

Chemical Safety Data Sheet MSDS / SDS

CYCLOATE

Revision Date:2026-01-17 Revision Number:1

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

Product identifier

Product name : CYCLOATE
CBnumber : CB0134167
CAS : 1134-23-2
EINECS Number : 214-482-7
Synonyms : cycloate, S-ethyl N-cyclohexylthiocarbamate

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Skin sensitization, Category 1
Acute toxicity - Category 4, Inhalation
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Label elements**Pictogram(s)**

□

Signal word : Warning

Hazard statement(s)

H331 Toxic if inhaled
H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

P391 Collect spillage. Hazardous to the aquatic environment

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P272 Contaminated work clothing should not be allowed out of the workplace.

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

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response

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

P333+P317 If skin irritation or rash occurs: Get medical help.

P321 Specific treatment (see ... on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P317 Get medical help.

P391 Collect spillage.

Storage

none

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: CYCLOATE
Synonyms	: cycloate,S-ethyl N-cyclohexylthiocarbamate
CAS	: 1134-23-2
EC number	: 214-482-7
MF	: C11H21NOS
MW	: 215.36

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately.

Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Inhalation of material may be harmful. Contact may cause burns to skin and eyes. Inhalation of Asbestos dust may have a damaging effect on the lungs. Fire may produce irritating, corrosive and/or toxic gases. Some liquids produce vapors that may cause dizziness or suffocation. Runoff from fire control may cause pollution. (ERG, 2016)

Indication of any immediate medical attention and special treatment needed

Skin decontamination. Skin contamination should be treated promptly by washing with soap and water. Contamination of the eyes should be treated immediately by prolonged flushing of the eyes with large amounts of clean water. If dermal or ocular irritation persists, medical attention should be obtained without delay. Other herbicides

SECTION 5: Firefighting measures

Extinguishing media

If material /is/ on fire or involved in /a/ fire do not extinguish fire unless flow can be stopped. Use water in flooding quantities as fog. Solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use "alcohol" foam, dry chemical or carbon dioxide. Carbamate pesticide, liquid, nos, (compounds and preparations) (agricultural insecticides, nec, liquid); Carbamate pesticide, liquid, nos (compounds and preparations) (agricultural insecticides, nec, liquid); Carbamate pesticide, liquid, nos (compounds and preparations) (insecticides, other than agricultural, nec

Specific Hazards Arising from the Chemical

Excerpt from ERG Guide 171 [Substances (Low to Moderate Hazard)]: Some may burn but none ignite readily. Containers may explode when heated. Some may be transported hot. For UN3508, be aware of possible short circuiting as this product is transported in a charged state. (ERG, 2016)

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollution Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

SECTION 7: Handling and storage

Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Keep containers closed when not in use. Do not store near seeds, fertilizers, or foodstuffs. Protect from temperatures below 20 deg F. Product crystallizes at lower temperatures. Warm or store at higher temperatures and mix to redissolve crystals and assure uniformity before use. Do not store near sources of heat or open flame. Combustible liquid. RO-NEET 6-E

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flame resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Liquid
Colour	Colorless liquid
Odour	Aromatic
Melting point/freezing point	11.5°C
Boiling point or initial boiling point and boiling range	303°C at 760 mmHg
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	137.1°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Miscible with most organic solvents, e.g. acetone, benzene, methanol, ethanol, xylene, kerosene, etc.
Partition coefficient n-octanol/water	log Kow = 3.88
Vapour pressure	1.57X10 ⁻³ mm Hg at 25 deg C
Density and/or relative density	1.02 g/cm ³
Relative vapour density	no data available
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Thio and dithiocarbamates slowly decompose in aqueous solution to form carbon disulfide and methylamine or other amines. Such decompositions are accelerated by acids or alkalis.

Chemical stability

Stable, 50% unchanged greater than 10 yr at 70 deg c.

Possibility of hazardous reactions

Fire point: 149 deg CCYCLOATE is a thiocarbamate ester. Flammable gases are generated by the combination of thiocarbamates and dithiocarbamates with aldehydes, nitrides, and hydrides. Thiocarbamates and dithiocarbamates are incompatible with acids, peroxides, and acid halides.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /sulfur and nitrogen oxides/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 1678 mg/kg
- Inhalation: LC50 Rat inhalation 90 g/cu m/1 hr
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

Cancer Classification: Not Likely to be Carcinogenic to Humans

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Oncorhynchus mykiss* (Rainbow trout); Conditions: freshwater, static; Concentration: 4500 ug/L for 96 hr (95% confidence interval: 3000-8000 ug/L) /97.8% purity

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water flea, age <24 hr); Conditions: freshwater, static; Concentration: 24000 ug/L for 48 hr (95% confidence interval: 18000-32000 ug/L); Effect: intoxication, immobilization /96.8% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Thiocarbamates, such as cycloate, undergo rapid biodegradation(1,4). Cycloate was not mineralized in sewage or lakewater, but it was metabolized to organic products(2). When incorporated 3 inches deep into moist loam at a temperature of 70-80 deg C, an 83% loss of cycloate occurred in 70 days; at 40 deg C only 32% loss occurred(3). In dry soil incubated at 70-80 deg C, only 9% loss occurred(3).

Autoclaving the soils greatly increased the persistence of cycloate indicating that microbial degradation is important(3). Cycloate does not decrease the number or biochemical activity of soil organisms(4). Using a continuous flow-through system and soil inoculum, 14C-labeled cycloate was up to 90% mineralized(5). Laboratory metabolism study using aerobic soil resulted in a half-life of 43 days; soil degradates include the sulfoxide and N-ethylcyclohexylamine, N-cyclohexyl-N-ethylformamide and N-ethyl-N-formyl-S- ethyl thiocarbamate(6).

Bioaccumulative potential

An estimated BCF of 190 was calculated for cycloate(SRC), using a log Kow of 3.88(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is high, provided the compound is not metabolized by the organism(SRC).

Mobility in soil

The Koc of cycloate has been experimentally determined to be 345(1,2). The compound tends to sorb to soil under dry conditions and is not reversed if soil is later flooded(3). If already flooded, then cycloate desorbs readily and then volatilizes. Koc values of 500-800 have been reported(3). According to a classification scheme(4), these Koc values suggest that cycloate is expected to have moderate mobility in soil. Cycloate was found at a maximum depth of 6-9 inches in a leaching study using four different soils(5).

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Not Listed.

China Catalog of Hazardous chemicals 2015

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

PICCS

Not Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Not Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

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