

Cyclohexylamine

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Chemical name:	Cyclohexylamine
EC number:	203-629-0
CAS No.	108-91-8
Index No:	612-050-00-6
Registration number:	01-2119486803-29-003
Chemical characterisation:	Organic mono-constituent substance

1.2 Relevant Identified Uses of the Substance and Uses Advised Against

Manufacture of chemical products such as dyes, dry cleaning agents, insecticides and corrosion inhibitors.

1.3 Details of the supplier of the safety data sheet

Company:	BONDALTI CHEMICALS, SA Rua do Amoníaco Português, nº 10 Quinta da Indústria, Beduído 3860-680 Estarreja - Portugal
Telephone:	+351 234 810 300
Fax:	+351 234 810 361
E-mail:	bondalti@bondalti.com
Web page:	www.bondalti.com
Contact:	Maria José Alves
E-mail:	fds@bondalti.com

1.4 Emergency telephone number

BONDALTI CHEMICALS, SA	
Telephone:	+351 234 810 300 (24 hours/day - 7 days/week)
Fax:	+351 234 810 361
Portuguese emergency number	112
SOS – Poisons Centre	In England and Wales: NHS 111 - dial 111 In Scotland: NHS 24 - dial 111 In North Ireland: Contact local GP or pharmacist during normal hours; In Republic of Ireland: 01 809 2166 United States of America: 1-800-222-1222.

Cyclohexylamine**SECTION 2: HAZARDS IDENTIFICATION****2.1 Classification of the Substance****Regulation (EC) No 1272/2008**

Hazard class	Hazard category	Hazard Statements
Flammable Liquids	Flam. Liq. 3	H226: Flammable liquids and vapours.
Reproductive Toxicity	Repr. 2	H361f: Suspected of damaging fertility
Acute Toxicity	Acute Tox. 4	H302: Harmful if swallowed
	Acute Tox. 4*	H312: Harmful in contact with skin
Skin Corrosion/irritation	Skin Corr. 1B	H314: Causes severe skin burns and eye damage

2.2 Label elements**Regulation (EC) No 1272/2008**

Hazard pictogram:



GHS02



GHS05



GHS07



GHS08

Signal word:

Danger

Hazard

statements:

H226: Flammable liquids and vapours.

[H361f: Suspected of damaging fertility.](#)

H312: Harmful in contact with skin.

H302: Harmful if swallowed

H314: Causes severe skin burns and eye damage.

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Precautionary recommendations:

P201: Obtain special instructions before use.

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P301+P312 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell.

P302+P352 IF ON SKIN: wash with plenty of soap and water.

P308+P313 IF exposed or concerned: get medical advice/attention.

P361+P364 Take off immediately all contaminated clothing and wash it before reuse.

P370+P378 In case of fire: use carbon dioxide (CO₂), extinguishing powder, dry sand or lime for extinction.

P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other hazards

Not available.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous substances

Chemical name	CAS No.	EC No.	REACH No.	Concentration [%]
Cyclohexamine	108-91-8	203-629-0	01-2119486803-29-003	> 99% (p/p) dry base

3.2 Mixtures

Not applicable.

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Seek medical advice. Show this safety sheet to the physician on duty.

If inhaled:	Remove victim to a well-ventilated area. Administer artificial respiration breathing is difficult or has stopped, and give oxygen afterwards if necessary. Place the victim on their side in the safety position. Call immediately for medical attention.
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If in contact with skin:	Remove contaminated clothing and shoes under an emergency shower for at least 15 min. Wash the exposed skin with plenty of running water. Seek medical advice if any effect on the skin persists. Cover the affected part with sterile bandages during transport to medical care. Do not use fatty oils/creams or medications without medical advice.
If in contact with the eyes:	Rinse with plenty of water (minimum 15 minutes), lifting up the eyelids. Remove contact lenses if present and possible to do.
If swallowed:	Rinse out the mouth. Do NOT induce vomiting. Call for urgent medical attention, informing the physician of the product swallowed and the state of the victim. Never give anything by mouth to an unconscious person.

