

Material Safety Data Sheet



**1,10-PHENANTHROLINE MONOHYDRATE
AR REDOX INDICATOR**

VERSION : 05
REVISION DATE : 14/06/2025
EFFECTIVE DATE : 16/06/2025

Product Code : 24640

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1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : **1,10-PHENANTHROLINE MONOHYDRATE AR
REDOX INDICATOR**
Product code : 24640
Identification of the product : 1,10-PHENANTHROLINE MONOHYDRATE AR
REDOX INDICATOR
CAS No : 5144-89-8
EC Index-No. : 613-092-00-8
EC No. : 200-629-2
Synonyms : o-Phenanthroline Monohydrate

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3. Details of the supplier of the safety data sheet

Company identification : MOLYCHEM INDIA LLP
Office: Maker Tower 'E', 41-A2, 4th Floor, Above Maker
Arcade, Cuffe Parade, Mumbai 400 005 (INDIA)
Tel: +91 22 4066 8111, 2205 7772 .
Email : info@molychem.net
Works: Plot No. B/9, Badlapur M.I.D.C.,
OPP.Shobhavat Textile Co., Kulgaon, Badlapur (E),
Dist.-Thane-421 503.

1.4. Emergency telephone number

Emergency number : +91 22 4066 8111 (10:00am - 6:00 pm)

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 3 H301
Hazardous to the aquatic environment – H410
Chronic Hazard, Category 1

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Toxic if swallowed. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

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Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS06 GHS09

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H301 - Toxic if swallowed.

H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP)

: P273 - Avoid release to the environment.

P301+P310 - IF SWALLOWED: Immediately call a
POISON CENTER or doctor.

P501 - Dispose of contents/container to hazardous or
special waste collection point, in accordance with local,
regional, national and/or international regulation.

2.3. Other hazards

Contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

3. Composition/information on ingredients

3.1. Substances

Name : 1,10-PHENANTHROLINE MONOHYDRATE AR
REDOX INDICATOR
CAS-No : 5144-89-8

3.2. Mixtures

Not applicable

4. First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for
breathing. Give oxygen or artificial respiration if
necessary. If you feel unwell, seek medical advice.
First-aid measures after skin contact : Wash skin with plenty of water. If skin irritation occurs:
Get medical advice/attention.
First-aid measures after eye contact : Remove contact lenses, if present and easy to do.
Continue rinsing. Rinse cautiously with water for several
minutes. If eye irritation persists: Get medical
advice/attention.

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First-aid measures after ingestion : Rinse mouth. Obtain emergency medical attention. Immediately call a POISON CENTER/doctor. Specific treatment (see supplemental first aid instruction on this label). Call a physician immediately.

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

Symptoms/effects after inhalation : None under normal conditions. Dust of the product, if present, may cause respiratory irritation after excessive inhalation exposure.

Symptoms/effects after skin contact : None under normal conditions. Dust may cause irritation in skin folds or by contact in combination with tight clothing.

Symptoms/effects after eye contact : None under normal conditions. Dust from this product may cause eye irritation.

Symptoms/effects after ingestion : Toxic if swallowed.

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

Treat symptomatically.

5. Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : dry chemical powder, alcohol-resistant foam, carbon dioxide (CO₂). Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

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6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. Use personal protective equipment as required. For further information refer to section 8: "Exposure controls/ personal protection"

Emergency procedures : Stop release. Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Clear up rapidly by scoop or vacuum.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

7. Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Keep in a cool, well-ventilated place away from heat.

Storage conditions : Store in original container. Keep container tightly closed.

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Storage away from

Store in a dry place. Store locked up
: Direct sunlight. Moisture. Air contact

7.3. Specific end use(s)

No additional information available

8. Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Eye protection : Chemical goggles or safety glasses
Hand protection : Wear protective gloves
Skin protection : Wear suitable protective clothing
Respiratory protection : Wear appropriate mask.
Thermal hazards : No additional information available

8.2.3. Environmental exposure controls

Avoid release to the environment

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state : Solid
Appearance : crystals or needles or crystalline powder, becoming cream coloured on storage.
Molecular mass : 198.23 g/mol
Colour : White to off white or beige
Odour : Odourless.
Odour threshold : Not available
pH : ≈ 4 (50 g/L at 20 °C)
Melting point : 100 -104⁰c
Freezing point : Not applicable
Boiling point : Not available
Flash point : Not applicable
Auto-ignition temperature : Not applicable
Decomposition temperature : Not available

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Flammability (solid, gas)	: Non flammable.
Vapour pressure	: Not available
Relative vapour density at 20 °C	: 6.2
Relative density	: Not available
Density	: 1.31 g/cm ³
Solubility	: Water: Soluble in water
Partition coefficient n-octanol/water (Log k _{ow})	: Not available
Viscosity, kinematic	: Not applicable
Explosive limits	: Not applicable

9.2. Other information

No additional information available

10. Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Direct sunlight. Moisture. Air contact.

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Toxic if swallowed.
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: Not classified
Additional information	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitisation	: Not classified

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Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

12. Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute) : Not classified
Hazardous to the aquatic environment, long-term (chronic) : Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

13. Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations : Disposal must be done according to official regulations
Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. Disposal must be done according to official regulations
Additional information : Do not re-use empty containers.

