Chemical Safety Data Sheet MSDS / SDS

1-chlorobutane SDS

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

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

Product identifier

Product name: 1-chlorobutane

CAS: 109-69-3

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

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SECTION 2: Hazards identification

Classification of the substance or mixture

Flammable liquids, Category 2

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Response

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water [or shower].
P370+P378 In case of fire: Use ... to extinguish.

Storage

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

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:	1-chlorobutane
Common names and synonyms:	1-chlorobutane
CAS number:	109-69-3
EC number:	203-696-6
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Remove contaminated clothes. 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. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Mildly irritating to the skin and eyes, liquid may cause rash due to removal of skin oils. Ingestion or skin absorbtion may cause intestinal upset, cramping, and central nervous system depression. (USCG, 1999)

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

no data available

SECTION 5: Firefighting measures

Suitable extinguishing media

To fight fire: Foam, carbon dioxide, dry chemical.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: May produce phosgene gas in fire (USCG, 1999)

Special protective actions for fire-fighters

Use powder, 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

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Do NOT let this chemical enter the environment.

Environmental precautions

Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance.

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

Precautions for safe handling

NO open flames, NO sparks and NO smoking. Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or 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

Fireproof. Separated from incompatible materials. See Chemical Dangers. Well closed.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK: 12 mg/m3, 3 ppm; peak limitation category: II(2)

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 safety spectacles or eye protection in combination with breathing protection.

Skin protection

Protective gloves.

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:	Liquid.
Colour:	Colourless.
Odour:	Unpleasant
Melting point/freezing point:	-123.1 °C. Atm. press.:Ca. 1 atm. Remarks:Pressure: assumed.
Boiling point or initial boiling point and boiling range:	78.8 °C. Atm. press.:1 atm.
Flammability:	Highly flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	LOWER FLAMMABLE LIMIT 1.8 % BY VOLUME; UPPER FLAMMABLE LIMIT 10.1 % BY VOLUME
Flash point:	-12 °C. Atm. press.:Ca. 1 atm.
Auto-ignition temperature:	245 °C. Atm. press.:Ca. 1 atm.
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	POISE = 0.004. Temperature:20°C.
Solubility:	Insoluble in water
Partition coefficient n-octanol/water:	log Pow = 2.66. Temperature:20 °C.
Vapour pressure:	120.6 hPa. Temperature:20 °C.
Density and/or relative density:	0.88. Temperature:20 °C.
Relative vapour density:	3.2 (vs air)

Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating and on burning. This produces toxic and corrosive fumes including hydrogen chloride and phosgene. Reacts slowly with water. This produces hydrochloric acid. Reacts violently with oxidants and powdered metals. This generates fire and explosion hazard. Attacks aluminium and many plastics.

Chemical stability

no data available

Possibility of hazardous reactions

FLAMMABLE, DANGEROUS FIRE RISK.The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.BUTYL CHLORIDE is incompatible with oxidizing agents and strong bases. Reacts with aluminum powder, magnesium, liquid oxygen, potassium and sodium (NTP, 1992). Emits phosgene gas when heated to decomposition. May be sensitive to heat.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

Dangerous; when heated to decomposition, emits highly toxic fumes of phosgene.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 - rat - 2 200 mg/kg bw.

Inhalation: LC50 - rat (male/female) - > 7.74 mg/L air.

Dermal: LD50 - rabbit (male) - > 17 600 mg/kg bw.

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

CLASSIFICATION: D; not classifiable as to human carcinogenicity. BASIS FOR CLASSIFICATION: Based on no human carcinogenicity data and inadequate animal data. HUMAN CARCINOGENICITY DATA: None. ANIMAL CARCINOGENICITY DATA: Inadequate.

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 nervous system.

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 , especially on spraying.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 - Danio rerio (previous name: Brachydanio rerio) - 71.4 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: EC50 - Daphnia magna - 452 mg/L - 48 h.

Toxicity to algae: EC50 - Desmodesmus subspicatus (previous name: Scenedesmus subspicatus) - > 450 mg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 1 000 mg/L - 3 h. Remarks:Respiration rate.

Persistence and degradability

Microbial enzymes and pure cultures have been reported that are capable of degrading n-butyl chloride under aerobic conditions(2). Limited data from screening studies suggest that n-butyl chloride biodegrades slowly under aerobic conditions. When incubated with activated sludges from 3 municipal treatment plants, 2.6% of the n-butyl chloride (500 mg/l) was oxidized after 24 hr(1). At the concentration used, n-butyl chloride was toxic to 1 of the 3 sludges(1). Another screening test using sewage seed and much lower concentrations of n-butyl chloride (1 ppm) resulted in 10% of the theoretical BOD being consumed in 1.4 days(3).

Bioaccumulative potential

Using the log octanol/water partition coefficient for n-butyl chloride, 2.64(1), one estimates a BCF of 60 using a recommended regression equation(2,SRC). Therefore, n-butyl chloride will not bioconcentrate in fish and aquatic organisms(2)

Mobility in soil

Using the water solubility for n-butyl chloride, 1100 mg/l(1), the Koc can be estimated to be 93 and 102 using two recommended regression equations(2,SRC). These estimates indicate that n-butyl chloride will have high mobility in soil(3).

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: UN1127 (For reference only, please check.)
IMDG: UN1127 (For reference only, please check.)
IATA: UN1127 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CHLOROBUTANES (For reference only, please check.)
IMDG: CHLOROBUTANES (For reference only, please check.)
IATA: CHLOROBUTANES (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 3 (For reference only, please check.)
IMDG: 3 (For reference only, please check.)
IATA: 3 (For reference only, please check.)

Packing group, if applicable

ADR/RID: II (For reference only, please check.)
IMDG: II (For reference only, please check.)
IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

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

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/

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