



Safety Data Sheet

1, 10-Phenanthroline monohydrate

Section 1: Chemical Product and Company Identification

Product Name: 1,10-Phenanthroline monohydrate

Catalog Codes: 638

CAS#: 5144-89-8

RTECS: Not available

Synonym: o-Phenanthroline monohydrate

Chemical Name: o-Phenanthroline monohydrate

Chemical Formula: $C_{12}H_8N_2 \cdot H_2O$

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Section 2: Composition and Information on Ingredients

Composition:

| Name | CAS # | % by Weight |
|---------------------------------|-----------|-------------|
| 1,10-Phenanthroline monohydrate | 5144-89-8 | 100 |

Toxicological Data on Ingredients: LD50 Oral - Rat - 132 mg/kg.

Section 3: Hazards Identification

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Acute toxicity, Oral (Category 3), H301

Short-term (acute) aquatic hazard (Category 1), H400

Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

Label elements

Labelling according Regulation (EC) No 1272/2008

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. |
| P301 + P310 | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. |
| P391 | Collect spillage. |
| P405 | Store locked up. |
| Supplemental Hazard Statements | none |

Reduced Labeling (<= 125 ml)



| | |
|--------------------------------|---|
| Pictogram | |
| Signal word | Danger |
| Hazard statement(s) | |
| H301 | Toxic if swallowed. |
| Precautionary statement(s) | |
| P264 | Wash skin thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P301 + P310 | IF SWALLOWED: Immediately call a POISON CENTER/ doctor. |
| P405 | Store locked up. |
| Supplemental Hazard Statements | none |

Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Section 4: First Aid Measures

Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 3) and/or in section 11

Indication of any immediate medical attention and special treatment needed

No data available

Section 5: Fire and Explosion Data

Extinguishing media**Suitable extinguishing media**

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Carbon oxides

Nitrogen oxides (NO_x)

Combustible.

Fire may cause evolution of:

nitrogen oxides, carbon dioxide

Development of hazardous combustion gases or vapours possible in the event of fire.

Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

Reference to other sections

For disposal see section 13.

Section 7: Handling and Storage

Precautions for safe handling

For precautions see section 3.

Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Recommended storage temperature see product label.

Section 8: Exposure Controls/Personal Protection

Control parameters

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other

substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatril® L

Body Protection

protective clothing

Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

Section 9: Physical and Chemical Properties**Information on basic physical and chemical properties**

- | | |
|---------------|-----------------------------|
| a) Appearance | Form: solid Color: white |
| b) Odor | No data available |

| | |
|---|--|
| c) Odor Threshold | No data available |
| d) pH | No data available |
| e) Melting point/freezing point | Melting point/range: 97-102 °C |
| f) Initial boiling point and boiling range | 409.2 °C |
| g) Flash point | No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower flammability or explosive limits | No data available |
| k) Vapor pressure | No data available |
| l) Vapor density | No data available |
| m) Relative density | No data available |
| n) Water solubility | soluble |
| o) Partition coefficient: n-octanol/water | No data available |
| p) Autoignition temperature | No data available |
| q) Decomposition temperature | No data available |
| r) Viscosity | Viscosity, kinematic: No data available Viscosity, dynamic: No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

Other safety information

Bulk density ca.300 kg/m³

Section 10: Stability and Reactivity Data

Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

Possibility of hazardous reactions

No data available

Conditions to avoid

Exposure to moisture.
no information available

Incompatible materials

Acids, Strong oxidizing agents

Hazardous decomposition products

In the event of fire: see section 5

Section 11: Toxicological Information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 132 mg/kg

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological Information

Toxicity

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Other adverse effects

Section 13: Disposal Considerations

Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations.

Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself

Section 14: Transport Information

UN number

ADR/RID: 2811

IMDG: 2811

IATA: 2811

UN proper shipping name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (o-Phenanthroline hydrate)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (o-Phenanthroline hydrate)

IATA: Toxic solid, organic, n.o.s. (o-Phenanthroline hydrate)

Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

Packaging group

ADR/RID: III

IMDG: III

IATA: III

Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

Special precautions for user

No data available

Section 15: Other Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: ACUTE TOXIC

: ENVIRONMENTAL HAZARDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

Section 16: Other Information

References: Not available

Other Special Considerations: Not available

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