First aider protection

Respiratory protection:	Protection mask with suitable filter (ABEK).
Hand protection:	Use neoprene rubber gloves.
Eye protection:	Use chemical resistant goggles.

4.2 Most important symptoms and effects, both acute and delayed**4.2.1 Inhalation**

- Harmful if inhaled.
- Causes irritation to the respiratory system.

4.2.2 Skin contact

- Can cause skin allergies.
- Harmful if absorbed by the skin.
- Causes burns on any contact area.

4.2.3. Eye contact

- Causes burns on any contact area.

4.2.4. Swallowing

- Can be fatal if swallowed.
- Effects on the central nervous system.

Cyclohexylamine**4.3 Indication of any immediate medical attention and special treatment needed**

- Eye contact: Rinse immediately with water for 30 minutes. In the event of difficulty opening eyelids, administer analgesic collyrium (oxybuprocaine).
- Skin contact: Remove clothing and rinse with plenty of water.
- Swallowing: Rinse mouth out with water. Do not induce vomiting, give milk. Artificial respiration and/or oxygen may be required.

Treat as an alkaline substance.

SECTION 5: FIREFIGHTING MEASURES**5.1 Extinguishing media:**

Suitable extinguishing media:	In cases of large fires, use water spray or alcohol-resistant foam. In cases of small fires, use carbon dioxide (CO ₂), extinguishing powder, dry sand or lime.
Unsuitable extinguishing media:	n.a.

5.2 Special hazards arising from the substance

- Burning releases dangerous gases (including nitrous oxides, ammonia or carbon monoxide).
- Deposits exposed to heat can explode.
- The vapours are denser than air and can travel considerable distances, causing fires or explosions far from the source.

5.3 Advice for firefighters

- In the event of fire, use self-contained breathing apparatus and protective rubber gloves, clothing and boots.
- Cool the containers/tanks by spraying with water.
- Send the products used in the firefighting for treatment.

SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1 Personal Precautions, Protective Equipment and Emergency Procedures**

- Emergency staff should always stay upwind and keep out of low areas.
- Remove ignition sources.

Cyclohexylamine**6.1.1 For non-emergency personnel**

- Move people to a safe area.

6.1.2 For emergency responders

- Use suitable personal protective equipment (e.g.: chemical protection suit; goggles, protective footwear, gloves and suitable respiratory protective equipment)
- Evacuate staff to safety areas.
- Keep people away.
- Ventilate the area.

6.2 Environmental precautions

- If the spillage occurs on a public highway, mark the place with signs and involve the Authorities and Fire Service.
- Prevent the product from flowing into drains, watercourses and permeable or cultivated ground, by means of earth or sand.
- Do not flush into surface water or into sanitary sewer system.
- If the product contaminates rivers, lakes or sewers, inform the responsible authorities.

6.3 Methods and Materials for Containment and Cleaning up**6.3.1 – Contain the spill with protective barriers.**

- Cover the sewer exits.

6.3.2 – Use absorbent material.

- Gather the waste material into metal containers suitable for recovery or treatment.
- Keep the waste in duly labelled containers.
- Use non-sparking tools and equipment, e.g.

6.3.3 – Do not use water on spills of this product.

- Spillages can be neutralised with sulphamic acid or sodium bisulphate.

6.4 Reference to other sections

- See Sections 7 and 8 for protective measures.
- See Section 13 on waste treatment.

Cyclohexylamine**SECTION 7: HANDLING AND STORAGE****7.1 Precautions for safe handling**

- No smoking
- Avoid contact with skin and eyes.
- Avoid breathing in vapour or mist.
- Keep away from any flame or ignition source.
- Take precautions to prevent static electricity from forming.

