o-Phenanthroline, 0.1% Aqueous
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Date of issue: 04/16/2015 Revision date: 01/10/2018 Supersedes: 04/16/2015 Version: 1.1

SECTION 1: Identification

1.1. Identification
Product form : Mixtures
Product name : o-Phenanthroline, 0.1% Aqueous
Product code : LC18150

1.2. Recommended use and restrictions on use
Use of the substance/mixture : For laboratory and manufacturing use only.
Recommended use : Laboratory chemicals
Restrictions on use : Not for food, drug or household use

1.3. Supplier
LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number
Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture
GHS-US classification
Not classified

2.2. GHS Label elements, including precautionary statements
Not classified as a hazardous chemical.
Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)
Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures
<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>(CAS-No.) 7732-18-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,10-Phenanthroline, Monohydrate, ACS</td>
<td>(CAS-No.) 5144-89-8</td>
<td>0.1</td>
<td>Acute Tox. 3 (Oral), H301 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
<tr>
<td>Hydrochloric Acid, 37% w/w</td>
<td>(CAS-No.) 7647-01-0</td>
<td>0.1</td>
<td>Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures
First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation : Allow victim to breathe fresh air. Allow the victim to rest.
First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persists.
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First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most important symptoms and effects (acute and delayed)
Symptoms/effects : Not expected to present a significant hazard under anticipated conditions of normal use.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical
No additional information available

5.3. Special protective equipment and precautions for fire-fighters
Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Protective equipment : Safety glasses. Gloves.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment : Equip cleanup crew with proper protection.
Emergency procedures : Ventilate area.

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up : Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Keep container closed when not in use.
Incompatible products : Strong oxidizers.
Incompatible materials : Sources of ignition. Direct sunlight.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

1,10-Phenanthroline, Monohydrate, ACS (5144-89-8)
Not applicable

Hydrochloric Acid, 37% w/w (7647-01-0)

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>ACGIH Ceiling (mg/m³)</th>
<th>2.98 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ACGIH</td>
<td>ACGIH Ceiling (ppm)</td>
<td>2 ppm</td>
</tr>
<tr>
<td></td>
<td>OSHA</td>
<td>OSHA PEL (Ceiling) (mg/m³)</td>
<td>7 mg/m³</td>
</tr>
</tbody>
</table>
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Hydrochloric Acid, 37% w/w (7647-01-0)

<table>
<thead>
<tr>
<th></th>
<th>OSHA PEL (Ceiling) (ppm)</th>
<th>5 ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>US IDLH (ppm)</td>
<td>50 ppm</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (mg/m³)</td>
<td>7 mg/m³</td>
</tr>
<tr>
<td>NIOSH</td>
<td>NIOSH REL (ceiling) (ppm)</td>
<td>5 ppm</td>
</tr>
</tbody>
</table>

Water (7732-18-5)
Not applicable

8.2. Appropriate engineering controls

Appropriate engineering controls
Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Safety glasses.

Hand protection:
Wear protective gloves

Eye protection:
Chemical goggles or safety glasses

Respiratory protection:
Respiratory protection not required in normal conditions

Other information:
Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid
Color: Colorless
Odor: None.
Odor threshold: No data available
pH: No data available
Melting point: No data available
Freezing point: No data available
Boiling point: No data available
Flash point: No data available
Relative evaporation rate (butyl acetate=1): No data available
Flammability (solid, gas): Non flammable.
Vapor pressure: No data available
Relative vapor density at 20 °C: No data available
Relative density: No data available
Specific gravity / density: 1 g/ml
Solubility: Soluble in water.
Log Pow: No data available
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

#### 9.2. Other information

No additional information available

#### SECTION 10: Stability and reactivity

**10.1. Reactivity**

No additional information available

**10.2. Chemical stability**

Stable under normal conditions.

**10.3. Possibility of hazardous reactions**

Not established.

**10.4. Conditions to avoid**

Direct sunlight. Extremely high or low temperatures.

**10.5. Incompatible materials**

Strong oxidizers.

**10.6. Hazardous decomposition products**

Carbon monoxide. Carbon dioxide.

