Acid</td>
<td>8</td>
<td>NA</td>
<td>III</td>
</tr>
</tbody>
</table>
IMDG
UN/ID no  UN2967
Proper shipping name  Sulphamic Acid
Hazard Class  8
Subsidiary hazard class  NA
Packing Group  III

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following: UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories
TSCA  Complies
DSL/NDSL  Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories
EINECS/ELINCS  Complies
ENCS  Complies
IECSC  Complies
KECL  Complies
PICCS  Complies
TCSI  Complies
AICS  Complies
NZIoC  Complies

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories
Acute health hazard  Yes
Chronic Health Hazard  Yes
Fire hazard  No
Sudden release of pressure hazard  No
Reactive Hazard  No

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)
CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

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

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfamic acid 5329-14-6</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information
EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information
Global Automotive Declarable Substance List (GADSL)
Not applicable

NFPA and HMIS Classifications

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health hazards</td>
<td>Flammability</td>
<td>Physical Hazards</td>
<td>Personal protection</td>
</tr>
<tr>
<td></td>
<td>- 2</td>
<td>- 0</td>
<td>- 0</td>
<td>- X</td>
</tr>
</tbody>
</table>

- See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

NIOSH IDLH Immediately Dangerous to Life or Health
ACGIH ACGIH (American Conference of Governmental Industrial Hygienists)
NDF no data

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA TWA (time-weighted average)
MAC Maximum Allowable Concentration
X Listed

STEL STEL (Short Term Exposure Limit)
Ceiling Limit Value
Vacated

These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that
USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY © 2017

End of Safety Data Sheet
**SAFETY DATA SHEET**

**1. IDENTIFICATION**

- **Product identifier**
  - **Product Name**: Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N

- **Other means of identification**
  - **Product Code(s)**: 2408932

- **Safety data sheet number**: M00371

**Recommended use of the chemical and restrictions on use**

- **Recommended Use**: Laboratory reagent. Titrant solution.

- **Uses advised against**: None.

- **Restrictions on use**: None.

**Details of the supplier of the safety data sheet**

- **Manufacturer Address**: Hach Company  
  P.O.Box 389  Loveland, CO 80539 USA  
  (970) 669-3050

- **Emergency telephone number**:  
  (303) 623-5716 - 24 Hour Service  
  (515)232-2533 - 8am - 4pm CST

**2. HAZARDS IDENTIFICATION**

- **Classification**

  - **Regulatory Status**: This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

  - **Not Hazardous**: Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

- **Hazards not otherwise classified (HNOC)**

  - **Not applicable**

**Label elements**

- **Hazard statements**

  - **EUH210 - Safety data sheet available on request**

  The product contains no substances which at their given concentration, are considered to be hazardous to health

- **Other Information**
Causes mild skin irritation

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Not applicable</th>
</tr>
</thead>
</table>

Mixture

Percent ranges are used where confidential product information is applicable.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Percent Range</th>
<th>HMRIC #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
<td>20 - 30%</td>
<td>-</td>
</tr>
<tr>
<td>Sodium sulfate</td>
<td>7757-82-6</td>
<td>1 - 5%</td>
<td>-</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Description of first aid measures

General advice
IF IN EYES: Flush eyes for at least 15 minutes. May cause skin irritation.

Eye contact
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Skin contact
For minor skin contact, avoid spreading material on unaffected skin. IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Remove and isolate contaminated clothing and shoes. Call a POISON CENTER or doctor if you feel unwell. If skin irritation persists, call a physician.

Inhalation
IF INHALED: Remove person to fresh air and keep comfortable for breathing. If symptoms persist, call a physician.

Ingestion
IF SWALLOWED: Rinse Mouth. If symptoms persist, call a physician.

Self-protection of the first aider
Use personal protective equipment as required. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Most important symptoms and effects, both acute and delayed

Symptoms
See Section 11: TOXICOLOGICAL INFORMATION.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media
Caution: Use of water spray when fighting fire may be inefficient.

Flammable properties
During a fire, this product decomposes to form toxic gases.
Specific hazards arising from the chemical
None reported.

Hazardous combustion products
Sodium oxides. Carbon monoxide, Carbon dioxide.

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.

6. ACCIDENTAL RELEASE MEASURES

U.S. Notice
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company’s emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.

EC Notice
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

WHMIS Notice
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions, protective equipment and emergency procedures

Personal precautions
Evacuate personnel to safe areas. Do not touch or walk through spilled material. Ventilate affected area. Use personal protective equipment as required.

For emergency responders
Use personal protection recommended in Section 8.

