



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

1.1 Product identifier

Trade name: CYCLOHEXANE ROTIPURAN® ≥99.5 %, p.a., ACS, ISO

Article number: 6886

CAS Number:

110-82-7

EC number:

203-806-2

Index number:

601-017-00-1

Registration number 01-2119463273-41-XXXX

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

Application of the substance / the mixture

Laboratory chemical

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Carl Roth GmbH + Co. KG

Schoemperlenstraße 3-5

76185 Karlsruhe

Germany

Telefon: +49/(0)721 5606-0

Telefax: +49/(0)721 5606-149

E-Mail: sicherheit@carlroth.de

Further information obtainable from: Department Health, Safety and Environment

1.4 Emergency telephone number:

Poison Centre Munich

Telefon +49/(0)89 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

Asp. Tox. 1 H304 May be fatal if swallowed and enters airways.

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

Skin Irrit. 2 H315 Causes skin irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xn; Harmful

R65: Harmful: may cause lung damage if swallowed.

Xi; Irritant

R38: Irritating to skin.

F; Highly flammable

R11: Highly flammable.

N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R67: Vapours may cause drowsiness and dizziness.

Information concerning particular hazards for human and environment: Has a narcotising effect.

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Safety data sheet

according to 1907/2006/EC, Article 31

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2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms



GHS02

GHS07

GHS08

GHS09

Signal word Danger

Hazard statements

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H304 May be fatal if swallowed and enters airways.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

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

P273 Avoid release to the environment.

P302+P352 IF ON SKIN: Wash with plenty of water.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P331 Do NOT induce vomiting.

P403+P235 Store in a well-ventilated place. Keep cool.

Additional information:

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2.3 Other hazards

All chemicals are potentially dangerous. They are therefore only be handled by specially trained personnel with the necessary care.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation: Substances

CAS No. Description

110-82-7 cyclohexane

Identification number(s)

EC number: 203-806-2

Index Number: 601-017-00-1

Formula: C₆H₁₂

Molar mass [g/mol]: 84,16

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SECTION 4: First aid measures**4.1 Description of first aid measures****General information:**

Remove any clothing soiled by the product.

After inhalation:

Supply fresh air or oxygen; call for doctor.

After skin contact:

Wash with water and soap.

Seek medical treatment in case of complaints.

After eye contact:

Rinse opened eye for 10 minutes under running water. If symptoms persist, consult a doctor.

After swallowing:

Rinse out mouth and drink a glass of water. Do not induce vomiting.

In case of spontaneous vomiting: Risk of aspiration. Pulmonary failure possible.

Call for a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed

Nausea

Vomiting

Headache

Disziness

Unconsciousness

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing agents:**

Use fire extinguishing methods suitable to surrounding conditions.

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

For safety reasons unsuitable extinguishing agents: Water with full jet

5.2 Special hazards arising from the substance or mixture

In the event of fire development of hazardous combustion gases or vapours possible.

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

5.3 Advice for firefighters**Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

Additional information

Vapours heavier than air. Beware of reignition.

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Prevent fire-fighting water from entering surface water or groundwater.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Do not inhale vapours. Avoid contact with the eyes and skin.

Do not breathe vapour/spray.

Keep away from ignition sources.

Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions

Avoid penetration into drainage system because of danger of explosion.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ground water or penetrate the soil.

6.3 Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. Rotisorb® Art.-Nr. 1710.1).

Dispose of the material collected according to regulations.

Ensure adequate ventilation.

6.4 Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace.

Prevent formation of aerosols.

Information about fire - and explosion protection:

Flammable gas-air mixtures may form in empty receptacles.



Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

Store only in the original receptacle.

Store in a cool location.

Information about storage in one common storage facility:

Store away from foodstuffs.

Further information about storage conditions:

Store receptacle in a well ventilated area.

Keep ignition sources away - Do not smoke.

Keep container tightly sealed.

Recommended storage temperature:

According to product specification.

7.3 Specific end use(s)

No further relevant information available.

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SECTION 8: Exposure controls/personal protection

Additional information about design of technical facilities:

No further data; see item 7.

