

Cyclohexanol

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

1.1 Product identifier

Chemical name:	Cyclohexanol
EC number:	203-630-6
CAS No.	108-93-0
Index No:	603-009-00-3
Registration number:	01-2119447488-26-0010
Chemical characterisation:	Organic mono-constituent substance

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

Relevant Identified Uses: Chemical Production

Uses advised against: None

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
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 Scotland: NHS 24 - dial 111 In North Ireland: Contact local GP or pharmacist during normal hours; In Republic of Ireland: 01 809 2166 Unite States of America: 1-800-222-1222.hours;

Cyclohexanol

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Self-Classification of Cyclohexanol according to CLP regulation 1272/2008-criteria

Hazard class	Hazard category	Hazard Statements
Acute Oral Toxicity	Acute Tox. 4	H302: Harmful if swallowed
Acute Dermal Toxicity	Acute Tox. 4	H312: Harmful in contact with skin
Acute Inhalation Toxicity	Acute Tox. 4	H332: Harmful if inhaled
Skin Irritation	Skin Irrit. 2	H315: Causes skin irritation
Serious Eye Irritation	Eye Irrit. 2	H319: Causes serious eye irritation
Specific target organ toxicity — single exposure	STOT SE 3	H335: May cause respiratory irritation;
Hazardous to the Aquatic Environment	Aquatic Chronic 3	H412: Harmful to aquatic life with long lasting effects

Justification for Self-Classification

Cyclohexanol has a harmonised classification under the CLP Regulation (EC) No 1272/2008 (Index No 603-009-00-3), which is given in the table above. After reviewing all available data and taking into account the newly generated ecotoxicity data, it was necessary to complement the harmonised classification with additional classifications, which are also given in the table.

2.2 Label elements

Regulation (EC) No 1272/2008

Hazard pictogram:



GHS07

Signal word:

Danger

Cyclohexanol

Hazard statements:	H302: Harmful if swallowed H312: Harmful in contact with skin H332: Harmful if inhaled H315: Causes skin irritation H319: Causes serious eye irritation H335: May cause respiratory irritation; H412: Harmful to aquatic life with long lasting effects
Precautionary recommendations:	P261: Avoid breathing dust/fume/gas/mist/vapours/ spray. P270: Do not eat, drink or smoke when using this product. P301+P312: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician if you feel unwell P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P403+P233: Store in a well-ventilated place. Keep container tightly closed P501: Dispose of contents/container to in accordance with local regulation

2.3 Other hazards

The substance is not classified as PBT and vPvB.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances****Hazardous substances**

Chemical name	CAS No.	EC No.	REACH No.	Concentration [%]
Cyclohexanol	108-93-0	203-630-6	01-2119447488-26-0010	99,6%

Cyclohexanol

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

General advice:	Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control center or physician, or going for treatment. Take off immediately all contaminated clothing
If inhaled:	Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or Poison Control Centre immediately.
If in contact with skin:	Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.
If in contact with the eyes:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required
If swallowed:	If swallowed, seek medical advice immediately and show this container or label and the SDS. Do not induce vomiting.

First aider protection

Respiratory protection:	Protection mask with suitable filter (ABEK).
Hand protection:	Use nitrile rubber gloves.
Eye protection:	Use tight-fitting chemical safety goggles..

4.2 Most important symptoms and effects, both acute and delayed

4.2.1 Inhalation

The substance is irritating to the respiratory tract.
May cause cough, dizziness, drowsiness, headache, nausea or sore throat

4.2.2 Skin contact

The substance is irritating to the skin.
Dry skin and redness.

Cyclohexanol**4.2.3. Eye contact**

The substance is irritating to the eyes.
Redness and pain.

4.2.4. Swallowing

Abdominal pain and diarrhoea.

4.3 Indication of any immediate medical attention and special treatment needed

There is no specific antidote available. Treat symptomatically.