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14. Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

14.1. UN number

UN-No. (ADR) : UN 2811
UN-No. (IMDG) : UN 2811
UN-No. (IATA) : UN 2811
UN-No. (ADN) : UN 2811
UN-No. (RID) : UN 2811

14.2. UN proper shipping name

Proper Shipping Name (ADR) : TOXIC SOLID, ORGANIC, N.O.S.
Proper Shipping Name (IMDG) : TOXIC SOLID, ORGANIC, N.O.S.
Proper Shipping Name (IATA) : Toxic solid, organic, n.o.s.
Proper Shipping Name (ADN) : TOXIC SOLID, ORGANIC, N.O.S.
Proper Shipping Name (RID) : TOXIC SOLID, ORGANIC, N.O.S.
Transport document description (ADR) : UN 2811 TOXIC SOLID, ORGANIC, N.O.S. (1,10-PHENANTHROLINE MONOHYDRATE), 6.1, III, (E), ENVIRONMENTALLY HAZARDOUS
Transport document description(IMDG) : UN 2811 TOXIC SOLID, ORGANIC, N.O.S., 6.1, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS
Transport document description (IATA) : UN 2811 Toxic solid, organic, n.o.s. (1,10-PHENANTHROLINE MONOHYDRATE), 6.1, III, ENVIRONMENTALLY HAZARDOUS
Transport document description (ADN) : UN 2811 TOXIC SOLID, ORGANIC, N.O.S., 6.1, III, ENVIRONMENTALLY HAZARDOUS
Transport document description (RID) : UN 2811 TOXIC SOLID, ORGANIC, N.O.S., 6.1, III, ENVIRONMENTALLY HAZARDOUS

14.3. Transport hazard class(es)

ADR
Transport hazard class(es) (ADR) : 6.1
Danger labels (ADR) : 6.1
IMDG
Transport hazard class(es) (IMDG) : 6.1
Danger labels (IMDG) : 6.1
IATA
Transport hazard class(es) (IATA) : 6.1
Danger labels (IATA) : 6.1

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ADN

Transport hazard class(es) (ADN) : 6.1

Danger labels (ADN) : 6.1

RID

Transport hazard class(es) (RID) : 6.1

Danger labels (RID) : 6.1

14.4. Packing group

Packing group (ADR) : III

Packing group (IMDG) : III

Packing group (IATA) : III

Packing group (ADN) : III

Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : Yes

Marine pollutant : Yes

Other information : No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : T2

Limited quantities (ADR) : 5kg

Excepted quantities (ADR) : E1

Packing instructions (ADR) : P002, IBC08, LP02, R001

Mixed packing provisions (ADR) : MP10

Portable tank and bulk container

instructions (ADR) : T1

Portable tank and bulk container special

provisions (ADR) : TP33

Tank code (ADR) : SGAH, L4BH

Vehicle for tank carriage : AT

Transport category (ADR) : 2

Special provisions for carriage - Operation

(ADR) : S9

Hazard identification number (Kemler No.) : 60

Tunnel restriction code (ADR) : E

EAC code : 2X

Transport by sea

Limited quantities (IMDG) : 5 kg

Excepted quantities (IMDG) : E1

Packing instructions (IMDG) : P002

IBC packing instructions (IMDG) : IBC08

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Tank instructions (IMDG) : T1
Tank special provisions (IMDG) : TP33
Stowage category (IMDG) : A
MFAG-No : 154

Air transport

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y645
PCA limited quantity max net quantity (IATA) : 10kg
PCA packing instructions (IATA) : 670
PCA max net quantity (IATA) : 100kg
CAO packing instructions (IATA) : 677
CAO max net quantity (IATA) : 200kg
ERG code (IATA) : 6L

Inland waterway transport

Classification code (ADN) : T2
Limited quantities (ADN) : 5 kg
Excepted quantities (ADN) : E1
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EP
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : T2
Limited quantities (RID) : 5kg
Excepted quantities (RID) : E1
Packing instructions (RID) : P002, IBC08, LP02, R001
Mixed packing provisions (RID) : MP10
Portable tank and bulk container instructions (RID) : T1
Portable tank and bulk container special provisions (RID) : TP33
Tank codes for RID tanks (RID) : SGAH, L4BH
Transport category (RID) : 2
Colis express (express parcels) (RID) : CE11
Hazard identification number (RID) : 60

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

15. Regulatory information

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

15.1.1 EU-Regulations

Not listed on REACH Annex XVII

Not listed on REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on the REACH Candidate List

Not listed on the PIC list (Regulation EU 649/2012)

Not listed on the POP list (Regulation EU 2019/1021)

Not listed on the Ozone Depletion list (Regulation EU 2024/590)

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Germany

Water hazard class (WGK)

: WGK 3, Highly hazardous to water (Classification according to AwSV).

Hazardous Incident Ordinance (12. BImSchV)

: Is not subject to the Major Accidents Ordinance (12. BImSchV)

Netherlands

SZW-lijst van kankerverwekkende stoffen

: The substance is not listed

SZW-lijst van mutagene stoffen

: The substance is not listed

SZW-lijst van reprotoxische stoffen – Borstvoeding

: The substance is not listed

SZW-lijst van reprotoxische stoffen –

: The substance is not listed

Vruchtbaarheid

SZW-lijst van reprotoxische stoffen –

: The substance is not listed

Ontwikkeling

Denmark

Danish National Regulations

: Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

16. Other information

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Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand
COD	Chemical oxygen demand
COD	Chemical oxygen demand
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative

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Works : Unit I - Plot No. B/9, Unit II - Plot No. B/11, Badlapur M.I.D.C., Opp. Shobhavat Textile Co., Kulgaon, Badlapur (E), Dist.-Thane-421 503.

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Material Safety Data Sheet



1,10-PHENANTHROLINE MONOHYDRATE
AR REDOX INDICATOR

VERSION : 05
REVISION DATE : 14/06/2025
EFFECTIVE DATE : 16/06/2025

Product Code : 24640

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ED	Endocrine disrupting properties
Full text of H- and EUH-statements	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Flam. Liq. 2	Flammable liquids, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.

Safety Data Sheet (SDS), EU This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

MOLYCHEM INDIA LLP

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