



CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 12/20/2010 Revision date: 11/30/2023 Supersedes: 7/7/2023 Version: 4.4

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: CHLOROETHANE (D5, 98%)
CAS-No.	: 19199-91-8
Product code	: DLM-1171
Formula	: CD3CD2Cl
Synonyms	: Ethyl chloride

1.2. Recommended use and restrictions on use

No additional information available

1.3. Supplier

Cambridge Isotope Laboratories, Inc.
50 Frontage Rd
01810
ANDOVER, MA, 01810
USA
T 1-800-322-1174
cilsales@isotope.com - www.isotope.com

1.4. Emergency telephone number

Emergency number : 1-703-741-5970
Chemtrec 1-800-424-9300 24 hours

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable gases Category 1	H220	Extremely flammable gas
Gases under pressure Compressed gas	H280	Contains gas under pressure; may explode if heated
Carcinogenicity Category 2	H351	Suspected of causing cancer (Dermal, Inhalation, oral)
Hazardous to the aquatic environment – Acute Hazard Category 3	H402	Harmful to aquatic life
Hazardous to the aquatic environment – Chronic Hazard Category 3	H412	Harmful to aquatic life with long lasting effects
Full text of H statements : see section 16		

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated
H351 - Suspected of causing cancer (Dermal, Inhalation, oral)
H402 - Harmful to aquatic life
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CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Precautionary statements (GHS US)	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. heat, hot surfaces, open flames, sparks P273 - Avoid release to the environment. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P308+P313 - If exposed or concerned: Get medical advice/attention. P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 - Eliminate all ignition sources if safe to do so. P403 - Store in a well-ventilated place. P405 - Store locked up. P410+P403 - Protect from sunlight. Store in a well-ventilated place. P501 - Dispose of contents/container to Comply with applicable regulations.
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2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Name	Product identifier	%	GHS US classification
CHLOROETHANE (D5, 98%) (Main constituent)	CAS-No.: 19199-91-8	100	Flam. Gas 1, H220 Press. Gas (Comp.), H280 Carc. 2, H351 Aquatic Acute 3, H402 Aquatic Chronic 3, H412

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general	: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	: If breathed in, move person to fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	: Wash off with soap and plenty of water. Consult a physician.
First-aid measures after eye contact	: Flush eyes with water as a precaution.
First-aid measures after ingestion	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Abdominal pain. Vomiting. Headache. Cough. Intoxication. Incoordination. Dizziness. Liver. Kidney injury may occur. Readily absorbed through lungs and skin, but is also rapidly given off through the lungs. Dermatitis. Consumption of alcohol may increase toxic effects. At high concentrations: Cardiac arrest. Acts as a simple asphyxiant by displacing air. Notes to physician: the use of adrenaline as a stimulant should be avoided due to the sensitizing effect of chloroethane on the myocardium.
Symptoms/effects	: Suspected of causing cancer (in contact with skin, if inhaled, if swallowed).
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory tract irritation.
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/effects after eye contact	: Contact may cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

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

5.2. Specific hazards arising from the chemical

Fire hazard : Extremely flammable gas. Contains gas under pressure; may explode if heated.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray to cool unopened containers.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

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 vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

For containment : Clean up promptly by sweeping or vacuum.
Methods for cleaning up : Take up mechanically (sweeping, shoveling) and collect in suitable container for disposal.

6.4. Reference to other sections

No additional information available

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Additional hazards when processed : Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent build up of electrostatic charge.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store at room temperature away from light and moisture.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

CHLOROETHANE (D5, 98%) (19199-91-8)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA [ppm]	100 ppm Liver damage. Confirmed animal carcinogen with unknown relevance to humans.
ACGIH chemical category	No component of this product present at levels greater than or equal to 0.1% is identifiable as a carcinogen or potential carcinogen by ACGIH.
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	2600 mg/m ³

8.2. Appropriate engineering controls

No additional information available

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Gloves. Protective clothing. Protective goggles. Self-contained breathing apparatus.