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

Suitable extinguishing media:	Water spray, carbon dioxide, dry chemical, chemical foam alcohol resistant
Unsuitable extinguishing media:	Do not use a solid water stream as it may scatter and spread fire.

5.2 Special hazards arising from the substance or mixture

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion.

In case of fire and/or explosion do not breathe fumes

5.3 Advice for firefighters

In the event of fire, wear full protective clothing and self – contained breathing apparatus with full face piece operated in the positive pressure.

Containers in danger of catching fire must be cooled with water and, if possible, removed from the danger zone. Do not allow the contaminated fire extinguishing water to penetrate the soil, underground waters or surface waters.

Cyclohexanol**SECTION 6: ACCIDENTAL RELEASE MEASURES****6.1 Personal precautions, protective equipment and emergency procedures**

Wear suitable protective equipment.
Ensure adequate ventilation.
Sources of ignition should be removed.
Isolate hazard area, and keep personal up wind and far from spill.

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 and gloves)
- Evacuate staff to safety areas.
- Keep people away.
- Ventilate the area.

6.2 Environmental precautions

- Do not flush into surface water or into sanitary sewer system.
- Build dikes to contain flow
- 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 – For large quantities: remove the product with pump.**

- Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite).
- Contain spill or cover liquid if possible.

6.3.2 - Collect waste materials in containers suitable for this substance.**6.3.3 - Use anti-sparking tools and equipment.**

- Do not use combustible materials
- Do not use water on spills of this product.

Cyclohexanol

6.4 Reference to other sections

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

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Ensure thorough ventilation of stores and work areas.
Prevent electrostatic charge.
Sources of ignition should be removed.
Fire extinguishers should be kept handy.
Avoid contact with skin and eyes.
When using, do not eat, drink or smoke.

7.2 Conditions for safe storage, including any incompatibilities

Separate from oxidizing materials
Do not allow smoke on storage and use areas.
Metal containers involving the transfer of this chemical should be grounded and bonded
Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep out of the reach of children.
Keep away from food, drink and animal feed.

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
Cyclohexanol	108-93-0	50 ppm	TWA	EH40/2005 Workplace Exposure Limits

TWA: time weight average (8 hours day)

Cyclohexanol

8.1.2 DNEL/PNEC value(s)

DNEL value(s)

Inhalation Systemic effects - Long-term, for workers: 40.3 mg/m³
 Dermal Systemic effects - Long-term, for workers: 1.43 mg/kg bw/day
 Inhalation Systemic effects - Long-term, for general population: 10 mg/m³
 Dermal Systemic effects - Long-term, for general population: 0.716 mg/kg bw/day
 Oral Systemic effects - Long-term, for general population: 0.716 mg/kg bw/day

PNEC value(s)

PNEC_{Aqua - freshwater} = 0.0191 mg/L
 PNEC_{freshwater (intermittent release)} = 0.17 mg/L
 PNEC_{Aqua - Marinewater} = 0.002 mg/L
 PNEC_{Marinewater (intermittent release)} = 0.017 mg/L
 PNEC_{STP} = 199.5 mg/L
 PNEC_{Sediments(Freshwater)} = 0.09 mg/kg sed d.w.
 PNEC_{Sediments(Marinewater)} = 0.009 mg/kg sed d.w.
 PNEC_{soil} = 0.007 mg/kg soil d.w.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

- Ensure adequate ventilation.
- Ensure that there are eye-baths and an emergency shower next to the workplace.

8.2.2 Individual Protection Measures, such as Personal Protective Equipment

Respiratory protection:	A system of local and/or general exhaust is recommended to keep employee exposures below ELV. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into general work area. Use personal face mask with filters ABEK.
Hand protection:	Wear nitrile rubber gloves according to EN 374. Recommendation: Contaminated gloves should be discarded.
Eye protection:	Use chemical safety goggles or face shield.
Skin and body protection:	Wear acid resistant jacket and pants if splashing or liquid contact is anticipated.
Hygiene measures:	Do not drink, eat or smoke in the workplace

Cyclohexanol**8.2.3 Environmental Exposure Controls**

Eliminate rinsing water in compliance with applicable regulations:

- 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council;

- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and other amendments;

- 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.