7.2 Conditions for safe storage, including any incompatibilities

- Store in cool and well-ventilated areas.
- The storage area must be away from heat sources, sparks or flames.
- The area surrounding the storage must be provided with a retention basin.
- Metal containers used in transfer operations must have an earthing connection.
- The unloading, storage or handling areas must be equipped with: emergency shower and eye-wash; safety signs; fire extinguishing media.
- Do not use reactive metal containers (see section 10: Stability and Reactivity).
- Use only flame-proof tools and equipment, especially when opening and closing cyclohexylamine containers.

7.3 Specific end use(s)

Not available.

SECTION 8: EXPOSURE CONTROL/PERSONAL PROTECTION**8.1 Control parameters****8.1.1 Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Legal basis
Cyclohexamine	108-91-8	10 ppm/41 mg ³	TLV-TWA	EH40/2005
		10 ppm/40 mg ³	TLV-TWA	NIOSH

DNEL Values

Data unavailable.

Cyclohexylamine**PNEC Values**

Data unavailable.

8.2 Exposure controls**8.2.1 Appropriate engineering controls**

Use general ventilation at the location.

8.2.2 Individual Protection Measures, such as Personal Protective Equipment

Respiratory protection:	Protection mask with suitable filter (ABEK).
Hand protection:	Neoprene rubber gloves.
Eye protection:	Protective glasses/goggles.
Skin and body protection:	Rubber suit and boots.
Hygiene measures:	Do not eat, drink or smoke during the use of this product. Wash contaminated clothing before reuse. Wash yourself at the end of the work shift.

8.2.3 Environmental Exposure Controls[Discard waste in compliance with applicable regulations:](#)

- Commission Decision 2014/955/EU - list of waste
- Commission Regulation (EU) No 1357/2014 of 18 December 2014 - replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste [and repealing certain Directives](#)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

a) Appearance:	Colourless to slightly yellow liquid
b) Odour:	Fish-like.
c) Odour threshold:	No data (*)
d) pH:	11.9
e) Melting point/freezing point:	-16.99 °C
f) Initial boiling point and boiling range:	134 °C at 760 mm Hg
g) Flash point:	28.3 °C
h) Evaporation rate:	No data (*)
i) Flammability (solid, gas):	No data (*)

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j) Upper/lower limits of flammability or explosivity:	8.2 %/0.66% (in air by volume)
k) Vapour pressure:	31 hPa at 37.7 °C 13 hPa at 22 °C
l) Vapour density:	0.87 at 20 °C
m) Relative density:	3.24 (air =1)
n) Solubility(ies):	Complete in water (100%)
o) Partition coefficient n-octanol/water:	log Pow: 1.4
p) Auto-ignition temperature:	293 °C
q) Decomposition temperature:	No data (*)
r) Viscosity:	No data (*)
s) Explosive properties:	No data (*)
t) Oxidising Properties:	No data (*)

(*) No reliable data source for this data

9.2 Other information

Not available.

SECTION 10: STABILITY AND REACTIVITY**10.1 Reactivity**

See Section 10.5.

10.2 Chemical stability

Stable under normal conditions of use and storage.

10.3 Possibility of Hazardous Reactions

Reactions with peroxides can be violent.

10.4 Conditions to avoid

Avoid proximity to ignition sources.

10.5 Incompatible materials

- Mineral acids (sulphuric, phosphoric, etc.).
- Organic acids (e.g. acetic and citric acid).
- Oxidising agents (e.g. perchlorates and nitrates).
- Sodium and calcium hypochlorite.

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- The product demonstrates corrosive effects on copper, aluminium and zinc, as well as on galvanised surfaces.

10.6 Hazardous decomposition products

See section 5.2.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Potential acute effects on health

Inhalation	May release gases, vapours or dust harmful or corrosive to the respiratory system
Swallowing	Toxic if swallowed. May cause burns in the mouth, throat and stomach.
Skin contact	Causes severe burns. Toxic in contact with skin.
Eye contact	Poses serious risk to eyes.

