

## Chemical Safety Data Sheet MSDS / SDS

## Chloral hydrate

Revision Date:2023-03-04 Revision Number:1

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

## Product identifier

Product name : Chloral hydrate  
CBnumber : CB0198709  
CAS : 302-17-0  
EINECS Number : 206-117-5  
Synonyms : TCA,chloral hydrate

## 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 : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

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

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

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

## Hazard statements

H301 Toxic if swallowed

H302 Harmful if swallowed

H312 Harmful in contact with skin

H315 Causes skin irritation

H319 Causes serious eye irritation

H332 Harmful if inhaled

#### **Disposal**

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/chloral-hydrate>

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: Chloral hydrate
Synonyms	: TCA, chloral hydrate
CAS	: 302-17-0
EC number	: 206-117-5
MF	: C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub> O <sub>2</sub>
MW	: 165.4

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### **If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### **If swallowed**

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

### **Most important symptoms and effects, both acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

### **Indication of any immediate medical attention and special treatment needed**

No data available

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## SECTION 5: Firefighting measures

### **Extinguishing media**

#### **Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the

### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Carbon oxides Hydrogen chloride gas Not combustible.

Ambient fire may liberate hazardous vapours.

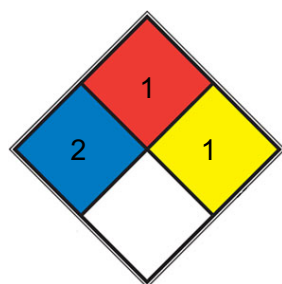
### Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



■ HEALTH 2 Intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury (e.g. [diethyl ether](#), ammonium phosphate, iodine)

■ FIRE 1 Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

■ REACT 1 Normally stable, but can become unstable at elevated temperatures and pressures (e.g. [propene](#))

□ SPEC.  
□ HAZ.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### **Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### **Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Air and light sensitive.

#### **Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **control parameter**

#### **Hazard composition and occupational exposure limits**

Does not contain substances with occupational exposure limits.

### **Exposure controls**

#### **Personal protective equipment**

##### **Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### **Skin protection**

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

### Body Protection

protective clothing

### Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Appearance	Form: crystalline Color: white
Odour	No data available
Odour Threshold	No data available d) pH 3,5 - 4,4 at 100 g/l Melting point/freezing point Initial boiling point and boiling range Melting point/range: 57 °C - lit. 100,66 °C at 973,8 hPa - OECD Test Guideline 103 Flash point Not applicable Evaporation rate No data available Flammability (solid, gas) Upper/lower flammability or explosive limits No data available No data available Vapour pressure 20 hPa at 25 °C Vapour density No data available Relative density No data available Water solubility 443,69 g/l at 25 °C - completely soluble Partition coefficient: n-octanol/water Autoignition temperature Decomposition temperature log Pow: 1,092 at 25 °C - Bioaccumulation is not expected. No data available No data available Viscosity Viscosity, kinematic: No data available Viscosity, dynamic: No data available Explosive properties No data available Oxidizing properties No data available
Melting point/freezing point	Melting point/range: 57 °C - lit.
Initial boiling point and boiling range	100,66 °C at 973,8 hPa - OECD Test Guideline 103
Flash point	Not applicable
Evaporation rate	16 °C
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	20 hPa at 25 °C
Vapour density	No data available
Relative density	No data available

Water solubility	443,69 g/l at 25 °C - completely soluble
Partition coefficient: n-octanol/water	log Pow: 1,092 at 25 °C - Bioaccumulation is not expected.
Autoignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
Explosive properties	No data available
Oxidizing properties	No data available

### Other safety information

No data available

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## SECTION 10: Stability and reactivity

### Reactivity

No data available

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Violent reactions possible with: Strong oxidizing agents permanganates

Alcohols Bases

Alkali metals

Alkaline earth metals tannin

### Conditions to avoid

Air Light.

no information available

### Incompatible materials

iron/iron-containing compounds, various plastics Strong oxidizing agents

### Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### Information on toxicological effects

