

# Safety Data Sheet

## 1,10-Phenanthroline Monohydrate

**CAROLINA**<sup>®</sup>  
www.carolina.com

### Section 1 Product Description

**Product Name:** 1,10-Phenanthroline Monohydrate  
**Recommended Use:** Science education applications  
**Synonyms:** 4,5-penanthroline monohydrate  
**Distributor:** Carolina Biological Supply Company  
2700 York Road, Burlington, NC 27215  
1-800-227-1150  
**Chemical Information:** 800-227-1150 (8am-5pm (ET) M-F)  
**Chemtrec:** 800-424-9300 (Transportation Spill Response 24 hours)

### Section 2 Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

**DANGER**



Toxic if swallowed. Very toxic to aquatic life. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Collect spillage. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulation for hazardous wastes.

**GHS Classification:**

Hazardous to the aquatic environment - Acute Category 1, Acute Toxicity - Oral Category 3

**Other Safety Precautions:** Avoid release to the environment.  
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

<b>Acute Toxicity Dermal Contains</b>	100 % of the mixture consists of ingredient(s) of unknown toxicity
<b>Acute Toxicity Inhalation Gas Contains</b>	100 % of the mixture consists of ingredient(s) of unknown toxicity
<b>Acute Toxicity Inhalation Vapor Contains</b>	100 % of the mixture consists of ingredient(s) of unknown toxicity
<b>Acute Toxicity Inhalation Dust/Mist Contains</b>	100 % of the mixture consists of ingredient(s) of unknown toxicity

### Section 3 Composition / Information on Ingredients

<u>Chemical Name</u>	<u>CAS #</u>	<u>%</u>
1,10-Phenanthroline Monohydrate	5144-89-8	100

### Section 4 First Aid Measures

**Emergency and First Aid Procedures**

**Inhalation:** In case of accident by inhalation: remove casualty to fresh air and keep at rest.  
**Eyes:** In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
**Ingestion:** If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label. If swallowed, rinse mouth with water (only if the person is conscious).

### Section 5 Firefighting Procedures

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<b>Extinguishing Media:</b>	Use alcohol resistant foam, carbon dioxide, or dry chemical when fighting fires. Water or foam may cause frothing if liquid is burning but it still may be a useful extinguishing agent if carefully applied to the surface of the fire. Do Not direct a stream of water into the hot burning liquid.
<b>Fire Fighting Methods and Protection:</b>	Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
<b>Fire and/or Explosion Hazards:</b>	Fire or excessive heat may produce hazardous decomposition products.
<b>Hazardous Combustion Products:</b>	Carbon dioxide, Carbon monoxide

## Section 6 Spill or Leak Procedures

<b>Steps to Take in Case Material Is Released or Spilled:</b>	Ventilate the contaminated area. Avoid the generation of dusts during clean-up.  Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.
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## Section 7 Handling and Storage

<b>Handling:</b>	Wash thoroughly after handling. Do not eat, drink or smoke when using this product.
<b>Storage:</b>	Store locked up. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Keep away from heat. Keep container tightly closed in a cool, well-ventilated place.
<b>Storage Code:</b>	Blue - Toxic. Store separately in a secured area.

## Section 8 Protection Information

<u>Chemical Name</u>	<u>ACGIH</u>	<u>OSHA PEL</u>		
	<u>(TWA)</u>	<u>(STEL)</u>	<u>(TWA)</u>	<u>(STEL)</u>
No data available	N/A	N/A	N/A	N/A

### Control Parameters

<b>Engineering Measures:</b>	No exposure limits exist for the constituents of this product. General room ventilation might be required to maintain operator comfort under normal conditions of use.
<b>Personal Protective Equipment (PPE):</b>	Lab coat, apron, eye wash, safety shower.
<b>Respiratory Protection:</b>	Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.
<b>Eye Protection:</b>	Wear chemical splash goggles when handling this product. Have an eye wash station available.
<b>Skin Protection:</b>	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.
<b>Gloves:</b>	Nitrile - Extra Thick (8 mm)

## Section 9 Physical Data

<b>Formula:</b> C <sub>12</sub> H <sub>8</sub> N <sub>2</sub>	<b>Vapor Pressure:</b> N/A
<b>Molecular Weight:</b> 198.23	<b>Evaporation Rate (BuAc=1):</b> N/A
<b>Appearance:</b> White Solid	<b>Vapor Density (Air=1):</b> N/A
<b>Odor:</b> Mild	<b>Specific Gravity:</b> 1.28-1.35 (25 °C)
<b>Odor Threshold:</b> No data available	<b>Solubility in Water:</b> Slightly Soluble
<b>pH:</b> No data available	<b>Log Pow (calculated):</b> No data available
<b>Melting Point:</b> No data available	<b>Autoignition Temperature:</b> No data available
<b>Boiling Point:</b> No data available	<b>Decomposition Temperature:</b> No data available
<b>Flash Point:</b> No data available	<b>Viscosity:</b> No data available
<b>Flammable Limits in Air:</b> N/A	<b>Percent Volatile by Volume:</b> 0%

## Section 10 Reactivity Data

<b>Reactivity:</b>	No data available
<b>Chemical Stability:</b>	Stable under normal conditions.

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**Conditions to Avoid:**  
**Hazardous Polymerization:**

None known. High temperatures Moisture (will lead to product performance degradation)  
Will not occur

## Section 11 Toxicity Data

**Routes of Entry:** Inhalation, Ingestion, and Skin contact.  
**Symptoms (Acute):** Eye Irritation, Nausea, Respiratory disorders  
**Delayed Effects:** No data available

### Acute Toxicity:

Chemical Name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
1,10-Phenanthroline Monohydrate	5144-89-8	Oral LD50 Rat 132 mg/kg	Not determined	Not determined

### Carcinogenicity:

Chemical Name	CAS Number	IARC	NTP	OSHA
No data available	5144-89-8	Not listed	Not listed	Not listed

### Chronic Effects:

**Mutagenicity:** No evidence of a mutagenic effect.  
**Teratogenicity:** No evidence of a teratogenic effect (birth defect).  
**Sensitization:** No evidence of a sensitization effect.  
**Reproductive:** No evidence of negative reproductive effects.

### Target Organ Effects:

**Acute:** See Section 2  
**Chronic:** Not listed as a carcinogen by IARC, NTP or OSHA., Mutation data cited., Reproductive data cited.

## Section 12 Ecological Data

**Overview:** Severe ecological hazard. This product may be toxic to plants and/or wildlife. Highly/very toxic to fish and other water organisms.

**Mobility:** No data  
**Persistence:** No data  
**Bioaccumulation:** No data  
**Degradability:** No data  
**Other Adverse Effects:** No data

Chemical Name	CAS Number	Eco Toxicity
N/A	5144-89-8	

## Section 13 Disposal Information

**Disposal Methods:** Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

**Waste Disposal Code(s):** Not Determined

## Section 14 Transport Information

**Ground - DOT Proper Shipping Name:**  
Toxic solids, organic, n.o.s., 1,10 Phenanthroline

**Air - IATA Proper Shipping Name:**  
Not regulated for air transport by IATA.

## Section 15 Regulatory Information

**TSCA Status:** All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
No data available	5144-89-8	No	No	No	No	No

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## Section 16

## Additional Information

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The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

### Glossary

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
N/A	Not Available	SARA	Superfund Amendments and Reauthorization Act
		TLV	Threshold Limit Value
		TSCA	Toxic Substances Control Act
		IDLH	Immediately dangerous to life and health