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>Serious eye damage/eye irritation</td>
</tr>
<tr>
<td>Specific target organ toxicity (repeated exposure)</td>
</tr>
<tr>
<td>Chronic aquatic toxicity</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 Hazards Known
May be harmful if swallowed***

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Percent Range</th>
<th>HMRIC #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese(II) sulfate***</td>
<td>7785-87-7</td>
<td>100%</td>
<td>-</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**

**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.

**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.

Reference to other sections
See section 8 for more information. See section 13 for more information.

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***</td>
<td>TWA: 0.02 mg/m³</td>
<td>(vacated) Ceiling: 5 mg/m³</td>
<td>IDLH: 500 mg/m³ Mn</td>
</tr>
<tr>
<td>CAS#: 7785-87-7</td>
<td>TWA: 0.1 mg/m³***</td>
<td>Ceiling: 5 mg/m³***</td>
<td>TWA: 1 mg/m³ Mn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STEL: 3 mg/m³ Mn***</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.

### 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>Odor</td>
<td>Odorless</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>pink</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 $K_{ow} \sim 0$</td>
<td></td>
</tr>
<tr>
<td>Soil Organic Carbon-Water Partition Coefficient</td>
<td>log $K_{oc} \sim 0$</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**

- **Steel Corrosion Rate**: Not applicable
- **Aluminum Corrosion Rate**: *** 0.05 mm/yr / 0 in/yr

**Volatile Organic Compounds (VOC) Content**

This Product is by Weight 100% an Individual Pure Chemical Substance ***
### 10. STABILITY AND REACTIVITY

**Reactivity**

Not applicable.

**Chemical 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**

- Strong acids.
- Strong bases.
- Strong oxidizing agents.***

**Hazardous Decomposition Products**

Sulfur oxides. Manganese oxides.

### 11. TOXICOLOGICAL INFORMATION

**Information on Likely Routes of Exposure**

***

**Product Information**
Inhalation

No known effect based on information supplied.

Eye contact

Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes.***

Skin contact

May cause irritation.***

Ingestion

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***</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>(100%) CAS#: 7785-87-7</td>
<td></td>
</tr>
</tbody>
</table>

Product Acute Toxicity Data

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

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 ***

<table>
<thead>
<tr>
<th>ATEmix (oral)</th>
<th>No information available</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEmix (dermal)</td>
<td>No information available</td>
</tr>
<tr>
<td>ATEmix (inhalation-dust/mist)</td>
<td>No information available</td>
</tr>
<tr>
<td>ATEmix (inhalation-vapor)</td>
<td>No information available</td>
</tr>
<tr>
<td>ATEmix (inhalation-gas)</td>
<td>No information available</td>
</tr>
</tbody>
</table>

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 LD$_{50}$***</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
Product Code(s) 98199
Issue Date 18-May-2016
Revision Date 21-Feb-2018

Product Name Dissolved Oxygen 1 Reagent

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</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</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.***
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

| Exposure Route | Information
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Exposure Route</td>
<td>If available, see data below</td>
</tr>
<tr>
<td>Dermal Exposure Route</td>
<td>If available, see data below</td>
</tr>
<tr>
<td>Inhalation (Dust/Mist) Exposure Route</td>
<td>If available, see data below</td>
</tr>
<tr>
<td>Inhalation (Vapor) Exposure Route</td>
<td>If available, see data below</td>
</tr>
<tr>
<td>Inhalation (Gas) Exposure Route</td>
<td>If available, see data below</td>
</tr>
</tbody>
</table>

Product Carcinogenicity Data

| Exposure Route | Information
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Exposure Route</td>
<td>If available, see ingredient data below***</td>
</tr>
<tr>
<td>Dermal Exposure Route</td>
<td>If available, see ingredient data below***</td>
</tr>
<tr>
<td>Inhalation (Dust/Mist) Exposure Route</td>
<td>If available, see ingredient data below***</td>
</tr>
<tr>
<td>Inhalation (Vapor) Exposure Route</td>
<td>If available, see ingredient data below***</td>
</tr>
<tr>
<td>Inhalation (Gas) Exposure Route</td>
<td>If available, see ingredient data below***</td>
</tr>
</tbody>
</table>

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*** (100%)</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>Manganese(II) sulfate*** (100%)</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>
</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***
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>LC₅₀***</td>
<td>3.17*** mg/L ***</td>
<td>PEEN (Pan European Ecological Network)***</td>
</tr>
</tbody>
</table>

EN / AGHS
(100%)  
CAS#: 7785-87-7

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><em>Daphnia magna</em></td>
<td><strong>EC₅₀</strong>*</td>
<td>5.7*** mg/L***</td>
<td>PEEN (Pan European Ecological Network)***</td>
</tr>
</tbody>
</table>

(100%)  
CAS#: 7785-87-7

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

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

Mobility

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>

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.
DOT Technical Name  (Manganese sulfate)
Hazard Class  9
Packing Group  III

TDG

UN/ID no  UN3077
Proper shipping name  Environmentally hazardous substances, solid, n.o.s.
TDG Technical Name  (Manganese sulfate)
Hazard Class  9
Packing Group  III

IATA

UN/ID no  UN3077
Proper shipping name  Environmentally hazardous substances, solid, n.o.s.
IATA Technical Name  (Manganese sulfate)
Hazard Class  9
Packing Group  III

IMDG

UN/ID no  UN3077
Proper shipping name  Environmentally hazardous substances, solid, n.o.s.
IMDG Technical Name  (Manganese sulfate)
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
IECS/CS  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
IECS - 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>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***</td>
<td>X***</td>
<td>-</td>
<td>X***</td>
</tr>
<tr>
<td>7785-87-7</td>
<td></td>
<td></td>
<td></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>Manganese(II) sulfate***</td>
<td>-</td>
<td>21 CFR 184.1461***</td>
</tr>
<tr>
<td>7785-87-7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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>
</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) 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 18-May-2016
Revision Date 21-Feb-2018
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.

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