

Chemical Safety Data Sheet MSDS / SDS

Chloromethane 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: Chloromethane

CAS: 74-87-3

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**

Gases under pressure: Liquefied gas

Flammable gases, Category 1A, Flammable gas

Carcinogenicity, Category 2
Specific target organ toxicity - repeated exposure, Category 2

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Danger

Hazard statement(s)

H220 Extremely flammable gas
H351 Suspected of causing cancer
H373 May cause damage to organs through prolonged or repeated exposure

Precautionary statement(s)

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P203 Obtain, read and follow all safety instructions before use.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P260 Do not breathe dust/fume/gas/mist/vapours/spray.

Response

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.

Storage

P410+P403 Protect from sunlight. Store in a well-ventilated place.
P403 Store in a well-ventilated place.
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.

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Chloromethane
Common names and synonyms:	Chloromethane
CAS number:	74-87-3
EC number:	200-817-4
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

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

Following skin contact

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. Refer for medical attention .

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/effects, acute and delayed

Inhalation causes nausea, vomiting, weakness, headache, emotional disturbances; high concentrations cause mental confusion, eye disturbances, muscular tremors, cyanosis, convulsions. Contact of liquid with skin may cause frostbite. (USCG, 1999)

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

Flush eyes with water, and hospitalize. Treat with oxygen against shock, and, if indicated administer stimulants. Treat burns of skin in the usual way.

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Toxic and irritating gases are generated in fires. Behavior in Fire: Containers may explode (USCG, 1999)

Special protective actions for fire-fighters

Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out. In other cases extinguish with water spray. In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

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. NEVER direct water jet on liquid.

Environmental precautions

Evacuate danger area! Consult an expert! Personal protection: complete protective clothing including self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid.

Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas; Environmental

precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains; Methods and materials for containment and cleaning up: Clean up promptly by sweeping or vacuum.

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. Use non-sparking handtools. 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. Ventilation along the floor. Keep container tightly closed in a dry and well-ventilated place. Contents under pressure. Moisture sensitive. Storage class (TRGS 510): Gases

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 50 ppm as TWA; 100 ppm as STEL; (skin); A4 (not classifiable as a human carcinogen). MAK: 100 mg/m³, 50 ppm; peak limitation category: II(2); skin absorption (H); carcinogen category: 3B; pregnancy risk group: B

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 goggles, face shield or eye protection in combination with breathing protection.

Skin protection

Cold-insulating 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:	Methyl chloride is a colorless gas with a faint sweet odor. Shipped as a liquid under its vapor pressure. A leak may either be liquid or vapor. Contact with the liquid may cause frostbite by evaporative cooling. Easily ignited. Vapors heavier than air. Can asphyxiate by the displacement of air. Under prolonged exposure to fire or intense heat the containers may rupture violently and rocket. Used to make other chemicals and as a herbicide.
Colour:	Colorless compressed gas or liquid
Odour:	Faint sweet ethereal odor
Melting point/freezing point:	-91°C(lit.)
Boiling point or initial boiling point and boiling range:	?24.2°C(lit.)
Flammability:	Flammable Gas
Lower and upper explosion limit/flammability limit:	Lower flammable limit: 8.1% by volume; Upper flammable limit: 17.4% by volume
Flash point:	24°C(lit.)
Auto-ignition temperature:	1169°F
Decomposition temperature:	no data available

pH:	no data available
Kinematic viscosity:	0.00027 Pa.s at 20 deg C (liquid, 0.5 MPa)
Solubility:	Slightly soluble (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 0.91
Vapour pressure:	760 mm Hg at -11° F ; 3672 mm Hg at 68° F (NTP, 1992)
Density and/or relative density:	0.915g/mL at 25°C (lit.)
Relative vapour density:	1.74 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

NIOSH considers methyl chloride to be a potential occupational carcinogen. Decomposes on burning. This produces toxic and corrosive fumes including hydrogen chloride and phosgene. Reacts violently with powdered aluminium, powdered zinc, aluminium trichloride and ethylene. This generates fire and explosion hazard. Attacks many metals in the presence of moisture.

Chemical stability

Chemical stability: Stable under recommended storage conditions.

