 SECTION 1: Identification

1.1. Identification

Product form : Mixtures
Product name : o-Phenanthroline, 0.3% w/v
Product code : LC18155

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
Hazardous to the aquatic environment - Acute Hazard Category 3
H402 Harmful to aquatic life
Hazardous to the aquatic environment - Chronic Hazard Category 3
H412 Harmful to aquatic life with long lasting effects

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling
Hazard statements (GHS-US) : H412 - Harmful to aquatic life with long lasting effects
Precautionary statements (GHS-US) : P273 - Avoid release to the environment
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards which do not result in classification

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>99.6</td>
<td>Not classified</td>
</tr>
<tr>
<td>1,10-Phenanthroline, Monohydrate, ACS</td>
<td>(CAS-No.) 5144-89-8</td>
<td>0.3</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>
**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.

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. Avoid release to the environment.

**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

<table>
<thead>
<tr>
<th>Chemical</th>
<th>ACGIH Ceiling (mg/m³)</th>
<th>ACGIH Ceiling (ppm)</th>
<th>OSHA Ceiling (mg/m³)</th>
<th>OSHA Ceiling (ppm)</th>
<th>IDLH (ppm)</th>
<th>NIOSH REL (ceiling) (mg/m³)</th>
<th>NIOSH REL (ceiling) (ppm)</th>
<th>Water (7732-18-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,10-Phenanthroline, Monohydrate, ACS (5144-89-8)</td>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrochloric Acid, 37% w/w (7647-01-0)</td>
<td></td>
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<tr>
<td>ACGIH</td>
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<td>OSHA</td>
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<td>IDLH</td>
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<tr>
<td>NIOSH</td>
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<tr>
<td>Water</td>
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</tr>
</tbody>
</table>

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:

Gloves. 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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>None.</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
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<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
</tbody>
</table>
o-Phenanthroline, 0.3% w/v
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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
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosion limits : No data available
Explosive properties : No data available
Oxidizing properties : No data available

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

SECTION 11: Toxicological information
11.1. Information on toxicological effects
Likely routes of exposure : Skin and eye contact
Acute toxicity : Not classified

1,10-Phenanthroline, Monohydrate, ACS (5144-89-8)
LD50 oral rat 132 mg/kg (Rat)
ATE US (oral) 132 mg/kg body weight

Hydrochloric Acid, 37% w/w (7647-01-0)
LD50 oral rat 700 mg/kg
LD50 dermal rabbit 5010 mg/kg
ATE US (oral) 700 mg/kg body weight
ATE US (dermal) 5010 mg/kg body weight

Water (7732-18-5)
LD50 oral rat ≥ 90000 mg/kg
ATE US (oral) 90000 mg/kg body weight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
o-Phenanthroline, 0.3% w/v
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Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

### Hydrochloric Acid, 37% w/w (7647-01-0)
- **IARC group**: 3 - Not classifiable
- Reproductive toxicity: Not classified
- Specific target organ toxicity – single exposure: Not classified
- 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
Ecology - water: Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

**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, 0.3% w/v**
Persistence and degradability: May cause long-term adverse effects in the environment.

**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, 0.3% w/v**
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. Dispose of contents/container to comply with local, state and federal 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 (s)</th>
<th>CAS-No. (s)</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,10-Phenanthroline, Monohydrate, ACS</td>
<td>5144-89-8</td>
<td>0.3%</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.

| Hydrochloric Acid, 37% w/w | CAS-No. 7647-01-0 | 0.1% |

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

<table>
<thead>
<tr>
<th>EPA TSCA Regulatory Flag</th>
<th>T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ (Reportable quantity, section 304 of EPA's List of Lists)</td>
<td>5000 lb</td>
</tr>
<tr>
<td>SARA Section 302 Threshold Planning Quantity (TPQ)</td>
<td>500 lb</td>
</tr>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
<td>Immediate (acute) health hazard</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Revision date</th>
<th>01/10/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other information</td>
<td>None.</td>
</tr>
</tbody>
</table>
**o-Phenanthroline, 0.3% w/v**  
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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

**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>
<tr>
<td>H412</td>
<td>Harmful 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 fire 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**

<table>
<thead>
<tr>
<th>Property</th>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>1</td>
<td>Slight Hazard - Irritation or minor reversible injury possible</td>
</tr>
<tr>
<td>Flammability</td>
<td>0</td>
<td>Minimal Hazard - Materials that will not burn</td>
</tr>
<tr>
<td>Physical</td>
<td>0</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Personal protection**

- B - Safety glasses, Gloves

**SDS US LabChem**

*Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and LabChem Inc assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his application.*