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

1.1 Product identifiers

Product name: Cyclohexylamine
Product Number: 240648
Brand: Aldrich
Index-No.: 612-050-00-6
CAS-No.: 108-91-8

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

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

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, Dermal (Category 4), H312
- Skin corrosion (Category 1B), H314
- Serious eye damage (Category 1), H318
- Reproductive toxicity (Category 2), H361
- Short-term (acute) aquatic hazard (Category 3), H402

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

2.2 GHS Label elements, including precautionary statements

Aldrich - 240648
Pictogram

Signal Word: Danger

Hazard statement(s)
H226 Flammable liquid and vapor.
H302 + H312 Harmful if swallowed or in contact with skin.
H314 Causes severe skin burns and eye damage.
H361 Suspected of damaging fertility or the unborn child.
H402 Harmful to aquatic life.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
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.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
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/ doctor 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/ doctor.
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/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
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

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms: Aminocyclohexane

Formula: C₆H₁₃N
Molecular weight: 99.17 g/mol
CAS-No.: 108-91-8
EC-No.: 203-629-0
Index-No.: 612-050-00-6

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Aminocyclohexane</td>
<td>Flam. Liq. 3; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Repr. 2; Aquatic Acute 3; H226, H302, H312, H314, H318, H361, H402</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

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

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. Call in physician.

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
If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. 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**
Carbon dioxide (CO2) Foam Dry powder

**Unsuitable extinguishing media**
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides
Nitrogen oxides (NOx)
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). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). 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

**Advice on protection against fire and explosion**
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.
**Hygiene measures**
Immediately change 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**

**Storage conditions**
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.
Handle under inert gas. Protect from moisture. Air sensitive.

**Storage class**
Storage class (TRGS 510): 3: Flammable liquids

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

---

**SECTION 8: Exposure controls/personal protection**

**8.1 Control parameters**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Aminocyclohexanec</td>
<td>108-91-8</td>
<td>TWA</td>
<td>10 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks: Not classifiable as a human carcinogen

<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>10 ppm 40 mg/m³</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PEL</td>
<td>10 ppm 40 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

**8.2 Exposure controls**

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with 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**
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances...
substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact
Material: Viton®
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.7 mm
Break through time: 120 min
Material tested: Butoject® (KCL 898)

Body Protection
Flame retardant antistatic protective clothing.

Respiratory protection
required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

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: light yellow

b) Odor
amine-like

c) Odor Threshold
No data available

d) pH
11.5 at 100 g/l at 20 °C (68 °F)

e) Melting point/freezing point
Melting point/range: -17 °C (1 °F) - lit.

f) Initial boiling point and boiling range
134 °C 273 °F - lit.

g) Flash point
27 °C (81 °F) - closed cup

h) Evaporation rate
No data available

i) Flammability (solid, gas)
No data available

j) Upper/lower
Upper explosion limit: 9.4 % (V)
**SECTION 10: Stability and reactivity**

**10.1 Reactivity**
Vapor/air-mixtures are explosive at intense warming.

**10.2 Chemical stability**
The product is chemically stable under standard ambient conditions (room temperature).

**10.3 Possibility of hazardous reactions**
Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitrosamines!
Violent reactions possible with:
- Strong oxidizing agents
- Acid chlorides
- Acid anhydrides
- halogens
- organic nitro compounds
- sodium hypochlorite
- acids

**10.4 Conditions to avoid**
Heating.

Aldrich - 240648
10.5 **Incompatible materials**
- various plastics, Copper, Copper alloys

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 - 432 mg/kg
- Remarks: (ECHA)
- Inhalation: No data available
- Dermal: No data available
- No data available

**Skin corrosion/irritation**
- Skin - Rabbit
- Result: Corrosive - 20 h
- Remarks: (ECHA)
- Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Serious eye damage/eye irritation**
- Eyes - Rabbit
- Result: Corrosive
- Remarks: (ECHA)

**Respiratory or skin sensitization**
- No data available

**Germ cell mutagenicity**
- Test Type: Ames test
- Test system: Salmonella typhimurium
- Metabolic activation: with and without metabolic activation
- Method: OECD Test Guideline 471
- Result: negative
- Test Type: In vitro mammalian cell gene mutation test
- Test system: Chinese hamster ovary cells
- Metabolic activation: with and without metabolic activation
- Result: negative
- Remarks: (ECHA)
- Test Type: unscheduled DNA synthesis assay
- Test system: rat hepatocytes
- Metabolic activation: without metabolic activation
- Result: negative
- Remarks: (ECHA)

**Carcinogenicity**
- IARC: No ingredient 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 ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Aldrich - 240648
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

Reproductive toxicity
Suspected of damaging the unborn child.
Suspected of damaging fertility.

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
Repeated dose toxicity - Rat - male and female - Oral - 24 Months - NOAEL (No observed adverse effect level) - 15 mg/kg
Remarks: (ECHA)

RTECS: GX0700000
burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish semi-static test LC50 - Oryzias latipes - 33 mg/l - 96 h (OECD Test Guideline 203)

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 36.3 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Pseudokirchneriella subcapitata - 29.3 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria static test EC50 - activated sludge - 2,152 mg/l - 3 h (ISO 8192)

Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) semi-static test NOEC - Daphnia magna (Water flea) - 1.6 mg/l - 21 d (OECD Test Guideline 211)

semi-static test EC50 - Daphnia magna (Water flea) - 3.9 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability
Biodegradability aerobic - Exposure time 20 d
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 Endocrine disrupting properties
No data available

12.7 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 2357  Class: 8 (3)  Packing group: II
Proper shipping name: Cyclohexylamine
Reportable Quantity (RQ):
Poison Inhalation Hazard: No

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

IATA
UN number: 2357  Class: 8 (3)  Packing group: II
Proper shipping name: Cyclohexylamine

SECTION 15: Regulatory information

SARA 302 Components
1-Aminocyclohexane  CAS-No.  Revision Date 108-91-8 2007-03-01

Aldrich - 240648
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, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
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Pennsylvania Right To Know Components

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<td>1-Aminocyclohexane</td>
<td>108-91-8</td>
<td>2007-03-01</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Further information
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. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.7  Revision Date: 06/15/2023  Print Date: 12/23/2023