#### SECTION 11: Toxicological information

**11.1. Information on toxicological effects**

Likely routes of exposure: Skin and eye contact

Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Compound</th>
<th>Route</th>
<th>Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,10-Phenanthroline, Monohydrate, ACS (5144-89-8)</td>
<td>oral rat</td>
<td>132 mg/kg (Rat)</td>
</tr>
<tr>
<td></td>
<td>oral ATE US</td>
<td>132 mg/kg body weight</td>
</tr>
<tr>
<td>Hydrochloric Acid, 37% w/w (7647-01-0)</td>
<td>oral LD50</td>
<td>700 mg/kg</td>
</tr>
<tr>
<td></td>
<td>dermal LD50</td>
<td>5010 mg/kg</td>
</tr>
<tr>
<td></td>
<td>oral ATE US</td>
<td>700 mg/kg body weight</td>
</tr>
<tr>
<td></td>
<td>dermal ATE US</td>
<td>5010 mg/kg body weight</td>
</tr>
<tr>
<td>Water (7732-18-5)</td>
<td>oral LD50</td>
<td>≥ 90000 mg/kg</td>
</tr>
<tr>
<td></td>
<td>oral ATE US</td>
<td>90000 mg/kg body weight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified

Serious eye damage/irritation: Not classified

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

<table>
<thead>
<tr>
<th>Compound</th>
<th>IARC group</th>
<th>Reproductive toxicity</th>
<th>Specific target organ toxicity – single exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric Acid, 37% w/w (7647-01-0)</td>
<td>3 - Not classifiable</td>
<td>Not classified</td>
<td>Not classified</td>
</tr>
</tbody>
</table>
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Specific target organ toxicity – repeated exposure : Not classified
Aspiration hazard : Not classified
Potential Adverse human health effects and symptoms : Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1. Toxicity

Hydrochloric Acid, 37% w/w (7647-01-0)
LC50 fish 1 282 mg/l (LC50; 96 h)
EC50 Daphnia 1 < 56 mg/l (EC50; 72 h)

12.2. Persistence and degradability

o-Phenanthroline, 0.1% Aqueous
Persistence and degradability Not established.

Hydrochloric Acid, 37% w/w (7647-01-0)
Persistence and degradability Biodegradability: not applicable. No test data on mobility of the components available.
Biochemical oxygen demand (BOD) Not applicable
Chemical oxygen demand (COD) Not applicable
ThOD Not applicable

Water (7732-18-5)
Persistence and degradability Not established.

12.3. Bioaccumulative potential

o-Phenanthroline, 0.1% Aqueous
Bioaccumulative potential Not established.

1,10-Phenanthroline, Monohydrate, ACS (5144-89-8)
Bioaccumulative potential Not bioaccumulative.

Hydrochloric Acid, 37% w/w (7647-01-0)
Log Pow 0.25 (QSAR)
Bioaccumulative potential Low potential for bioaccumulation (Log Kow < 4).

Water (7732-18-5)
Bioaccumulative potential Not established.

12.4. Mobility in soil

Hydrochloric Acid, 37% w/w (7647-01-0)
Ecology - soil May be harmful to plant growth, blooming and fruit formation.

12.5. Other adverse effects

Effect on the global warming : No known effects from this product.
GWPmix comment : No known effects from this product.
Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.
Ecology - waste materials : Avoid release to the environment.
SECTION 14: Transport information

Department of Transportation (DOT)
In accordance with DOT
Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,10-Phenanthroline, Monohydrate, ACS</td>
<td>5144-89-8</td>
<td>0.1%</td>
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<tr>
<td>Hydrochloric Acid, 37% w/w</td>
<td>7647-01-0</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

National regulations
No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 01/10/2018
Other information : None.
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Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>H-Phrase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation</td>
</tr>
<tr>
<td>H400</td>
<td>Very toxic to aquatic life</td>
</tr>
<tr>
<td>H402</td>
<td>Harmful to aquatic life</td>
</tr>
<tr>
<td>H410</td>
<td>Very toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

**NFPA health hazard**

: 1 - Materials that, under emergency conditions, can cause significant irritation.

**NFPA fire hazard**

: 0 - Materials that will not burn under typical dire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

**NFPA reactivity**

: 0 - Material that in themselves are normally stable, even under fire conditions.

**Hazard Rating**

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

**Personal protection**

B - Safety glasses, Gloves

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