Environmental precautions
See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment
Prevent further leakage or spillage if safe to do so. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up
Neutralize spill if necessary. Soak up with inert absorbent material. Take up mechanically, placing in appropriate containers for disposal. Clean contaminated surface thoroughly. Dispose of in accordance with local, state and federal regulations or laws.

Emergency Response Guide Number
Not applicable

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling
Use personal protective equipment as required. Avoid contact with skin, eyes or clothing. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers.

Flammability class
Class IIIB
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Northwest Territories OEL</th>
<th>Nova Scotia OEL</th>
<th>Nunavut OEL</th>
<th>Ontario TWA</th>
<th>Prince Edward Island OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>NDF</td>
<td>NDF</td>
<td>NDF</td>
<td>TWA: 10 mg/m³</td>
<td>NDF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA: 50 ppm</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>TWA: 155 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Legend
See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls
- Showers
- Eyewash stations
- Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection
Wear tight sealing safety goggles and/or face protection shield. Avoid contact with eyes.
Wear safety glasses with side shields (or goggles).

Skin and body protection
Wear protective gloves and protective clothing.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

General Hygiene Considerations
Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
Wear suitable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Regular cleaning of equipment, work area and clothing is recommended. Handle in accordance with good industrial hygiene and safety practice.
Avoid prolonged or repeated contact with skin. Take off all contaminated clothing and wash it before reuse. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feeding stuffs.

Environmental exposure controls
Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state
Liquid

Gas Under Pressure
Not classified according to GHS criteria

Appearance
aqueous solution

Color
colorless

Odor
sweet

Odor threshold
No data available

Property
Values
Remarks • Method
Product Code(s) 2408932

Product Name Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N

Issue Date 21-Jun-2016
Revision Date 13-Mar-2017

Version 3
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Molecular weight
No data available

pH
9.9

Melting point/freezing point
-5 °C / 23 °F

Boiling point / boiling range
99 °C / 210 °F

Evaporation rate
0.05 (water = 1)

Vapor pressure
21.677 mm Hg / 2.89 kPa at 25 °C / 77 °F
Estimation based on theoretical calculation

Vapor density (air = 1)
0.62 (air = 1)

Specific gravity (water = 1 / air = 1)
1.02

Partition Coefficient (n-octanol/water)
Not applicable

Soil Organic Carbon-Water Partition Coefficient
Not applicable

Autoignition temperature
No data available

Decomposition temperature
No data available

Dynamic viscosity
No data available

Kinematic viscosity
No data available

Solubility(ies)

Water solubility

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Solubility classification</th>
<th>Solubility</th>
<th>Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Solubility in other solvents

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Solubility classification</th>
<th>Solubility</th>
<th>Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acid</td>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Other Information

Metal Corrosivity
Not classified as corrosive to metal according to GHS criteria

Steel Corrosion Rate
0.15 mm/yr / 0.01 in/yr

Aluminum Corrosion Rate
0.08 mm/yr / 0 in/yr

Volatile Organic Compounds (VOC) Content
See ingredients information below.

Bulk density
Not applicable

Explosive properties
Not classified according to GHS criteria.

Explosion data
No data available

Upper explosion limit
No data available
Flammable properties

During a fire, this product decomposes to form toxic gases.

Flammability Limit in Air

- Upper flammability limit: No data available
- Lower flammability limit: No data available

Flash point

- > 100 °C / 212 °F
- Method: OC (open cup)

Oxidizing properties

Not classified according to GHS criteria.

Reactivity properties

Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

10. STABILITY AND REACTIVITY

Reactivity properties
Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.

Chemical stability
Stable under recommended storage conditions.

Special dangers of the product
None reported

Possibility of Hazardous Reactions
None under normal processing.

- Hazardous polymerization: Hazardous polymerization does not occur.

Conditions to avoid
Extremes of temperature and direct sunlight. Incompatible materials.

Incompatible materials

Hazardous Decomposition Products
Sodium oxides. Carbon monoxide. Carbon dioxide.

Explosive properties
Not classified according to GHS criteria.

- Upper explosion limit: No data available
- Lower explosion limit: No data available

Autoignition temperature
No data available

Sensitivity to Static Discharge

Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N

11. TOXICOLOGICAL INFORMATION

NIOSH (RTECS) Number

None reported

Information on Likely Routes of Exposure

<table>
<thead>
<tr>
<th>Product Information</th>
<th>Causes mild skin irritation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>No known effect based on information supplied.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Causes mild skin irritation.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No known effect based on information supplied.</td>
</tr>
</tbody>
</table>

Aggravated Medical Conditions
Skin disorders.

Toxicologically synergistic products
None known.

