

SAFETY DATA SHEET

Revision Date 08/04/2023

1. PRODUCT AND COMPANY IDENTIFICATION

- 1.1 Product identifiers**
 Product name : Piperidine
 Product Number : RC8206
 Brand : Advanced ChemTech
 CAS-No. : 110-89-4
- 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 : Advanced ChemTech
 5609 Fern Valley Rd, Louisville, KY 40228 USA
 Telephone : +1 833-317-5620
 Fax : +1 502-968-1000
- 1.4 Emergency telephone number** : +1 800-424-9300 Chemtrec

2. HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture:**
 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
 For the full text of the H-Statements mentioned in this Section, see Section 16.
- 2.2 GHS Label elements, including precautionary statements:**
 Pictogram



Signal word	Warning
Hazard statement(s)	
H225	Highly flammable liquid and vapour.
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/ vapours/ 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.

- 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS – none**

3. COMPOSITION/INFORMATION ON INGREDIENTS

- 3.1 Substances**
 Synonyms : Hexahydropyridine

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Formula : C₅H₁₁N
Molecular Weight : 85.15 g/mole
CAS-No. : 110-89-4

Component	Classification	Concentration
Piperidine		
	Flam. Liq. 2; Acute Tox. 4; Acute Skin Corr. 1B; Eye Dam. 1; Aquatic 3; Aquatic Chronic 3; H225, H302, H331, H314, H318, H412	<= 100 %

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

4. FIRST AID MEASURES

4.1 Description of first aid measures

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: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

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

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

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

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

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

5.3 Advice for firefighters: Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information: Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

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

6.2 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.

6.3 Methods and materials for containment and cleaning up: Sweep 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).

6.4 Reference to other sections: For disposal, see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. 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. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s): Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 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		

8.2 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. Face shield (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

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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.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Form: Clear and colorless liquid
b) Odor	no data available
c) Odor Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	Melting point/range: -12.99 °C (8.62 °F)
f) Initial boiling point and boiling range	104 - 106 °C (219 - 223 °F) at 1,013 hPa (760 mmHg)
g) Flash point	16 °C (61 °F) - closed cup
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	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)
l) Vapor density	2.94 - (Air = 1.0)
m) Relative density	0.862 g/cm ³
n) Water solubility	soluble
o) Partition coefficient: n- octanol/water	log Pow: 0.67
p) Auto-ignition temperature	no data available
q) Decomposition temperature	no data available
r) Viscosity	no data available
s) Explosive properties	no data available
t) Oxidizing properties	no data available
9.2 Other safety information:	Relative vapour density 2.94 - (Air = 1.0)

10. STABILITY AND REACTIVITY

- 10.1 Reactivity:** No data available
- 10.2 Chemical stability:** Stable under recommended storage conditions.
- 10.3 Possibility of hazardous reactions:** Vapours may form explosive mixture with air.
- 10.4 Conditions to avoid:** Heat, flames, and sparks
- 10.5 Incompatible materials:** Strong oxidizing agents, Dicyanofurazan, N-nitrosoacetanilide, N-perchlorylpiperazine
- 10.6 Hazardous decomposition products:** Other decomposition products - no data available. In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity: No data available

Oral: LD50 Oral - Rat - 400 mg/kg

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

Dermal: 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.

12. ECOLOGICAL INFORMATION

- 12.1 Toxicity:** Toxicity to fish LC50 - *Leuciscus idus* (Golden orfe) - 46 - 100 mg/l - 96 h
- 12.2 Persistence and degradability:** No data available
- 12.3 Bioaccumulative potential:** No data available
- 12.4 Mobility in soil:** No data available
- 12.5 Results of PBT and vPvB assessment:** PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
- 12.6 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.

13. DISPOSAL CONSIDERATIONS

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13.1 Waste treatment methods

Product: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material

Contaminated packaging: Dispose of as unused product.

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

15. REGULATORY INFORMATION
SARA 302 Components

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

Piperidine	CAS-No.	Revision Date
	110-89-4	1993-04-24

SARA 313 Components

SARA 313: 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.	Revision Date
	110-89-4	1993-04-24

Pennsylvania Right to Know Components

Piperidine	CAS-No.	Revision Date
	110-89-4	1993-04-24

New Jersey Right to Know Components

Piperidine	CAS-No.	Revision Date
	110-89-4	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.

16. OTHER INFORMATION

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Eye Dam.	Serious eye damage
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H311	Toxic in contact with skin.
H311 + H331	Toxic in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
HMIS Rating	
Health hazard:	3
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0
NFPA Rating	
Health hazard:	3
Fire Hazard:	3
Reactivity Hazard:	0

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. Advanced ChemTech shall not be liable for any damage resulting in the handling or from contact with the above product.