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## SECTION 1: COMPANY AND PRODUCT INFORMATION

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### 1.1 Product identifiers

Product name : 1,10-Phenanthroline Monohydrate  
Product code : 41600004  
CAS number : 5144-89-8  
Synonyms : O-Phenanthroline monohydrate

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : For research and laboratory use only.

### 1.3 Details of the supplier of the safety data sheet

Address : Genelix International Inc, dba bioWORLD  
4150 Tuller Rd. Suite 228  
Dublin, OH 43017  
Email : info@buffersandreagents.com  
Phone : 614-792-8680, Toll free: 1-888-bio-PLUS  
Fax : 614-792-8685

### 1.4 Emergency telephone number

Emergency phone : 1-888-bio-PLUS

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## SECTION 2: HAZARDS IDENTIFICATION

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### 2.1 Classification of substance or mixture

Acute toxicity, Oral (Category 3), H301  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410

### 2.2 GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 3), H301  
Acute aquatic toxicity (Category 1), H400  
Chronic aquatic toxicity (Category 1), H410

### 2.3 Label elements and precautionary statements

Pictogram : 

Signal word : Danger

Hazard statement(s) : H301 - Toxic if swallowed.  
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statement(s) : P264 - Wash skin thoroughly after handling.  
P270 - Do not eat, drink or smoke when using this product.  
P273 - Avoid release to the environment.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.  
P330 - Rinse mouth.  
P391 - Collect spillage.  
P405 - Store locked up.  
P501 - Dispose of contents/container to an approved waste disposal plant.

**2.4 Hazards not otherwise classified (HNOC) or not covered by GHS**

No unclassified hazards known.

**2.5 NFPA Rating**

Health hazard : 2  
Fire hazard : 0  
Reactivity hazard : 1

**2.6 HMIS Rating**

Health hazard : 2  
Chronic health hazard : -  
Reactivity hazard : 0  
Flammability : 0  
Physical hazard : 1

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substances**

Substance	CAS#	EC#	Concentration
1,10-Phenanthroline Monohydrate M.F: C <sub>12</sub> H <sub>8</sub> N <sub>2</sub> • H <sub>2</sub> O M.W: 198.22 g/mol	5144-89-8	200-629-2	95-100%

**3.2 Hazardous components & classification**

Acute Tox. 3; Aquatic Acute 1; Aquatic Chronic 1; H301, H410

**SECTION 4: FIRST AID MEASURES**

**4.1 Description of first aid measures**

**General advice**

Consult a physician if symptoms are severe or persistent. Provide this data sheet to medical personnel. If product is spilled or leaked, evacuate area.

**In case of inhalation**

If inhaled, move person to fresh air and monitor breathing. If not breathing, give artificial ventilation. Consult a physician if symptoms are severe or persistent.

**In case of skin contact**

Immediately wash with excess soap and water. If spilled on clothing, remove all affected clothing. Consult a physician if symptoms are severe or persistent.

**In case of eye contact**

Flush eyes with water or eye wash solution as a precaution for 15 minutes. Consult a physician if symptoms are severe or persistent.

**In case of ingestion**

Only induce vomiting if recommended by medical personnel. If subject is unconscious, do not give anything by mouth. If conscious, rinse mouth with water. Consult a physician if symptoms are severe or persistent.

**4.2 Most important symptoms and effects, both acute and delayed**

All known important symptoms are described in Section 2 and/or Section 11. No other important symptoms to report.

**4.3 Indication of any immediate medical attention and special treatment needed**

No special treatment indicated. Provide treatment in accordance with exhibited systems.

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**SECTION 5: FIREFIGHTING MEASURES**

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**5.1 Suitable extinguishing media**

Water spray, alcohol-resistant foam, dry chemical, and carbon dioxide extinguishers are suitable.

**5.2 Unsuitable extinguishing media**

No known unsuitable extinguishing media.

**5.3 Special hazards arising from the substance**

Carbon oxides, nitrogen oxides (NO<sub>x</sub>).

**5.4 Advice for firefighters**

Wear protective gear, such as self-contained breathing apparatus, if necessary.

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**SECTION 6: ACCIDENTAL RELEASE MEASURES**

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

Provide suitable ventilation. Use any necessary personal protective equipment. Avoid contact with skin and eyes, and avoid creation and inhalation of vapor or dust. Keep all unnecessary personnel away.

**For personal protection see section 8**

**6.2 Environmental precautions**

Prevent product from entering public sewers and waterways.

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

Use inert absorbent material to absorb any spilled or leaked product. Keep in suitable, closed containers for disposal.

**For proper disposal see section 13**

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**SECTION 7: HANDLING AND STORAGE**

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**7.1 Precautions for safe handling**

Provide suitable ventilation. Wear any necessary personal protective equipment.

**For precautions see section 2**

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

Storage conditions : Store upright, closed container in arid, ventilated environment.

Incompatible materials : Strong oxidizing agents, peroxides, and phenols are incompatible with this product.

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## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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### 8.1 Control parameters

This product is not known to contain any substances with occupational exposure limit values.

### 8.2 Engineering controls

Follow good industrial hygiene and safety practices when handling product.

### 8.3 Personal protective equipment

Eye/face protection : Use only government-approved safety glasses with side-shields.

Skin protection : Use gloves when handling product. Inspect gloves before use to ensure suitability for use. Remove without exposing skin to the gloves outer surface. Discard used gloves according to all pertinent laws and/or current good practices (cGXP). Wash hands with soap and water.

Body protection : Wear appropriate clothing. Ensure clothing is in good condition, with no holes or tears. When selecting clothing, consider the concentration and amount of substance to be handled.

Respiratory protection : Use only approved respirators and components which comply with CDC and NIOSH (US) or CEN (EU) regulations. Required only when vapors or aerosols are created.