Toxicokinetics, metabolism and distribution
See ingredients information below.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Toxicokinetics, metabolism and distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>Based on human data (oral child), large doses over prolonged period of time cause behavioral changes.</td>
</tr>
</tbody>
</table>

Product Acute Toxicity Data

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
No data available

Inhalation (Vapor) Exposure Route
No data available

Inhalation (Gas) Exposure Route
No data available

Ingredient Acute Toxicity Data

Oral Exposure Route
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>Rat LD50</td>
<td>20000 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(20 - 30%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium sulfate</td>
<td>Mouse LD50</td>
<td>5989 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(1 - 5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dermal Exposure Route
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>Rabbit LD50</td>
<td>20800 mg/kg</td>
<td>None reported</td>
<td>None reported</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(20 - 30%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Inhalation (Dust/Mist) Exposure Route
If available, see data below

Inhalation (Vapor) Exposure Route
If available, see data below

Inhalation (Gas) Exposure Route
No data available

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>Standard Draize Test</td>
<td>Human</td>
<td>500 mg</td>
<td>7 days</td>
<td>Mild skin irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(20 - 30%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium sulfate</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>500 mg</td>
<td>4 hours</td>
<td>Not corrosive or irritating to skin</td>
<td>ECHA (The European Chemicals Agency)</td>
</tr>
<tr>
<td>(1 - 5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chemical Name</td>
<td>Test method</td>
<td>Species</td>
<td>Reported dose</td>
<td>Exposure time</td>
<td>Results</td>
<td>Key literature references and sources for data</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------------</td>
<td>-----------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>1,2-Propanediol</td>
<td>Standard Draize Test</td>
<td>Human</td>
<td>104 mg</td>
<td>72 hours</td>
<td>Skin irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(20 - 30%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium sulfate</td>
<td>Open Irritation Test</td>
<td>Guinea pig</td>
<td>100 mg</td>
<td>5 days</td>
<td>Not corrosive or irritating to skin</td>
<td>ECHA (The European Chemicals Agency)</td>
</tr>
<tr>
<td>(1 - 5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>500 mg</td>
<td>24 hours</td>
<td>Mild eye irritant</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>(20 - 30%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium sulfate</td>
<td>Standard Draize Test</td>
<td>Rabbit</td>
<td>90 mg</td>
<td>24 hours</td>
<td>Not corrosive or irritating to eyes</td>
<td>ECHA (The European Chemicals Agency)</td>
</tr>
<tr>
<td>(1 - 5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route
No data available.

Respiratory Sensitization Exposure Route
No data available.

Ingredient Sensitization Data
Skin Sensitization Exposure Route

If available, see data below.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test method</th>
<th>Species</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium sulfate (1 - 5%)</td>
<td>OECD Test No.</td>
<td>Guinea pig</td>
<td>Not confirmed to be a skin sensitizer</td>
<td>HSDB (Hazardous Substances Data Bank)</td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td>406: Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sensitization</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Respiratory Sensitization Exposure Route
No data available.

Chronic Toxicity Information

Product Repeat Dose Toxicity Data

Oral Exposure Route
No data available.

Dermal Exposure Route
No data available.

Inhalation (Dust/Mist) Exposure Route
No data available.

Inhalation (Vapor) Exposure Route
No data available.

Inhalation (Gas) Exposure Route
No data available.

Ingredient Repeat Dose Toxicity Data

Oral Exposure Route
No data available

Dermal Exposure Route
No data available

Inhalation (Dust/Mist) Exposure Route
If available, see data below

Inhalation (Vapor) Exposure Route
If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol (20 - 30%)</td>
<td>Rat TC&lt;sub&gt;Lo&lt;/sub&gt;</td>
<td>2.180 mg/L</td>
<td>90 days</td>
<td>Behavioral, Food intake, Biochemical, Endocrine</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td>Enzyme inhibition, induction, or change in blood or tissue levels (dehydrogenases), Changes in spleen weight</td>
<td></td>
</tr>
</tbody>
</table>

Inhalation (Gas) Exposure Route
No data available

Chemical Name | CAS No | ACGIH | IARC | NTP | OSHA
1,2-Propanediol | 57-55-6 | - | - | - | -
Sodium sulfate | 7757-82-6 | - | - | - | -

Legend

ACGIH (American Conference of Governmental Industrial Hygienists) Does not apply
IARC (International Agency for Research on Cancer) Does not apply
NTP (National Toxicology Program) Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor) Does not apply