<i>Hazard Class</i>	<i>Dose descriptor</i>	<i>Method/reference</i>
Acute oral toxicity	Oral Mouse LD50 300 mg/kg	
Acute dermal toxicity:	Skin Rabbit LD50 275 mg/kg	
Acute inhalation toxicity:		
Corrosion	Corrosive. Studies contain results indicating skin necrosis	
Skin Irritation	Rabbit – Serious skin irritation - 24h	
Serious Eye Lesions/ Eye irritation	Rabbit - Serious eye irritation-24 h	
Respiratory or Skin Sensitivity	Data unavailable	
Germ cell mutagenicity	Suspected of affecting fertility.	
Carcinogenicity	Data unavailable	
Reproductive Toxicity	Reproductive Toxic suspected for humans	
STOT - SE:		
STOT - RE:	Chronic LOAEL Oral: Mouse – male, female; 15 mg/kg	113 weeks; 7 days a week
Aspiration Hazard:		

Cyclohexylamine**SECTION 12: ECOLOGICAL INFORMATION****12.1 Toxicity****Information on environmental effects**

Hazard Class	Dose descriptor	Method/reference
Toxicity in fish:	LC50 - <i>Leuciscus idus</i> (Orfe) -44 mg/l-96 h	
Toxicity to daphnia and other aquatic invertebrates:	EC50 - <i>Daphnia magna</i> - 49 mg/l - 24 h	
Toxicity in algae:	EC50 - <i>Pseudokirchneriella subcapitata</i> (green alga) - 20 mg/l - 96 h	
Toxicity in bacteria:	Data unavailable	

Cyclohexylamine shows acute toxicity, moderate for most aquatic species, being very toxic for certain types of algae.

12.2 Persistence and degradability

Biodegradability: In various tests, cyclohexylamine was rapidly biodegradable.

Degradation (abiotic): Data unavailable

12.3 Bioaccumulative potential

Tests show that this product has a low potential for bioaccumulation.

12.4 Mobility in soil

Data unavailable

12.5 Results of PBT and vPvB assessment

Data unavailable

12.6 Other adverse effects

Hazardous to aquatic organisms.

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SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal procedures:

- Wastes of organic compounds can be adsorbed with the specific absorbent material.
- EWC Code 07 01 99 - Wastes not otherwise specified

Packaging treatment:

- Recycling of packaging is preferable to elimination or incineration.
- Do not wash the containers, or will need to consider the cleaning water as hazardous waste.
- EWC Code 15 01 10(*) – Packaging containing / contaminated by waste from hazardous substances

Applicable regulations:

- Commission Decision 2014/955/EU - list of waste
- Commission Regulation (EU) No 1357/2014 of 18 December 2014 - replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste [and repealing certain Directives](#)

SECTION 14: TRANSPORT INFORMATION

ADR	UN number: 2357 UN proper shipping name: Cyclohexylamine Transport hazard class(es): 8 Packing group: II Classification code: CF1 Hazard identification no.: 83 Labels: 8+3 Corrosive + Flammable Tunnel restriction code: (D/E) Environmentally hazardous: No
IATA	UN number: 2357 UN proper shipping name: Cyclohexylamine Transport hazard class(es): 8 Packing group: II Labels: 8 Packing Instruction (freight aircraft): 855 quantity Max. Liq. Qty/Pkg : 30 L Packing Instruction (passenger aircraft): 851 quantity Max. Liq. Qty/Pkg : 1 L Packing Instructions (LQ): Y840 quantity Max. Liq. max Qty/Pkg : 0.5 L Environmentally hazardous: No