Control of environmental exposure : Prevent product from entering the environment, especially through public sewers or waterways.

General hygiene considerations : Comply with general industrial hygiene practice guidelines.

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## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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### 9.1 Information on basic physical and chemical properties

- a) Appearance : White
- b) Physical states : Solid
- c) Odor : Not available
- d) Odor threshold : Not available
- e) Melting point : 97-102°C
- f) Boiling point range : Not available
- g) pH : Not available
- h) Density : Not available
- i) Flash point : Not available
- j) Evaporation rate : Not available

- k) Flammability : Not available
- l) Upper/lower flammability or explosive limits: : Not available
- m) Vapor pressure : Not available
- n) Vapor density : Not available
- o) Relative density : Not available
- p) Water solubility : Soluble
- q) Partition coefficient:n-octanol/water : Not available
- r) Autoignition temperature : Not available
- s) Decomposition temperature : Not available
- t) Kinematic viscosity : Not available
- u) Explosive properties : Not available
- v) Oxidizing properties : Not available
- w) Solubility in other solvents : Not available
- x) Surface tension : Not available

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## SECTION 10: STABILITY AND REACTIVITY

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### 10.1 Reactivity

No special reactivity is known.

### 10.2 Chemical stability

Product is stable when stored and used as recommended.

### 10.3 Stability note(s)

No special or unusual instability known.

### 10.4 Polymerization

No known polymerization.

### 10.5 Possibility of hazardous reactions

No hazardous reactions are known.

### 10.6 Incompatible materials

Strong oxidizing agents, peroxides, and phenols are incompatible with this product.

### 10.7 Hazardous decomposition products

Carbon oxides and nitrogen oxides (NO<sub>x</sub>) can form if fire occurs.

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## SECTION 11: TOXICOLOGICAL INFORMATION

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### 11.1 Acute toxicity

LD50 Oral : No toxicity data available.

LD50 Dermal : No toxicity data available.

LC50 Inhalation : No toxicity data available.

### 11.2 Skin corrosion/irritation

No skin/corrosion irritation data available.

### **11.3 Serious eye damage/eye irritation**

No eye damage/irritation data available.

### **11.4 Respiratory or skin sensitization**

No sensitization data available.

### **11.5 Germ cell mutagenicity**

No mutagenicity data available.

### **11.6 Carcinogenicity**

IARC : Product and components are not regulated by the IARC.

ACGIH : Product and components are not regulated by the ACGIH.

NTP : Product and components are not regulated by the NTP.

OSHA : Product and components are not regulated by OSHA.

### **11.7 Reproductive toxicity**

No reproductive toxicity data available.

### **11.8 Specific target organ toxicity – single exposure**

No specific organ toxicity data available.

### **11.9 Specific target organ toxicity – repeated exposure**

No specific organ toxicity data available.

### **11.10 Aspiration hazard**

No aspiration hazard data available.

### **11.11 Additional Information**

RTECS: SF8437000.

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## **SECTION 12: ECOLOGICAL INFORMATION**

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### **12.1 Toxicity**

No ecological toxicity data available.

### **12.2 Aquatic toxicity**

No aquatic toxicity data available.

### **12.3 Persistence and degradability**

No persistence/degradability data available.

### **12.4 Bioaccumulative potential**

No bioaccumulation data available.

### **12.5 Mobility in soil**

No soil mobility data available.

### **12.6 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment is not required/was not conducted.

### **12.7 Other adverse effect**

Very toxic to aquatic life with long lasting effects.

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## **SECTION 13: DISPOSAL CONSIDERATIONS**

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### **13.1 Product**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult and adhere to local, regional, and national hazardous waste regulations to ensure complete and accurate classification. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

### **13.2 Packaging**

Packaging should be disposed of in the same manner as unused product.

### **13.3 Recommendation**

Disposal must be made according to official regulations.

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## **SECTION 14: TRANSPORTATION INFORMATION**

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### **14.1 DOT (US)**

UN#2811

Class: 6.1

Packing group: III

Proper shipping name: Toxic solids, organic, n.o.s.(o-Phenanthroline hydrate)

Marine Pollutant: No

Poison Inhalation Hazard: No

### **14.2 IMDG**

UN#2811

Class: 6.1

Packing group: III

EMS-No: F-A, S-A

Proper shipping name: Toxic solids, organic, n.o.s.(o-Phenanthroline hydrate)

Marine Pollutant: No

### **14.3 IATA**

UN#2811

Class: 6.1

Packing group: III

Proper shipping name: Toxic solids, organic, n.o.s.(o-Phenanthroline hydrate)

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## **SECTION 15: REGULATORY INFORMATION**

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### **15.1 SARA**

SARA 302: This product and components are not subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This product does not contain any components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.

SARA 311/312: Acute Health Hazard

### **15.2 Clean water act (CWA)**

No chemicals are present in this product that are subject to regulation under the Clean Water Act.

### **15.3 Right to know components**

Massachusetts	: No chemicals are present which require disclosure under the Massachusetts Right to Know Act.
Pennsylvania	: 1,10-Phenanthroline CAS No.: 5144-89-8
New Jersey	: 1,10-Phenanthroline CAS No.: 5144-89-8
California proposition 65 components	: This product contains no chemicals which are known to the State of California to cause cancer, or birth defects or other reproductive harm.

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## **SECTION 16: OTHER INFORMATION**

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### **16.1 Disclaimer**

This product is offered by Plantmedia for research, laboratory or further manufacturing use. Not for human use or consumption. The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchant-ability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall buffersandreagents.com be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if buffersandreagents.com has been advised of the possibility of such damages.

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### **16.2 Preparation Information**

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