Product Carcinogenicity Data
No data available
Oral Exposure Route

Dermal Exposure Route

Inhalation (Dust/Mist) Exposure Route

Inhalation (Vapor) Exposure Route

Inhalation (Gas) Exposure Route

Ingredient Carcinogenicity Data

Oral Exposure Route

Dermal Exposure Route

Inhalation (Dust/Mist) Exposure Route

Inhalation (Vapor) Exposure Route

Inhalation (Gas) Exposure Route

Ingredient Germ Cell Mutagenicity invitro Data

If available, see data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Test</th>
<th>Cell Strain</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Results</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol (20 - 30%) CAS#: 57-55-6</td>
<td>Cytogenetic analysis</td>
<td>Hamster fibroblast</td>
<td>32000 mg/L</td>
<td>None reported</td>
<td>Positive test result for mutagenicity</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

Oral Exposure Route

Dermal Exposure Route

Inhalation (Dust/Mist) Exposure Route

Inhalation (Vapor) Exposure Route

Inhalation (Gas) Exposure Route

Ingredient Germ Cell Mutagenicity invivo Data

Oral Exposure Route

Dermal Exposure Route

Inhalation (Dust/Mist) Exposure Route

Inhalation (Vapor) Exposure Route

Inhalation (Gas) Exposure Route

Oral Exposure Route
Product Code(s) 2408932
Product Name Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N
Issue Date 21-Jun-2016
Revision Date 13-Mar-2017
Version 3
Page 11 / 16

Dermal Exposure Route
Inhalation (Dust/Mist) Exposure Route
Inhalation (Vapor) Exposure Route
Inhalation (Gas) Exposure Route

Ingredient Reproductive Toxicity Data

Oral Exposure Route

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Exposure time</th>
<th>Toxicological effects</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium sulfate (1 - 5%) CAS#: 7757-82-6</td>
<td>Mouse TD Lo</td>
<td>14000 mg/kg</td>
<td>4 days</td>
<td>Effects on Newborn Other neonatal measures or effects</td>
<td>RTECS (Registry of Toxic Effects of Chemical Substances)</td>
</tr>
</tbody>
</table>

Dermal Exposure Route
Inhalation (Dust/Mist) Exposure Route
Inhalation (Vapor) Exposure Route
Inhalation (Gas) Exposure Route

12. ECOLOGICAL INFORMATION

Ecotoxicity Based on the classification principles, not classified as hazardous to the environment.

Product Ecological Data

Aquatic toxicity
Fish No data available
Crustacea No data available
Algae No data available

Terrestrial toxicity
Soil No data available
Vertebrates No data available
Invertebrates No data available

Ingredient Ecological Data

Aquatic toxicity
Fish If available, see ingredient data below

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol (20 - 30%) CAS#: 57-55-6</td>
<td>96 hours</td>
<td>Pimephales promelas</td>
<td>LC 50</td>
<td>51400 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>Sodium sulfate (1 - 5%)</td>
<td>96 hours</td>
<td>None reported</td>
<td>LC 50</td>
<td>56 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
</tbody>
</table>
### CAS#: 7757-82-6

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium sulfate</td>
<td>96 hours</td>
<td><em>Pimephales promelas</em></td>
<td>LC₅₀</td>
<td>7960 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(1 - 5%) CAS#: 7757-82-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Crustacea**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>48 Hours</td>
<td><em>Daphnia magna</em></td>
<td>LC₅₀</td>
<td>34400 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(20 - 30%) CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium sulfate</td>
<td>48 Hours</td>
<td><em>Daphnia magna</em></td>
<td>EC₅₀</td>
<td>3150 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(1 - 5%) CAS#: 7757-82-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Algae**

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Exposure time</th>
<th>Species</th>
<th>Endpoint type</th>
<th>Reported dose</th>
<th>Key literature references and sources for data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol</td>
<td>96 hours</td>
<td><em>Selenastrum capricornutum</em></td>
<td>EC₅₀</td>
<td>19000 mg/L</td>
<td>IUCLID (The International Uniform Chemical Information Database)</td>
</tr>
<tr>
<td>(20 - 30%) CAS#: 57-55-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Terrestrial toxicity**

- **Soil**: No data available
- **Vertebrates**: No data available
- **Invertebrates**: No data available

**Other Information**

**Persistence and degradability**

None known.

**Product Biodegradability Data**

If available, see ingredient data below.

**Ingredient Biodegradability Data**

Test data reported below.

**Bioaccumulation**

If available, see ingredient data below.

**Product Bioaccumulation Data**

If available, see ingredient data below.