#### Acute toxicity

Acute toxicity estimate Oral - 100,1 mg/kg (Expert judgment)

Acute toxicity estimate Oral - 100,1 mg/kg (Expert judgment)

LC50 Inhalation - Rat - 4 h - 0,44 mg/l Remarks: (in analogy to similar products)

The value is given in analogy to the following substances: 2,2,2-trichloroacetaldehyde; chloral

LD50 Dermal - Rat - 3.030 mg/kg Remarks: (ECHA)

#### **Skin corrosion/irritation**

Skin - Guinea pig Result: Skin irritation Remarks: (ECHA)

#### **Serious eye damage/eye irritation**

No data available

#### **Respiratory or skin sensitization**

Remarks: (ECHA)

#### **Germ cell mutagenicity**

Test Type: Ames test

Test system: S. typhimurium

Metabolic activation: with and without metabolic activation Result: negative

Remarks: (ECHA)

Test Type: in vivo assay Species: Mouse

Application Route: Intraperitoneal Method: OECD Test Guideline 474 Result: negative

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

No data available

#### **Specific target organ toxicity - single exposure**

No data available

#### **Specific target organ toxicity - repeated exposure**

Inhalation - May cause damage to organs through prolonged or repeated exposure. - Lungs, Adrenal gland

The value is given in analogy to the following substances: 2,2,2-trichloroacetaldehyde; chloral

#### **Aspiration hazard**

No data available

#### **Toxicity**

LD50 oral in rat: 479mg/kg

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to fish**

static test LC50 - Danio rerio (zebra fish) - > 100 mg/l - 96 h (OECD Test Guideline 203)

#### **Toxicity to daphnia and other aquatic invertebrates**

EC50 - Daphnia magna (Water flea) - 500 mg/l - 48 h

#### **Toxicity to algae**

IC50 - Scenedesmus quadricauda (Green algae) - 2,8 mg/l - 168 h

#### **Toxicity to bacteria**

- Bacteria - 1,6 mg/l - 16 h

- Protozoa - 79 mg/l - 72 h

### **Persistence and degradability**

Biodegradability aerobic - Exposure time 28 d

Result: 44,04 % - Not inherently biodegradable. (OECD Test Guideline 301F)

### **Bioaccumulative potential**

No data available

### **Mobility in soil**

No data available

### **Results of PBT and vPvB assessment**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### **Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

### **Waste treatment methods**

#### **Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### **Incompatibilities**

Chloral hydrate reacts with strong bases forming chloroform. Contact with acids, or exposure to light may cause polymerization. Reacts with water, forming chloral hydrate. Reacts with oxidizers, with a risk of fire or explosions.

#### **Waste Disposal**

Incineration after mixing with another combustible fuel; care must be taken to assure complete combustion to prevent phosgene formation; an acid scrubber is necessary to remove the halo acids produced.

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## SECTION 14: Transport information

### **UN number**

ADR/RID: 2811 IMDG: 2811 IATA: 2811

### **UN proper shipping name**

ADR/RID: TOXIC SOLID, ORGANIC, N.O.S. (chloral, monohydrate) IMDG: TOXIC SOLID, ORGANIC, N.O.S. (chloral, monohydrate) IATA: Toxic solid, organic, n.o.s. (chloral, monohydrate)

### **Transport hazard class(es)**

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

### **Packaging group**

ADR/RID: I IMDG: I IATA: I



## Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

## Special precautions for user

No data available

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# SECTION 15: Regulatory information

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

### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Not Listed. website: <https://www.mem.gov.cn/>

### Measures for Environmental Management of New Chemical Substances

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

EC Inventory:Listed.

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

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# SECTION 16: Other information

## Abbreviations and acronyms

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

CAS: Chemical Abstracts Service

EC50: Effective Concentration 50%

IATA: International Air Transportation Association

IMDG: International Maritime Dangerous Goods

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

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

STEL: Short term exposure limit

TWA: Time Weighted Average

## References

**[1]** CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

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

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

**[4]** eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

### **Other Information**

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

#### **Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.