Beijing Vokai Biotechnology Co., LTD
Tel:010-62971590
Fax:62340519
Http:www.bjoka-vip.com
M-ail:postmaster@oka-vip.com

SAFETY DATA SHEETS

According to the UN GHS revision 10

Version: 1.0
Creation Date: July 15, 2024
Revision Date: July 15, 2024

SECTION 1: Identification

1.1 GHS Product identifier

Product name chloral hydrate

1.2 Other means of identification

Other names

1.3 Recommended use of the chemical and restrictions on use

Identified uses Industrial and scientific research use.
Uses advised against no data available

1.4 Supplier's details

Company Beijing Vokai Biotechnology Co., LTD
Address New Materials Venture Building, 7 Fenghui Middle Rd, Haidian Dist., Beijing.
Tel 010-62971590
Email postmaster@oka-vip.com

1.5 Emergency phone number

Emergency phone number +86-0532-3889090
Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Skin irritation, Category 2
Eye irritation, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word Danger
Hazard statement(s)
H301 Toxic if swallowed
H315 Causes skin irritation
H319 Causes serious eye irritation
Precautionary statement(s)
Prevention
P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
Response
P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...
P332+P317 If skin irritation occurs: Get medical help.
P362+P364 Take off contaminated clothing and wash it before reuse.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage
P405 Store locked up.
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.

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
2,2,2-trichloroethane-1,1-diol	2,2,2-trichloroethane-1,1-diol	302-17-0	206-117-5	≈ 99%

SECTION 4: First-aid measures

4.1 Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer immediately for medical attention.

Following skin contact

Rinse skin with plenty of water or shower.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer immediately for medical attention.

4.2 Most important symptoms/effects, acute and delayed

SYMPTOMS: Symptoms of exposure to this compound include general anesthesia, cardiac arrythmias and blood pressure depression. Other symptoms include hemorrhagic gastritis, enteritis, central nervous system depression, coma, severe respiratory depression, ventricular tachycardia and cardiac arrest. Dermatitis, swelling of the lids, hyperemia, edema of the conjuctiva and a sensation of irritation and tearing may also occur. Exposure may result in gastric irritation, rapid circulatory collapse, kidney and liver damage, heart damage, psychosis and leukopenia. Flatulence, abdominal distension, nausea, headache, giddiness, rashes and blood dyscrasias can occur. ACUTE/CHRONIC HAZARDS: This compound is an irritant of the skin and eyes. When heated to decomposition it emits toxic fumes of chlorine. (NTP, 1992)

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Maintain an open airway and assist ventilation if necessary. Administer supplemental oxygen. Treat coma, hypothermia, hypotension, and pulmonary edema if they occur. Monitor patients for at least 6 hours after ingestion, because delayed absorption may occur. Patients with chloral hydrate ingestion should be monitored 18 to 24 hours because of the risk of cardiac arrhythmias. Tachyarrhythmias caused by myocardial sensitization may be treated with propranolol or esmolol. ... Administer activated charcoal orally if conditions are appropriate. Gastric lavage is not necessary after small to moderate ingestions if activated charcoal can be given promptly. ... Sedative-Hypnotic Agents

SECTION 5: Fire-fighting measures

5.1 Suitable extinguishing media

Fires involving this material can be controlled with a dry chemical, carbon dioxide or Halon extinguisher. (NTP, 1992)

5.2 Specific hazards arising from the chemical

Flash point data for this chemical are not available; however, it is probably combustible. (NTP, 1992)

5.3 Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.2 Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. If appropriate, moisten first to prevent dusting. Carefully collect remainder. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong bases and food and feedstuffs.Chloral hydrate oral solution should be stored in tight, light-resistant containers. Chloral hydrate capsules should be stored at 15-30 deg C.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles or eye protection in combination with breathing protection if powder.

Skin protection

Protective gloves.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Solid. Crystalline.
Colour	White.
Odour	Aromatic, penetrating and slightly acrid odor
Melting point/freezing point	55.3 ° C. Atm. press.:973.8 hPa.
Boiling point or initial boiling point and boiling range	100.66 ° C. Atm. press.:973.8 hPa.
Flammability	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit	no data available
Flash point	75 ° C. Atm. press.:973.4 hPa.
Auto-ignition temperature	no data available
Decomposition temperature	97° C
pH	5. Remarks:Concentration details not available. 1% w/v aqueous solution of test substance was prepared for estimation of pH.
Kinematic viscosity	no data available
Solubility	greater than or equal to 10 mg/mL at 68.9° F (NTP, 1992)
Partition coefficient n-octanol/water	log Pow = 1.092. Temperature:25. Remarks:PH details not available.
Vapour pressure	1 999.83 Pa. Temperature:25 ° C.
Density and/or relative density	0.947 g/cm³. Temperature:28.9 ° C.;0.967 g/cm³. Temperature:28.9 ° C.
Relative vapour density	5.1 (Air= 1)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on heating. This produces toxic and corrosive fumes including hydrogen chloride. Reacts with strong bases. This produces chloroform.

