

Material Safety Data Sheet (Cyclohexylamine)



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SECTION 1 – PRODUCT AND COMPANY INFORMATION

PRODUCT NAME Cyclohexylamine
SYNONYM Aminocyclohexane
FORMULA C₆H₁₃N
CAS NUMBER 108-91-8

SECTION 2 – COMPOSITON/INFORMATION ON INGREDIENTS

PRODUCT NAME	CAS NUMBER	PURITY
Cyclohexylamine	108-91-8	100%

SECTION 3- HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Flammable Liquid, Highly toxic by ingestion, Toxic by skin absorption, Corrosive

HMIS Classification

Health Hazard: 3

Flammability: 3

Physical hazards: 0

NFPA Rating

Health Hazard: 3

Fire: 3

Reactivity Hazard: 0

Potential Health Effects

Inhalation May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Skin Toxic if absorbed through skin. Causes skin burns.

Eyes Causes eye burns.

Ingestion May be fatal if swallowed. Causes burns.

SECTION 4 – FIRST AID MEASURES

General advice

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

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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. 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.

SECTION 5 – FIRE FIGHTING MEASURES

Flammable properties

Flash point	27 °C (81 °F) - closed cup
Ignition temperature	293 °C (559 °F)

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, 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.

Environmental precautions

Do not let product enter drains.

Methods for cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7- HANDLING AND STORAGE

Handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

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Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Storage

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. Store in cool place. Store under inert gas. Sensitive to carbon dioxide Handle under inert gas. Protect from moisture. Air sensitive.

SECTION 8 - EXPOSURE CONTROLS/ PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update
Cyclohexylamine	108-91-8	TWA	10 ppm 41 mg/m3	1996-05-18
Basis	US. American Conference of Governmental and Industrial Hygienists Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs) and Biological Exposure Indices (BEIs)			

Remarks The agent (mixture , or exposure circumstance) is not classifiable as to its carcinogenicity to humans . Refers to Appendix A -- Carcinogens. 1996 Adoption

Components	CAS-No.	Value	Control parameters	Update
Cyclohexylamine	108-91-8	TWA	10 ppm 40 mg/m3	1989-03-01
Basis	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A			

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose 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).

Hand protection

Handle with gloves.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	light yellow

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Odour	amine-like
Safety data	
pH	11.5 at 100 g/l at 20 °C (68 °F)
Melting point	-17 °C (1 °F)
Boiling point	134 °C (273 °F)
Flash point	27 °C (81 °F) - closed cup
Ignition temperature	293 °C (559 °F)
Lower explosion limit	1.6 % (V)
Upper explosion limit	9.4 % (V)
Vapour pressure	31 hPa (23 mmHg) at 37.7 °C (99.9 °F) 13 hPa (10 mmHg) at 22 °C (72 °F)
Density	0.867 g/mL at 25 °C (77 °F)
Water solubility	soluble
Partition coefficient: n-octanol/water	log Pow: 1.4
Relative vapour density	3.42 - (Air = 1.0)

SECTION 10 – STABILITY AND REACTIVITY DATA

Storage stability

Stable under recommended storage conditions.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Strong oxidizing agents, Carbon dioxide (CO₂), sodium hypochlorite, Organic acids, Mineral acids, Peroxides

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO_x)

Hazardous reactions

Vapours may form explosive mixture with air.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 11 mg/kg

Remarks: Behavioral:Food intake (animal). Lungs, Thorax, or Respiration:Pulmonary emboli.

Gastrointestinal:Other changes.

LC50 Inhalation - rat - 7,500 mg/m³

Remarks: Behavioral:Excitement. Behavioral:Muscle contraction or spasticity.

LD50 Dermal - rabbit - 277 mg/kg

Irritation and corrosion

Skin - rabbit - Severe skin irritation - 24 h

Eyes - rabbit - Severe eye irritation - 24 h

Sensitisation

no data available

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Chronic exposure

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH NTP, or EPA classification.

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.

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.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cough, Shortness of breath, Headache, Nausea

Potential Health Effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	Toxic if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns.
Ingestion	May be fatal if swallowed. Causes burns.

SECTION 12 – ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Biodegradability

Ecotoxicity effects

Toxicity to fish LC50 - *Leuciscus idus* (Golden orfe) - 44 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates.

EC50 - *Daphnia magna* (Water flea) - 49 mg/l - 24 h

EC0 - *Daphnia magna* (Water flea) - 22 mg/l - 24 h

Toxicity to algae EC50 - *Pseudokirchneriella subcapitata* (green algae) - 20 mg/l - 96 h

SECTION 13 – DISPOSAL CONSIDERATION

Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

SECTION 14 - TRANSPORTATION DATA

DOT (US)

UN-Number: 2357 Class: 8 (3) Packing group: II

Proper shipping name: Cyclohexylamine

Marine pollutant: No

Poison Inhalation Hazard: No

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MDG

UN-Number: 2357 Class: 8 (3) Packing group: II EMS-No: F-E, S-C
Proper shipping name: CYCLOHEXYLAMINE
Marine pollutant: No

ATA

UN-Number: 2357 Class: 8 (3) Packing group: II
Proper shipping name: Cyclohexylamine

SECTION 15 – REGULATORY INFORMATION

OSHA Hazards

Flammable Liquid, Highly toxic by ingestion, Toxic by skin absorption, Corrosive

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

Cyclohexylamine CAS-No. 108-91-8 Revision Date 1991-07-01

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

Cyclohexylamine CAS-No. 108-91-8 Revision Date 1991-07-01

Pennsylvania Right To Know Components

Cyclohexylamine CAS-No. 108-91-8 Revision Date 1991-07-01

New Jersey Right To Know Components

Cyclohexylamine CAS-No. 108-91-8 Revision Date 1991-07-01

California Prop. 65 Components

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

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.