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

a) Appearance:	Clear liquid to hygroscopic crystals
b) Odour:	Camphor/Menthol odour
c) Odour threshold:	No data (*)
d) pH:	11.2
e) Melting point/freezing point:	25.45°C @101.325 kPa
f) Initial boiling point and boiling range:	160.8°C @101.325 kPa
g) Flash point:	64°C @101.3 kPa
h) Evaporation rate:	No data (*)
i) Flammability (solid, gas):	No data (*)
j) Upper/lower limits of flammability or explosivity:	No data (*)
k) Vapour pressure:	0.8 mmHg@25°C
l) Vapour density:	3.5 (Ar = 1)
m) Relative density:	0.96@ 20°C
n) Solubility(ies):	36.9 g/l @25° C em água
o) Partition coefficient n-octanol/water:	1.23
p) Auto-ignition temperature:	300°C
q) Decomposition temperature:	No data (*)
r) Viscosity:	0.005838Ns/m ² @66°C
s) Explosive properties:	Non-explosive
t) Flammable Properties:	Non-oxidising

(*) No reliable data source for this data

Cyclohexanol

9.2 Other information

Not available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Avoid heat, flames and sparks.
Stable at room temperature in sealed containers.
Heat will contribute to instability.
Hygroscopic substance.
Incompatible with oxidizing materials.

10.2 Chemical stability

Can change the coloration after a long time in stock.

10.3 Possibility of hazardous reactions

Violent reaction with nitric acid.
Incompatible with strong oxidizers

10.4 Conditions to avoid

No data.

10.5 Incompatible materials

Strong oxidizers, nitric acid, chromium trioxide and hydrogen peroxide.

10.6 Hazardous decomposition products

Carbon dioxide and carbon monoxide may form when heated to decomposition.

Cyclohexanol

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Causes irritation to the skin, eyes and to the mucous of the respiratory tracts. On skin may defeat tissues similar to gasoline. Has effects like a narcotic; causes headache, nausea, vomiting and tremor, problems by breathing. Large doses may cause nervous depression without convulsions.

<i>Hazard Class</i>	<i>Dose descriptor</i>	<i>Method/reference</i>
Acute oral toxicity	LD ₅₀ = 1400 mg/kg bw (rat)	Brief Profile – ECHA
Acute dermal toxicity	LD ₅₀ = 1250 mg/ kg bw (rabbit)	Brief Profile – ECHA
Acute inhalation toxicity	LC ₅₀ (4h) = 3600 mg/m ³ (rat)	Brief Profile – ECHA
Skin Corrosion/irritation	Adverse effect observed (Irritating)	Brief Profile – ECHA
Serious Eye Damaged/irritation	Adverse effect observed (Irritating)	Brief Profile – ECHA
Respiratory Sensitisation	No study available	Brief Profile – ECHA
Skin Sensitisation	No adverse effect observed (not sensitising)	Brief Profile – ECHA
Germ cell mutagenicity		
InVitro	No adverse effect observed (negative)	Brief Profile – ECHA
InVivo	No adverse effect observed (negative)	
Carcinogenicity	No data available.	-----
Reproductive toxicity		
Fertility	Inhalation route: NOAEC=2007 mg/m ³ (subchronic, rat)	Brief Profile – ECHA
Developmental toxicity	Oral route: NOAEL= 500 mg/kg bw/day (subacute, rabbit)	
	Inhalation route: NOAEC=5620 mg/m ³ (subacute, rat)	
STOT-Single Exposure	No data available.	----
STOT-Repeated exposure	NOAEL (rat) = 143 mg/kg bw/day NOAEC (rat) = 2 007.2 mg/m ³	Brief Profile – ECHA
Aspiration hazard	No data available.	----

