

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Cyclohexylamine  
Product Number : 29310  
Brand : Fluka  
Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA  
Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Aminocyclohexane  
Formula :  $C_6H_{13}N$   
Molecular Weight : 99.17 g/mol

| CAS-No.                | EC-No.    | Index-No.    | Concentration |
|------------------------|-----------|--------------|---------------|
| <b>Cyclohexylamine</b> |           |              |               |
| 108-91-8               | 203-629-0 | 612-050-00-6 | -             |

### 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.

**4. FIRST AID MEASURES****General advice**

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

**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.

**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.

**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.

**7. HANDLING AND STORAGE****Handling**

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

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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

| Components      | CAS-No.   | Value | Control parameters             | Update     | Basis  |
|-----------------|---|-------|--------------------------------|------------|--|
| Cyclohexylamine | 108-91-8  | TWA   | 10 ppm<br>41 mg/m <sup>3</sup> | 1996-05-18 | 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 .<br>Refers to Appendix A -- Carcinogens.<br>1996 Adoption |       |                                |            |  |
|                 |   | TWA   | 10 ppm<br>40 mg/m <sup>3</sup> | 1989-03-01 | 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.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form                      liquid  
Colour                    light yellow

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: log Pow: 1.4  
n-octanol/water  
Relative vapour density 3.42  
- (Air = 1.0)

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Conditions to avoid

Heat, flames and sparks.

### Materials to avoid

Strong oxidizing agents, Carbon dioxide (CO<sub>2</sub>), sodium hypochlorite, Organic acids, Mineral acids, Peroxides

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NO<sub>x</sub>)

### Hazardous reactions

Vapours may form explosive mixture with air.

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD<sub>50</sub> Oral - rat - 11 mg/kg

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

LC<sub>50</sub> Inhalation - rat - 7,500 mg/m<sup>3</sup>

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

LD<sub>50</sub> 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

### 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

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

### Additional Information

RTECS: GX0700000

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## 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

### Further information on ecology

no data available

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## 13. DISPOSAL CONSIDERATIONS

### 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.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN-Number: 2357 Class: 8 (3) Packing group: II  
Proper shipping name: Cyclohexylamine  
Marine pollutant: No  
Poison Inhalation Hazard: No

### IMDG

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

### IATA

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

## 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

|                 | CAS-No.  | Revision Date |
|-----------------|----------|---------------|
| Cyclohexylamine | 108-91-8 | 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

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

### Pennsylvania Right To Know Components

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

### New Jersey Right To Know Components

|                 | CAS-No.  | Revision Date |
|-----------------|----------|---------------|
| Cyclohexylamine | 108-91-8 | 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.

## 16. OTHER INFORMATION

### Further information

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