

SAFETY DATA SHEET

Version: v1

Revision Date: 2025-09-14

Print Date: 2025-09-21

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Morpholine
Product Number : M109059
Brand : aladdin
CAS-No. : 110-91-8

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

Identified uses : Laboratory chemicals, Manufacture of substances.

1.3 Company

Company : ALADDIN SCIENTIFIC CORPORATION
Address : 14078 Meridian Parkway,
Riverside, CA. 92518
Telephone : +1 (833) 552-7181
Fax : no data available

1.4 Emergency telephone number

CHEMTREC®, Inside the USA : 1-800-424-9300
CHEMTREC®, Outside the USA :

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Flammable liquids (Category 3), H226

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Acute toxicity, Dermal (Category 3), H311

Skin corrosion (Sub-category 1B), H314

Serious eye damage (Category 1), H318

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

2.2 GHS Label elements, including precautionary statements

Phone: +1 (833) 552-7181 Email: QualityAssurance@aladdinsci.com Website: <https://www.aladdinsci.com/>

Pictogram



Danger

Signal word

Hazard statement(s)

| | |
|-----------|---|
| H226 | Flammable liquid and vapor |
| H311 | Toxic in contact with skin |
| H314 | Causes severe skin burns and eye damage |
| H401 | Toxic to aquatic life |
| H302+H332 | Harmful if swallowed or if inhaled |

Precautionary statement(s)

| | |
|----------------|--|
| P210 | Keep away from heat, hot surface, sparks, open flames and other ignition sources. - No smoking. |
| P233 | Keep container tightly closed. |
| P240 | Ground/bond container and receiving equipment. |
| P241 | Use explosion-proof [electrical/ventilating/lighting/.../] equipment. |
| P242 | Use only non-sparking tools. |
| P243 | Take precautionary measures against static discharge. |
| P260 | Do not breathe dust/fume/gas/mist/vapors/spray. |
| P261 | Avoid breathing dust/fume/gas/mist/vapors/spray. |
| P264 | Wash hands [and ...] thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P321 | Specific treatment (see ... on this label). |
| P330 | Rinse mouth. |
| P363 | Wash contaminated clothing before reuse. |
| P301+P330+P331 | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. |
| P302+P352 | IF ON SKIN: wash with plenty of water. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off Immediately all contaminated clothing. Rinse SKIN with water [or shower]. |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
| P370+P378 | In case of fire: Use ... to extinguish. |
| P405 | Store locked up. |
| P403+P235 | Store in a well-ventilated place. Keep cool. |
| P501 | Dispose of contents/container to an approved waste disposal plant. |
| P301+P317 | IF SWALLOWED: Get medical help. |
| P305+P354+P338 | IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. |
| P317 | Get emergency medical help. |

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P302+P361+P354

IF ON SKIN: Take off Immediately all contaminated clothing. Immediately rinse with water for several minutes.

P316

Get emergency medical help immediately.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

SECTION 3: Composition/information on ingredients

3.1 Substances

| | |
|------------------|---|
| Synonyms | : Tetrahydro-1,4-oxazine 1-oxa-4-azacyclohexane tetrahydro-2h-4-oxazine |
| Formula | : C ₄ H ₉ NO |
| Molecular weight | : 87.12 |
| CAS No. | : 110-91-8 |
| EC-NO. | : 203-815-1 |

| Component | Classification | Concentration |
|------------|---|---------------|
| Morpholine | Flam. Liq. 3; Acute Tox. 4; Acute Tox. 3; Skin Corr. 1B; Eye Dam. 1; H226, H302, H331, H311, H314, H318 | ACS, ≥99% |

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

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

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

no data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

no data available

5.2 Special hazards arising from the substance or mixture

Carbon oxides Nitrogen oxides (NO_x) Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 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.

5.4 Further information

Remove container from danger zone and cool with water. 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

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 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). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols. Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge. Immediately change

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contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons. Hygroscopic.

7.3 Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

| Component | CAS No. | Value | Control parameters | Basis |
|--------------------------|----------|--------|--------------------|--|
| Tetrahydro-2H1,4-oxazine | 110-91-8 | PC-TWA | 60 mg/m3 | Occupational exposure limits for hazardous factors in the workplace - chemical hazardous factors |
| | Note | Skin | | |

8.2 Exposure controls

Appropriate engineering controls

Replace contaminated clothing immediately. Use skin protective lotion. Wash hands and wash your face after using this substance.

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). Tightly fitting safety goggles

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

Flame retardant antistatic protective clothing.