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

110-82-7 cyclohexane

WEL (Great Britain)	Short-term value: 1050 mg/m ³ , 300 ppm Long-term value: 350 mg/m ³ , 100 ppm
IOELV (EU)	Long-term value: 700 mg/m ³ , 200 ppm

DNELs

Worker

Long-term exposure - systemic effects:

Dermal	DNEL	2016 mg/kg (worker)
Inhalative	DNEL	700 mg/m ³ (worker)

Long-term exposure - local effects:

Inhalative	DNEL	700 mg/m ³ (worker)
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Short-term exposure - systemic effects:

Inhalative	DNEL	700 mg/m ³ (worker)
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Short-term exposure - local effects:

Inhalative	DNEL	700 mg/m ³ (worker)
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Consumer

Long-term exposure - systemic effects:

Oral	DNEL	59.4 mg/kg (Customer)
Dermal	DNEL	1186 mg/kg (Customer)
Inhalative	DNEL	206 mg/m ³ (Customer)

Long-term exposure - local effects:

Inhalative	DNEL	206 mg/m ³ (Customer)
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Short-term exposure - systemic effects:

Inhalative	DNEL	412 mg/m ³ (Customer)
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Short-term exposure - local effects:

Inhalative	DNEL	412 mg/m ³ (Customer)
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PNECs

PNEC	2.99 mg/kg (Soil)
	3.24 mg/l (Sewage treatment plant)
	0.207 mg/l (Marine water)
	3.627 mg/kg (Fresh Water sediment)
	0.207 mg/l (Fresh Water)
	0.207 mg/l (intermittent releases)

Additional information:

The lists valid during the making were used as basis.

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8.2 Exposure controls

Personal protective equipment:

General protective and hygienic measures:

Do not eat, drink or smoke while working.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Respiratory protection:



Required when vapours/aerosols are generated.

Filter A (colour code: brown)

When selecting your respiratory unit: Consider the "Rules for the use of respiratory protection equipment" (BGR190).

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves

Nitrile rubber, thickness: 0.40 mm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

Penetration time of glove material

Value for the permeation: Level ≥ 6

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

As protection from splashes gloves made of the following materials are suitable:

Nitrile rubber, thickness: ≥ 0.11 mm

Value for the permeation: Level ≥ 30 min

Eye protection:



Tightly sealed goggles

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Body protection:

Solvent resistant protective clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties**General Information****Appearance:**

Form:	Fluid
Colour:	Colourless
Odour:	Aromatic
Odour threshold:	No information available.

pH-value: No information available.

Change in condition

Melting point/Melting range:	7 °C
Boiling point/Boiling range:	81 °C

Flash point: -18 °C

Flammability (solid, gaseous): No information available

Ignition temperature: 260 °C

Decomposition temperature: No information available

Self-igniting: No information available

Danger of explosion: Product is not explosive. However, formation of explosive air/vapour mixtures is possible.

Explosion limits:

Lower:	1 Vol %
Upper:	9.3 Vol %

Oxidizing properties: none

Vapour pressure at 20 °C: 103 hPa

Density at 20 °C:	0.78 g/cm ³
Relative density	No Information available.
Vapour density	No information available
Evaporation rate	No information available

Solubility in / Miscibility with water at 20 °C: 0.1 g/l

Partition coefficient (n-octanol/water): 3.44 log POW (exp.)

Viscosity:

Dynamic at 20 °C:	0.98 mPas
Kinematic at 20 °C:	1.26 mm ² /s

9.2 Other information No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Fumes can combine with air to form an explosive mixture.

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10.2 Chemical stability

Thermal decomposition / conditions to be avoided:

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

Strong reaction possible with:

Risk of ignition or formation of inflammable gases or vapors with:

Strong oxidizing agents
nitrogen dioxide

10.4 Conditions to avoid

Heat, flames and sparks

10.5 Incompatible materials:

Gum
various plastics

10.6 Hazardous decomposition products:

In case of fire: see item 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

LD/LC50 values relevant for classification:

Oral	LD ₅₀	12705 mg/kg (rat) (GESTIS)
Dermal	LD ₅₀	>2000 mg/kg (rabbit)
Inhalative	LC ₅₀ /4 h	14 mg/l (rat)

Specific symptoms in biological assay:

Skin and eye irritation test (rabbit): no irritation.

Primary irritant effect:

on the skin:

Irritant to skin and mucous membranes.

on the eye:

Slight irritations

after inhalation:

mucosal irritations
Pulmonary oedema
May cause drowsiness or dizziness.