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

Hazard Class	Dose descriptor	Method/reference
Short-term toxicity to freshwater fish	LC ₅₀ (4 dias) = 704 mg/L	Brief Profile – ECHA
Short-term toxicity to freshwater aquatic invertebrates	EC ₅₀ /LC ₅₀ = 17 mg/L	Brief Profile – ECHA
Long-term toxicity to freshwater aquatic invertebrates	EC ₁₀ /LC ₁₀ or NOEC = 953 µg/L	Brief Profile – ECHA
Toxicity to aquatic algae and cyanobacteria (freshwater algae)	EC ₅₀ = 410.97 mg/L EC ₁₀ or NOEC = 1.55 mg/l	Brief Profile – ECHA

12.2 Persistence and degradability

100% Biodegradable in water

12.3 Bioaccumulative potential[No bioaccumulation potential.](#)**12.4 Mobility in soil**

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

No data available

Cyclohexanol

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.
- It is not advisable to discharge cyclohexanol waste through wastewater.
- EWC Code 15 01 10(*) – Packaging containing / contaminated by waste from hazardous substances. The waste from this product must be treated as hazardous and in accordance with current legislation.

Applicable regulations:

- 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council;
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and other amendments;
- 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

SECTION 14: TRANSPORT INFORMATION

Not classified as hazardous for air, sea and road freight.

SECTION 15: REGULATORY INFORMATION

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

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

- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive

Cyclohexanol

76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC and other 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 and other amendments;
- Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work
- Council Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work (fourteenth individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and other amendments;
- 2014/955/EU: Commission Decision of 18 December 2014 amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European Parliament and of the Council;
- Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives;
- 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 2008/68/EC of the European Parliament and of the Council of 24 September 2008, on the inland transport of dangerous goods (ADR; RID and ADN) and other amendments;
- EH40/2005 Workplace exposure limits (The Health and Safety Executive);

15.2 Chemical safety assessment

No chemical safety study has been performed.

SECTION 16: OTHER INFORMATION

This information refers only to the aforementioned product and is not valid if used with any other product or process. This information is in accordance with our current knowledge; it is complete and given in good faith but with no guarantee. The user is responsible for ensuring that the information is complete and appropriate for his specific use of the product.

Cyclohexanol**Changes:** Changes are in blue text

DATE	REVISION	CHANGES MADE
01-07-2019	07	Section 1.2
		Section 2
		Section 8.1.2
		Section 8.2.3
		Section 11
		Section 12.1 and 12.3
		Section 13
		Section 15
		Section 16

Abbreviations mentioned on the Sheet:

Acute Tox. 4 – Acute dermal toxicity, category 4

Acute Tox. 4 – Acute inhalation toxicity, category 4

Acute Tox. 4 – Acute oral toxicity, category 4

Aquatic Chronic 3 - Chronic toxicity in aquatic environment, category 3

bw – body weight

CAS no. – World authority for chemical information

DNEL – “Derived Non Effect Concentration”

dw – dryWeight

EC No. – European Community

EC₁₀ – Median effect concentration (generating an effect response in 10% of the test population)EC₅₀ – Half of maximum effective concentration

ECHA – European Chemical Agency

EWC - European Waste Catalogue

Eye Irrit. 2 - Serious eye damage/eye irritation, category 2

LC₁₀ – Lethal ConcentrationLC₅₀ – Median Lethal ConcentrationLD₅₀ – median lethal dose

NOAEC – No observed adverse effect concentration

NOAEL – No observed adverse effect level

NOEC - No Observed Effect Concentration

PBT - Persistent, bioaccumulative and toxic

PNEC – Predicted Non Effect Concentration

SDS - Safety Data Sheet

Skin Irrit. 2 - Skin Irritation, category 2

STOT RE - Specific target organ toxicity-repeated exposure

STOT SE - Specific target organ toxicity- single exposure

STOT SE 3 - Specific target organ toxicity- single exposure, Category 3

STP – Sewage treatment plant

TWA – “Time weighted average”

vPvB - Very persistent and very bioaccumulative