

SAFETY DATA SHEETS

According to the UN GHS revision 9

Version: 1.2
Creation Date: July 15, 2019
Revision Date: August 08, 2025

SECTION 1: Identification

1.1 GHS Product identifier

Product name Chloromethane in Methanol Certified Reference Material

1.2 Other means of identification

Product number CPRM1826

Other names Methane, chloro-

1.3 Recommended use of the chemical and restrictions on use

Identified uses For laboratory and Industrial use only.

Uses advised against no data available

1.4 Supplier's details

Company CATO Research Chemicals Inc.

Address 3/F,Building B,No.179 BASIGO, Guangpu Rd East,Huangpu Dist,Guangzhou

Telephone +86-20-81960175

1.5 Emergency phone number

Emergency phone number +86-20-81960175

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

Gases under pressure: Liquefied gas

Flammable gases, Category 1A, Flammable gas

Carcinogenicity, Category 2

Specific target organ toxicity – repeated exposure, Category 2

2.2 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.

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
Chloromethane in Methanol Certified Reference Material	Chloromethane	74-87-3	200-817-4	100%

SECTION 4: First-aid measures

4.1 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.

4.2 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)

4.3 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: Fire-fighting measures

5.1 Suitable extinguishing media

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

5.2 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)

5.3 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

6.1 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.

6.2 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.

6.3 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

7.1 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.

7.2 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

8.1 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

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 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

10.1 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.

10.2 Chemical stability

Chemical stability: Stable under recommended storage conditions.

10.3 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].

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Incompatible materials: Strong oxidizing agents, Iron

10.6 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

12.1 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

12.2 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).

12.3 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).

12.4 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.

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

14.2 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.)

14.3 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.)

14.4 Packing group, if applicable

ADR/RID: (For reference only, please check.) IMDG: (For reference only, please check.) IATA: (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
Chloromethane	Chloromethane	74-87-3	200-817-4
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.
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, 2019
Revision Date August 08, 2025

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.

Any questions regarding this SDS, Please send your inquiry to info@cato-chem.com

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