Respiratory protection

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Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

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. Risk of explosion.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties**

| | |
|---|---|
| a) Appearance | form: liquid color: Colorless |
| b) Odour | no data available |
| c) Odour Threshold | no data available |
| d) pH | no data available |
| e) Melting point/freezing point | -4.76°C |
| f) Initial boiling point and boiling range | 128.3°C |
| g) Flash point | 35°C |
| h) Evaporation rate | no data available |
| i) Flammability (solid, gas) | no data available |
| j) Upper/lower flammability or explosive limits | no data available |
| k) Vapour pressure | no data available |
| l) Vapour density | no data available |
| m) Relative density | 0.996 |
| n) Water solubility | It is miscible with water and can be miscible with most organic solvents. |
| o) Partition coefficient: n-octanol/water | no data available |
| p) Auto-ignition temperature | no data available |
| q) Decomposition temperature | no data available |
| r) Viscosity | no data available |
| s) Explosive properties N | no data available |
| t) Oxidizing properties N | no data available |

9.2 Other safety information

no data available

SECTION 10: Stability and reactivity**10.1 Reactivity**

no data available

10.2 Chemical stability

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

10.3 Possibility of hazardous reactions

Exothermic reaction with: Strong oxidizing agents Nitriles acids Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!

10.4 Conditions to avoid

Heating.

10.5 Incompatible materials

Aluminum, nonferrous metals

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - male and female - 1.900 mg/kg (OECD Test Guideline 401) Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach. Acute toxicity estimate Inhalation - 4 h - 3,1 mg/l (Expert judgment) LD50 Dermal - Rabbit - male - 500 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit Result: Causes burns. - 3 min (OECD Test Guideline 404) Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation

Eyes - Rabbit Result: Causes serious eye damage. (OECD Test Guideline 405) Causes serious eye damage.

Respiratory or skin sensitisation

Buehler Test - Guinea pig Result: negative Remarks: (IUCLID)

Germ cell mutagenicity

Test Type: Ames test Test system: Escherichia coli/Salmonella typhimurium Metabolic activation: with and without metabolic activation Result: Positive results were obtained in some in vitro tests. Remarks: (ECHA) Test Type: In vitro mammalian cell gene mutation test Test system: Mouse lymphoma test Metabolic activation: Metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: sister chromatid exchange assay Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479 Result: negative Test Type: unscheduled DNA synthesis assay Test system: rat hepatocytes Metabolic activation: without metabolic activation Method: OECD Test Guideline 482 Result: negative Test Type: Micronucleus test Species: Hamster Application Route: Oral Result: negative Remarks: (ECHA)

Carcinogenicity

no data available

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure

no data available

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Specific target organ toxicity - repeated exposure

no data available

Aspiration hazard

no data available

Additional Information

RTECS: QD6475000 Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. After absorption: Toxic effect on: Liver Kidney Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments. Other dangerous properties can not be excluded. Handle in accordance with good industrial hygiene and safety practice.

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish static test LC50 - Oncorhynchus mykiss (rainbow trout) - 180 mg/l - 96 h Remarks: (in soft water) (Lit.)
Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 44,5 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae static test ErC50 - Skeletonema costatum - 9 mg/l - 72 h (ISO 10253)
Toxicity to bacteria static test EC20 - activated sludge - > 1.000 mg/l - 30 min (OECD Test Guideline 209)

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 25 d Result: 93 % - Readily biodegradable. (OECD Test Guideline 301E)

12.3 Bioaccumulative potential

Bioaccumulation Cyprinus carpio (Carp) - 42 d at 25 °C - 0,5 mg/l(Tetrahydro-2H-1,4-oxazine) Bioconcentration factor (BCF): < 2,8 (OECD Test Guideline 305C)

12.4 Mobility in soil

no data available

12.5 Results of PBT and vPvB assessment

no data available

12.6 Other adverse effects

Forms corrosive mixtures with water even if diluted. Discharge into the environment must be avoided.

SECTION 13:**13.1 Disposal considerations****Product**

Dispose of the remaining and non recyclable solution to a licensed company.

Contaminated packaging

Dispose of as unused product.

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SECTION 14: Transport information

| | | |
|----------------------------------|--|---|
| DOT (US) | | |
| UN number: 2054 | Packing group: I | Class: 8 (3) |
| Proper shipping name: MORPHOLINE | Reportable Quantity(RQ): no data available | Poison Inhalation Hazard: no data available |
| Environmental Hazards: no | | |
| IMDG | | |
| UN number: 2054 | Packing group: I | EMS-No: no data available |
| Proper shipping name: MORPHOLINE | | |
| IATA | | |
| UN number: 2054 | Packing group: I | Class: 8 (3) |
| Proper shipping name: MORPHOLINE | | |

SECTION 15: Regulatory information

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

SECTION 16: Other information

| | |
|-------------------------|---|
| Prepared By | Regulatory Affairs ALADDIN SCIENTIFIC CORPORATION Email: QualityAssurance@aladdinsci.com |
| Creation Date | 11-Dec-2023 |
| Revision Date | 14-Sep-2025 |
| Print Date | 21-Sep-2025 |
| Revision Summary | SDS sections updated v1 |

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