

Section 1. Product and Company Identification

Product Name Piperidine
CAS Number 110-89-4

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Section 2. Hazards Identification

Classification of the substance or mixture

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

Flammable liquids (Category 2), H225
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Acute toxicity, Dermal (Category 3), H311
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard statement(s)

H225 Highly flammable liquid and vapor.
H302 Harmful if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H412 Harmful to aquatic life with long lasting effects.



Precautionary statement(s)

- P210 Keep away from heat/sparks/open flames/hot surfaces. - 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.
- P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
- P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
- P362 Take off contaminated clothing and wash before reuse.
- P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
- P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.
- P501 Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: None

Section 3. Composition / Information on Ingredients

Common Name Piperidine
Synonym(s) Hexahydropyridine
Formula C₅H₁₁N
CAS Number 110-89-4

COMPONENT	CAS NUMBER	CONCENTRATION
Piperidine	110-89-4	≤ 100%



Section 4. First Aid Measures

Description of first aid measures

General advice: Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact: Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

Indication of any immediate medical attention and special treatment needed: No data available

Section 5. Firefighting Measures

Extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special hazards arising from the substance or mixture: Carbon oxides, Nitrogen oxides (NO_x)

Advice for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: Use water spray to cool unopened containers.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection see section 8.

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

Reference to other sections: For disposal see section 13.



Section 7. Handling and Storage

Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. For precautions see section 2.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class (TRGS 510): Flammable liquids

Section 8. Exposure Controls / Personal Protection

Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Piperidine	110-89-4	TWA	1.000000 ppm	USA. Workplace Environmental Exposure Levels (WEEL)
	Remarks	Skin		

Exposure controls

Appropriate engineering controls: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection: Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

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: Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Section 9. Physical and Chemical Properties

Information on basic physical and chemical properties

Form: Clear, liquid

Colour: Colorless

Melting point/range: -13°C (9°F) - lit.

Initial boiling point and boiling range: 106°C (223°F) - lit.

Flash point: 16°C (61°F) - closed cup

Vapor pressure: 53 hPa (40 mmHg) at 29.2°C (84.6°F)

31 hPa (23 mmHg) at 20°C (68°F)

84.8 hPa (63.6 mmHg) at 37.8 °C (100.0°F)

Vapor density: 2.94 - (Air = 1.0)

Relative density: 0.862 g/cm³ at 20°C (68°F)

Partition coefficient: n-octanol/water: log Pow: 0.67

Other safety information

Relative vapor density: 2.94 - (Air = 1.0)

Section 10. Stability and Reactivity

Reactivity: No data available

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid: Heat, flames and sparks.

Incompatible materials: Strong oxidizing agents, Dicyanofurazan, N-nitrosoacetanilide, N-perchlorylpiperazine

Hazardous decomposition products: In the event of fire: see section 5

Section 11. Toxicological Information

Information on toxicological effects

Acute toxicity

LD50 Oral - Rat - 400 mg/kg

LC50 Inhalation - Mouse - 2 h - 6,000 mg/m³

LD50 Dermal - Rabbit - 276 mg/kg

Skin corrosion/irritation

Skin - Rabbit

Result: Severe skin irritation - 24 h

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Severe eye irritation - 24 h

Respiratory or skin sensitization

No data available



Germ cell mutagenicity

Mouse
lymphocyte
DNA damage
Mouse
lymphocyte
Mutation in mammalian somatic cells.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Reproductive toxicity - Rat - Inhalation
Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).
Developmental Toxicity - Rat - Inhalation
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

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

RTECS: TM3500000
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.

Section 12. Ecological Information

Toxicity

Toxicity to fish LC50 - Leuciscus idus (Golden orfe) - 46 - 100 mg/l - 96 h

Persistence and degradability

No data available



Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (US)

UN number: 2401

Class: 8 (3)

Packing group: I

Proper shipping name: Piperidine

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

UN number: 2401

Class: 8 (3)

Packing group: I

EMS-No: F-E, S-C

Proper shipping name: PIPERIDINE

IATA

UN number: 2401

Class: 8 (3)

Packing group: I

Proper shipping name: Piperidine

Section 15. Regulatory Information

SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

Piperidine

CAS-No. 110-89-4

Revision Date 1993-04-24



SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

Massachusetts Right To Know Components

Piperidine (CAS-No. 110-89-4)

Revision Date 1993-04-24

Pennsylvania Right To Know Components

Piperidine (CAS-No. 110-89-4)

Revision Date 1993-04-24

New Jersey Right To Know Components

Piperidine (CAS-No. 110-89-4)

Revision Date 1993-04-24

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

HMIS Rating

Health Hazard: 3

Chronic Health Hazard:

Flammability: 3

Physical Hazard: 0

NFPA Rating

Health Hazard: 3

Fire Hazard: 3

Reactivity Hazard: 0

DEA Listing: This product is a DEA List 1 Chemical.

DEA Chemical Code: 2704

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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