**Ingredient Bioaccumulation Data**

No data available

**Additional information**

**Product Information**

**Partition Coefficient (n-octanol/water)**

Not applicable
Ingredient Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Partition Coefficient (n-octanol/water)</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol (20 - 30%)</td>
<td>log $K_{ow} = -0.92$</td>
<td>No information available</td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium sulfate (1 - 5%)</td>
<td>log $K_{ow} = -3$</td>
<td>No information available</td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mobility
Mobility in soil: High mobility. If available, see ingredient data below.

Product Information

Soil Organic Carbon-Water Partition Coefficient

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Soil Organic Carbon-Water Partition Coefficient</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol (20 - 30%)</td>
<td>log $K_{oc} = -0.41$</td>
<td>No information available</td>
</tr>
<tr>
<td>CAS#: 57-55-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium sulfate (1 - 5%)</td>
<td>log $K_{oc} = -1.4$</td>
<td>Estimation through KOCWIN v2.00 part of the Estimation Programs Interface (EPI) Suite™</td>
</tr>
<tr>
<td>CAS#: 7757-82-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Additional information

Water solubility

Product Information

<table>
<thead>
<tr>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water Solubility Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soluble</td>
<td>&gt; 1000 mg/L</td>
<td>25 °C / 77 °F</td>
</tr>
</tbody>
</table>

Ingredient Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Water solubility classification</th>
<th>Water solubility</th>
<th>Water solubility temperature °C</th>
<th>Water solubility temperature °F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol CAS#: 57-55-6</td>
<td>Completely soluble</td>
<td>100000 mg/L</td>
<td>20 °C</td>
<td>68 °F</td>
</tr>
<tr>
<td>Sodium sulfate CAS#: 7757-82-6</td>
<td>Completely soluble</td>
<td>160000 mg/L</td>
<td>20 °C</td>
<td>68 °F</td>
</tr>
</tbody>
</table>

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes
Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Contaminated packaging

Working in a well-ventilated area. Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state, or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P.A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste in countries other than the US. Improper disposal or reuse of this container may be dangerous and illegal. Disposal should be in accordance with applicable regional, national, and local laws and regulations.

Special instructions for disposal

Dilute to 3 to 5 times the volume with cold water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Open cold water tap completely, slowly pour the reacted material to the drain. Allow cold water to run for 5 minutes to completely flush the system.

14. TRANSPORT INFORMATION

<table>
<thead>
<tr>
<th>U.S. DOT</th>
<th>Not regulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDG</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IATA</td>
<td>Not regulated</td>
</tr>
<tr>
<td>IMDG</td>
<td>Not regulated</td>
</tr>
</tbody>
</table>

Additional information

There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies. If the item is part of a reagent set or kit the classification would change to the following:

UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.

If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

National Inventories

<table>
<thead>
<tr>
<th>TSCA</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL/NDSL</td>
<td>Complies</td>
</tr>
</tbody>
</table>

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

<table>
<thead>
<tr>
<th>EINECS/ELINCS</th>
<th>Complies</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>IECSC</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>TCSI</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
<tr>
<td>NZIoC</td>
<td>Complies</td>
</tr>
</tbody>
</table>

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

TCSI - Taiwan Chemical Substances Inventory

AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute health hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic Health Hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudden release of pressure hazard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

US State Regulations

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

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2-Propanediol 57-55-6</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Sodium sulfate 7757-82-6</td>
<td>-</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. EPA Label Information

EPA Pesticide Registration Number  Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

Additional information

Global Automotive Declarable Substance List (GADSL)
Not applicable

NFPA and HMIS Classifications
NFPA | Health hazards - 1 | Flammability - 1 | Instability - 0 | Physical and Chemical Properties - |
--- | --- | --- | --- | --- |
HMIS | Health hazards - 1 | Flammability - 1 | Physical Hazards - 0 | Personal protection - X |
- See section 8 for more information

Key or legend to abbreviations and acronyms used in the safety data sheet

- **NIOSH IDLH** | Immediately Dangerous to Life or Health
- **ACGIH** | ACGIH (American Conference of Governmental Industrial Hygienists)
- **NDF** | no data

**Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

- **TWA** | TWA (time-weighted average)
- **STEL** | STEL (Short Term Exposure Limit)
- **MAC** | Maximum Allowable Concentration
- **Ceiling** | Ceiling Limit Value
- **X** | Listed
- **Vacated** | These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.

- **SKN** | Skin designation
- **SKN+** | Skin sensitization
- **RSP+** | Respiratory sensitization
- **** | Hazard Designation
- **C** | Carcinogen
- **R** | Reproductive toxicant
- **M** | mutagen

**Prepared By** | Hach Product Compliance Department
**Issue Date** | 21-Jun-2016
**Revision Date** | 13-Mar-2017
**Revision Note** | None

**Disclaimer**

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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End of Safety Data Sheet