Sensitisation:

No sensitising effects known.

CMR effects:

Germ cell mutagenicity:

No information available.

Carcinogenicity:

No information available.

Reproductive toxicity:

No information available.

Aspiration hazard:

May be fatal if swallowed and enters airways.

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Specific target organ toxicity - single exposure May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Additional toxicological information:

After absorption of large quantities:

Nausea
Vomiting
Dizziness
Diarrhoea
Circulatory collapse
Tiredness
Unconsciousness

After inhalation of large quantities:

CNS-disorders
Narcosis

Further information:

The product should be handled with the care usual when dealing with chemicals.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity:

Fish toxicity:

LC ₅₀	4.53 mg/l/96 h (fis) (OECD 203)
	34 mg/l/96 h (Lepomis macrochirus) (ECOTOX Database)

Daphnia toxicity:

EC50	2.4 mg/l/48 h (Daphnia magna) (OECD 202)
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Algeal toxicity:

IC50	9.317 mg/l/72 h (algae) (OECD 201)
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Bacterial toxicity:

EC	200 mg/l (Photobacterium phosphoreum)
EC50	5 min Microtox-Test

12.2 Persistence and degradability

Biodegradation: 77 % / 28 d (OECD 301 F)

Easily biodegradable

Other information: Theoretical Oxygen Demand, ThOD: 3.425 g/g

12.3 Bioaccumulative potential

Due to the distribution coefficient n-octanol/water an accumulation in organisms is possible.

12.4 Mobility in soil

No further relevant information available.

Ecotoxicological effects:

Remark:

Do not allow to enter waters, waste water, or soil!

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Also poisonous for fish and plankton in water bodies.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

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vPvB: Not applicable.

12.6 Other adverse effects

No further relevant information available.

SECTION 13: Disposal considerations

Waste treatment methods

Recommendation

This material and its container must be disposed of as hazardous waste. The disposal is regionally differently regulated, therefore the kind of disposal is to be inquired at the responsible authorities.

Uncleaned packaging:

Recommendation:

Disposal according to official regulations.

SECTION 14: Transport information

14.1 UN-Number

ADR, IMDG, IATA

UN1145

14.2 UN proper shipping name

ADR

1145 CYCLOHEXANE, ENVIRONMENTALLY HAZARDOUS

IMDG

CYCLOHEXANE, MARINE POLLUTANT

IATA

CYCLOHEXANE

14.3 Transport hazard class(es)

ADR, IMDG



Class

3 Flammable liquids.

Label

3

IATA



Class

3 Flammable liquids.

Label

3

14.4 Packing group

ADR, IMDG, IATA

II

14.5 Environmental hazards:

Environmentally hazardous substance, liquid; Marine Pollutant

Marine pollutant:

Symbol (fish and tree)

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Special marking (ADR):	Symbol (fish and tree)
14.6 Special precautions for user Danger code (Kemler): EMS Number:	Warning: Flammable liquids. 33 F-E,S-D
14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
Transport/Additional information:	
ADR Limited quantities (LQ) Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
Transport category Tunnel restriction code	2 D/E
IMDG Limited quantities (LQ) Excepted quantities (EQ)	1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
UN "Model Regulation":	UN1145, CYCLOHEXANE, ENVIRONMENTALLY HAZARDOUS, 3, II

SECTION 15: Regulatory information

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

National regulations:

Information about limitation of use:

Employment restrictions concerning juveniles must be observed.

Employment restrictions concerning pregnant and lactating women must be observed.

Breakdown regulations:

Waterhazard class:

Water hazard class 2 (Assessment by list): hazardous for water.

15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Department issuing MSDS: Department: Health, Safety and Environment

Contact: Herr Heine

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organisation

ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

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IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
LD50*: Lethal Dose, 50 percent (Not relevant for classification)
LD50*: Lethal Concentration, 50 percent (Not relevant for classification)
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
Asp. Tox. 1: Aspiration hazard, Hazard Category 1
Aquatic Acute 1: Hazardous to the aquatic environment - AcuteHazard, Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - Chronic Hazard, Category 1
*** Data compared to the previous version altered.**

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Annex: Exposure scenario**Short title of the exposure scenario** Usage as laboratory reagent**Sector of Use**

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Process category

PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities

PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

PROC15 Use as laboratory reagent

GB