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IMDG	UN number: 2357 UN proper shipping name: Cyclohexylamine Transport hazard class(es): 8 Packing group: II Hazard identification no.: 83 Hazard Label: 8+3 Corrosive + Flammable EmS No.1, No.2: F-E, S-C Marine Pollutant: No
RID	UN number: 2357 UN proper shipping name: Cyclohexylamine Transport hazard class(es): 8 Packing group: II Classification code: CF1 Hazard identification no.: 83 Labels: 8+3 Corrosive + Flammable Environmentally hazardous: No

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance

This safety sheet was made taking into consideration the following legislation:

Community Legislation:

- Regulation (EC) No.1907/2006 of the European Parliament and of the Council of 18 December, concerning the registration, evaluation, authorisation and restriction of chemicals (REACH), and respective amendments;
- Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, [amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation \(EC\) No 1907/2006](#)
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste;
- Commission Regulation (EU) No 1357/2014 of 18 December 2014 - replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives
- Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC
- Commission Decision 2014/955/EU - list of waste

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- Directive 2008/68/EC of the European Parliament and of the Council of 24 September, on the inland transport of dangerous goods

15.2 Chemical safety assessment

A chemical safety report was made.

SECTION 16: OTHER INFORMATION

The information contained in this safety data sheet is based on our best knowledge up to the date of publication and is presented in good faith.

It should however be understood as a guide, not constituting a guarantee, since operations with the product are not under our control, [Bondalti Chemicals, SA](#) does not take any responsibility for resulting loss or damage.

Under no circumstances does this information exempt the user of this product from complying with and respecting the legislation and regulations which apply to this product, to safety, to hygiene and to the protection of human health and of the environment, and from carrying out sufficient verification and procedural efficiency testing.

Recommendations for occupational training:

Provide the operators with suitable information, instruction and training on the product.

List of Changes:

DATE	REVISION	CHANGES MADE
29-04-2016	12	Word "SECTION" added to all section titles
		Section 1.1 to 1.4
		Section 2.1 and 2.2 – Classification and labelling relative to directive 67/548/EEC or 1999/45/EC
		Section 2.3
		Section 3.2
		Section 4.1 to 4.3
		Section 5.1
		Section 6.1 to 6.4
		Section 7.1 and 7.3
		Section 8.2.2. and 8.2.3
		Section 9.1 and 9.2.

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List of Changes (cont.):

DATE	REVISION	CHANGES MADE
29-04-2016	12	Section 10.1 and 10.6
		Section 11.1
		Section 12.1, 12.2, 12.4 to 12.6
		Section 13
		Section 14
		Section 15
		Section 16
13-6-2018	13	Section 1.3 and 1.4
		Section 2.1 and 2.2
		Section 8.2.3
		Section 13.1
		Section 15

References:

[Chemical Safety Report Cyclohexylamine- 2010-07-30 - CSR-PI-5.2.1](#)

Abbreviations mentioned on the Sheet:

ACGIH – American Conference of Governmental Industrial Hygienists
 Acute Tox. 4 – Acute oral toxicity, category 4
 Acute Tox. 4* – Acute dermal toxicity, category 4
 ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road
 CAS No. – World authority for chemical information
 DNEL – “Derived Non Effect Concentration”
 EC No. – European Community
 EC50 – Half of maximum effective concentration
 Flam. Liq. 3 – Flammable liquids, category 3
 IATA – “International Air Transport Association”
 IMDG – “International Maritime Dangerous Goods”
 LC50 – Median Lethal Concentration
 LOW – European List of Waste
 LQ – Limited Quantities
 PBT - Persistent, bioaccumulative and toxic.
 PC – Product Category
 PNEC – “Predicted Non Effect Concentration”

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REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals

Repr. 2 – Reproductive toxicant ,category 2

RID – “International Rule for Transport of Dangerous Substances by Railway”

SDS: - Safety Data Sheet

Skin Corr. 1B - Skin Corrosive, category 1B

TLV-TWA – Threshold Limit Value – Time weighted average (8-hr)

vPmB - Very persistent and very bioaccumulative.