Chemical Safety Data Sheet MSDS / SDS

Chloroacetaldehyde SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Chloroacetaldehyde

CAS: 107-20-0

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.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 3, Dermal

Skin corrosion, Sub-category 1B
Acute toxicity - Category 2, Inhalation
Carcinogenicity, Category 2
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed
H311 Toxic in contact with skin
H314 Causes severe skin burns and eye damage
H330 Fatal if inhaled
H351 Suspected of causing cancer
H400 Very toxic to aquatic life

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/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P284 [In case of inadequate ventilation] wear respiratory protection.
P203 Obtain, read and follow all safety instructions before use.
P273 Avoid release to the environment.

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/...
P316 Get emergency medical help immediately.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P363 Wash contaminated clothing before reuse.
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.
P320 Specific treatment is urgent (see ... on this label).
P318 IF exposed or concerned, get medical advice.
P391 Collect spillage.

Storage

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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 which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Chloroacetaldehyde
Common names and synonyms:	Chloroacetaldehyde
CAS number:	107-20-0
EC number:	203-472-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Half-upright position. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention .

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 for medical attention .

Most important symptoms/effects, acute and delayed

Poisonous; may be fatal if inhaled, swallowed or absorbed through the skin. Overexposure causes intense irritation and edema of the eyes, mucous membranes, respiratory tract, and skin. Prolonged exposure causes tissue destruction, chemical burns and residual scarring. The eyes may experience permanent damage. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Aldehydes and Related Compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Use water spray, powder, alcohol-resistant foam, carbon dioxide. Chloroacetaldehyde (40% Solution)

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Contain poisonous and irritating chloride gases. Behavior in Fire: May yield highly toxic chloride fumes when heated to decomposition. (USCG, 1999)

Special protective actions for fire-fighters

Use water spray, powder, alcohol-resistant foam, carbon dioxide. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Wash away remainder with plenty of water.

Methods and materials for containment and cleaning up

Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Wash away remainder with plenty of water. Chloroacetaldehyde (40% Solution)

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. NO contact with oxidizing agents or acids. Above 88°C use a closed system, ventilation and explosion-proof electrical equipment. 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

Separated from strong oxidants, acids, metals and food and feedstuffs.Safe Storage: Separated from strong oxidants, acids, metals and food and feedstuffs. Chloroacetaldehyde (40% Solution)

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1 ppm as STEL.MAK: skin absorption (H); carcinogen category: 3B

Biological limit values

no data available

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.

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

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	2-chloroethanal is a clear colorless liquid with a pungent odor. Flash point about 190°F. Corrosive to skin and mucous membranes. It is very toxic by inhalation.
Colour:	Colorless liquid [Note: Typically found as a 40% aqueous solution]
Odour:	Acrid, penetrating odor
Melting point/freezing point:	-5°C

Boiling point or initial boiling point and boiling range:	80-100°C(lit.)
Flammability:	Class IIIA Combustible Liquid: Fl.P. at or above 140°F and below 200°F.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	62°C
Auto-ignition temperature:	88 deg C
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	greater than or equal to 100 mg/mL at 66° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 0.09 (est)
Vapour pressure:	70.6mmHg at 25°C
Density and/or relative density:	1.236
Relative vapour density:	2.7 (40% aqueous solution) (NTP, 1992) (Relative to Air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes of chlorine. Reacts with oxidants and acids. This generates explosion hazard.

Chemical stability

The anhydrous substance polymerizes on standing, but reverts to the monomer on distillation.

Possibility of hazardous reactions

MODERATE, WHEN EXPOSED TO HEAT OR FLAMEThe vapour is heavier than air.2-CHLOROETHANAL polymerizes on standing. At greater than 50% concentration in water, it forms an insoluble hemihydrate. Sensitive to heat. Reacts with oxidizing agents. Incompatible with acids and water (NTP, 1992). Burns to give poisonous and irritating gases.

Conditions to avoid

no data available

Incompatible materials

Oxidizers, acids.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Mouse oral 21.0 mg/kg

Inhalation: no data available

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

no data available

Reproductive toxicity

no data available

STOT-single exposure

Corrosive. The vapour is corrosive to the eyes, skin and respiratory tract. Inhalation of high concentrations of the vapour may cause lung oedema. The effects may be delayed. Medical observation is indicated. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: Daphnia magna (Water Flea) age < or =24 hr; Conditions: freshwater, static, 25 deg C, pH > or = 7.0, dissolved oxygen > or =58%; Concentration: 15000 ug/L for 24 hr; Effect: intoxication, immobilization /50% purity formulation

Toxicity to algae: EC50; Species: Scenedesmus subspicatus (Green Algae) exponential growth phase; Conditions: freshwater, static, 24 deg C, pH 8.0-9.3; Concentration: 550 ug/L for 48 hr; Effect: decreased population biomass /50% purity formulation

Toxicity to microorganisms: no data available

Persistence and degradability

PURE CULTURE: Pseudomonas CE1r, isolated from soil, degraded 2-chloroethanol via 2-chloroacetaldehyde and 2-chloroacetate to glycollic acid(1).

Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for chloroacetaldehyde(SRC), using an estimated log Kow of 0.09(1) and a regression-derived equation(1). According to a classification scheme(2), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of chloroacetaldehyde can be estimated to be 1(SRC). According to a classification scheme(2), this estimated Koc value suggests that chloroacetaldehyde is expected to have very high mobility in soil.

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: UN2232 (For reference only, please check.)
IMDG: UN2232 (For reference only, please check.)
IATA: UN2232 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: 2-CHLOROETHANAL (For reference only, please check.)
IMDG: 2-CHLOROETHANAL (For reference only, please check.)
IATA: 2-CHLOROETHANAL (For reference only, please check.)

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.)

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.)

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

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

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/

Other Information

This card refers to the 40% solution. The occupational exposure limit value should not be exceeded during any part of the working exposure. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor or a person authorized by him/her, should be considered.