Possibility of hazardous reactions

Flammable gas. Very dangerous fire hazard when exposed to heat, flame or powerful oxidizers. ... May ignite on contact with aluminum chloride or powdered aluminum. The gas is heavier than air and may travel along the ground; distant ignition possible. The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. See Notes. METHYL CHLORIDE can react vigorously with oxidizing agents. May react explosively with sodium, potassium, sodium-potassium alloy, magnesium, zinc. Reacts with aluminum powder in the presence of catalytic amounts of aluminum chloride to form pyrophoric trimethylaluminum. When heated to decomposition, it emits highly toxic fumes of chlorine [Bretherick, 5th ed., 1995, p. 176].

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Strong oxidizing agents, Iron

Hazardous decomposition products

In contact with moisture undergoes slow decomposition to hydrochloric acid and methanol.

SECTION 11: Toxicological information**Acute toxicity**

Oral: LD50 Rat oral 1800 mg/kg

Inhalation: LC50 Mouse inhalation 6300 mg/cu m/7 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

The Human Health Assessment Group in EPA's Office of Health and Environmental Assessment has evaluated methyl chloride for carcinogenicity. According to their analysis, the weight-of-evidence for methyl chloride is group C, which is based on limited evidence in animals. No data are available for humans. As a group C chemical, methyl chloride is considered possibly carcinogenic to humans.

Reproductive toxicity

No studies were located concerning developmental or reproductive effects of methyl chloride in humans. Several inhalation studies have demonstrated that methyl chloride causes reproductive effects in animals, with effects such as testicular lesions, disrupted spermatogenesis, and decreased sperm production in male rats. Delayed fetal development was noted in rats exposed to the same concentration of methyl chloride that resulted in maternal toxicity.

STOT-single exposure

The liquid may cause frostbite. The substance may cause effects on the central nervous system. Exposure far above the OEL could cause liver, cardiovascular system and kidney damage. Exposure could cause unconsciousness. Medical observation is indicated. The effects may be delayed.

STOT-repeated exposure

The substance may have effects on the central nervous system. This may result in effects measured using behavioural tests. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Aspiration hazard

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: *Lepomis macrochirus* (/Bluegill)/; Conditions: static bioassay in fresh water at 23 deg C, mild aeration applied after 24 hr; Concentration: 550 ppm for 96 hr

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

AEROBIC: Methyl chloride, present at 3.79-19.2 mg/L, reached 1% of its theoretical BOD in 4 weeks using an activated sludge inoculum concentration of 1 drop/L in the Japanese MITI test(1). Using OECD Guideline 301D (Ready Biodegradability: Closed Bottle Test) with an activated sludge inoculum, methyl chloride (at 3 mg/L) reached 77% degradation after 28 days of incubation(2). Direct measurements of methyl chloride degradation in coastal seawater from Nova Scotia indicated that loss of methyl chloride was due to microbial activity(3). Strains of bacteria isolated from terrestrial, freshwater, estuarine and marine environments have been shown to be capable of biodegrading methyl chloride(2,4). Methyl chloride was biodegraded in a soil microcosm(5).

Bioaccumulative potential

An estimated BCF of 3 was calculated for methyl chloride in fish(SRC), using a log Kow of 0.91(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).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for methyl chloride can be estimated to be 13(SRC). According to a classification scheme(2), this estimated Koc value suggests that methyl chloride 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: UN1063 (For reference only, please check.)

IMDG: UN1063 (For reference only, please check.)

IATA: UN1063 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: METHYL CHLORIDE (REFRIGERANT GAS R 40) (For reference only, please check.)

IMDG: METHYL CHLORIDE (REFRIGERANT GAS R 40) (For reference only, please check.)

IATA: METHYL CHLORIDE (REFRIGERANT GAS R 40) (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 2.1 (For reference only, please check.)

IMDG: 2.1 (For reference only, please check.)

IATA: 2.1 (For reference only, please check.)

Packing group, if applicable

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

IMDG: (For reference only, please check.)

IATA: (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/>

Other Information

Following intoxication patient should be observed carefully for 48 hours. Check oxygen content before entering the area.

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