10.2 Chemical stability

Slowly volatilizes on exposure to air.

10.3 Possibility of hazardous reactions

Combustible when exposed to heat or flame.CHLORAL HYDRATE is incompatible with alkalis, alkaline earth metals, alkali carbonates and soluble barbiturates. It is decomposed by sodium hydroxide. It reduces ammoniacal silver nitrate. It liquefies when triturated with an equal quantity of menthol, camphor or thymol. (NTP, 1992). Reaction of chloral hydrate with hydroxylamine produces toxic hydrogen cyanide gas, Org. Synth., 1941, Vol. 1, 377.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /hydrogen chloride/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 - mouse (female) - 1 265 mg/kg bw.
- Inhalation: LC50 - mouse - 100 ppm.
- 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

WEIGHT-OF-EVIDENCE CHARACTERIZATION: Under the 1986 cancer guidelines (EPA), chloral hydrate is assigned to Group C, possible human carcinogen. Under the 1996 proposed guidelines (EPA) for carcinogen risk assessment, chloral hydrate shows suggestive evidence of human carcinogenicity by the oral route of exposure. There are no carcinogenicity data from humans. Two bioassays in rats in which chloral hydrate was administered by drinking water show no increase in tumors at any site. Because only minimal toxicity was observed in the livers of the rats in these bioassays, the tests were not conducted at the maximum tolerated dose. A chronic bioassay in female mice showed a slight increase in the severity grade of hyperplasia and a slight increase in the incidence of adenoma in the pituatary gland pars distalis at the highest exposure tested. There is some evidence that chloral hydrate causes hepatocellular tumors in male mice. An earlier study showing an increase of hepatocellular adenomas or trabecular carcinomas following a single bolus exposure could not be confirmed in a study using more animals and higher exposures. Three separate 2-year bioassays in male mice show an increased incidence of hepatocellular adenoma or carcinoma. There are no data identifying a lesion that is a precursor to the hepatocellular tumors. The strain of mice used has a very high spontaneous incidence of hepatocellular tumors. Two of the matabolites of chloral hydrate, trichloroacetic acid and dichloroacetic acid, have been shown to cause hepatocellular tumors in rodents. Trichloroacetic acid causes hepatocellular tumors only in mice. Dichloroacetic acid causes hepatocellular tumors in both rats and mice. There is an extensive database on genetic toxicity. A variety of results show that chloral hydrate is a weak gene mutagen and clastogen. Chloral hydrate induces aneuploidy in a wide variety of cell types. These latter effects are thought to arise by disruption of the spindle apparatus. A high concentration of chloral hydrate is required to cause observable effects. Although these data suggest that genotoxicity may play a role in the toxicity of chloral hydrate, the data indicate that these effects require concentrations that are unlikely to occur under physiological conditions at the exposures typically encountered from the environment. Collectively, these data provide suggestive evidence of carcinogenicity, but the weight of evidence is not sufficient to conduct a risk assessment assuming a linear response at low exposure. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Limited.

Reproductive toxicity

no data available

STOT-single exposure

The substance is irritating to the eyes, skin and respiratory tract. The substance may cause effects on the central nervous system. This may result in disorientation, lowering of blood pressure and lowering of consciousness. Exposure at high levels could cause cardiac dysrhythmia and unconsciousness or death.

STOT-repeated exposure

The substance may have effects on the liver. This may result in addiction, behavioural effects and liver impairment. This substance is probably carcinogenic to humans. May cause heritable genetic damage to human germ cells.

Aspiration hazard

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20° C.

SECTION 12: Ecological information

12.1 Toxicity

- Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - > 100 mg/L - 96 h.
- Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - > 98 mg/L - 48 h.
- Toxicity to algae: EC50 - Chlorella vulgaris - > 200 mg/L - 72 h.
- Toxicity to microorganisms: EC0 - Entosiphon sulcatum - < 79 mg/L - 72 h.

12.2 Persistence and degradability

AEROBIC: Biodegradation data for chloral hydrate were not available(1).

12.3 Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for chloral hydrate(SRC), using a log Kow of 0.99(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of chloral hydrate is estimated as 82(SRC), using a log Kow of 0.99(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that chloral hydrate is expected to have high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN2811 (For reference only, please check.)

IMDG: UN2811 (For reference only, please check.)

IATA: UN2811 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IMDG: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

IATA: TOXIC SOLID, ORGANIC, N.O.S. (For reference only, please check.)

14.3 Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

14.4 Packing group, if applicable

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
2,2,2-trichloroethane-1,1-diol	2,2,2-trichloroethane-1,1-diol	302-17-0	206-117-5
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2024
Revision Date July 15, 2024

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/

Other Information

Use of alcoholic beverages enhances the harmful effect.Depending on the degree of exposure, periodic medical examination is suggested.

Disclaimer: 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. We as supplier shall not be held liable for any damage resulting from handling or from contact with the above product.