Materials for protective clothing:

Wear suitable protective clothing and gloves

Hand protection:

Wear suitable protective clothing and gloves

Eye protection:

Wear eye protection. Chemical goggles or face shield with safety glasses

Skin and body protection:

Wear suitable protective clothing, gloves and eye/face protection

Respiratory protection:

In case of inadequate ventilation wear respiratory protection. Approved supplied air respirator

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: Gaseous.
Color	: No data available
Odor	: Pungent. Ethereal.
Odor threshold	: No data available
pH	: No data available
Melting point	: -139 °C (-218.2 °F)
Freezing point	: No data available
Boiling point	: 12.3 °C (54.1 °F) at 1,013 hPa (760 mmHg)
Flash point	: -50 °C (-58.0 °F) - closed cup
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapor pressure	: 1323.4 hPa (992.6 mmHg) at 20.0 °C (68.0 °F)
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Density	: 0.921 g/ml @ 0 - 4 °C (32 - 39 °F)
Molecular mass	: 69.55 g/mol (Labeled)
Solubility	: Water: 5.74 g/l
Partition coefficient n-octanol/water (Log Pow)	: 1.43
Auto-ignition temperature	: 519 °C (966 °F)
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: 3.16 – 15 % (V)
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable if stored under recommended conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

10.5. Incompatible materials

Strong oxidizing agents, Sodium/sodium oxides, Potassium, and its alloys.

10.6. Hazardous decomposition products

Formed under fire conditions - Carbon oxides, Hydrogen chloride gas.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

CHLOROETHANE (D5, 98%) (19199-91-8)

LC50 Inhalation - Rat [ppm]	> 19000 ppm/4h Male and female
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Not classified
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Suspected of causing cancer (Dermal, Inhalation, oral).

CHLOROETHANE (D5, 98%) (19199-91-8)

IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Potential Adverse human health effects and symptoms	: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Abdominal pain. Vomiting. Headache. Cough. Intoxication. Incoordination. Dizziness. Liver. Kidney injury may occur. Readily absorbed through lungs and skin, but is also rapidly given off through the lungs. Dermatitis. Consumption of alcohol may increase toxic effects. At high concentrations: Cardiac arrest. Acts as a simple asphyxiant by displacing air. Notes to physician: the use of adrenaline as a stimulant should be avoided due to the sensitizing effect of chloroethane on the myocardium.
Symptoms/effects	: Suspected of causing cancer (in contact with skin, if inhaled, if swallowed).
Symptoms/effects after inhalation	: May be harmful if inhaled. May cause respiratory tract irritation.
Symptoms/effects after skin contact	: May be harmful if absorbed through skin. May cause skin irritation.
Symptoms/effects after eye contact	: Contact may cause eye irritation.
Symptoms/effects after ingestion	: May be harmful if swallowed.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life. with long lasting effects.

CHLOROETHANE (D5, 98%) (19199-91-8)

LC50 - Fish [1]	58 mg/l Daphnia magna (Water flea) - 48 h
ErC50 algae	118 mg/l Desmodesmus subspicatus (green algae) - 72 h

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

CHLOROETHANE (D5, 98%) (19199-91-8)

Partition coefficient n-octanol/water (Log Pow)	1.43
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Waste materials should be disposed of under conditions which meet Federal, State, and local environmental control regulations.
Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No : UN1037
UN-No. (TDG) : UN1037
UN-No. (IMDG) : 1037
UN-No. (IATA) : 1037

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Ethyl chloride
Proper Shipping Name (TDG) : ETHYL CHLORIDE
Proper Shipping Name (IMDG) : ETHYL CHLORIDE
Proper Shipping Name (IATA) : Ethyl chloride

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 2.1
Hazard labels (DOT) : 2.1



TDG

Transport hazard class(es) (TDG) : 2.1
Hazard labels (TDG) : 2.1

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations



IMDG

Transport hazard class(es) (IMDG) : 2.1
Hazard labels (IMDG) : 2.1



IATA

Transport hazard class(es) (IATA) : 2.1
Hazard labels (IATA) : 2.1



14.4. Packing group

Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT
UN-No.(DOT) : UN1037
DOT Special Provisions (49 CFR 172.102) : B77 - Other packaging are authorized when approved by the Associate Administrator.
N86 - UN pressure receptacles made of aluminum alloy are not authorized.
T50 - When portable tank instruction T50 is referenced in Column (7) of the 172.101 Table, the applicable liquefied compressed gases are authorized to be transported in portable tanks in accordance with the requirements of 173.313 of this subchapter.
DOT Packaging Non Bulk (49 CFR 173.xxx) : 322
DOT Packaging Bulk (49 CFR 173.xxx) : 314, 315
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg
DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.
DOT Vessel Stowage Other : 40 - Stow "clear of living quarters"

TDG

UN-No. (TDG) : UN1037
ERAP Index : 3000
Explosive Limit and Limited Quantity Index : 0

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Excepted quantities (TDG) : E0
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index : Forbidden
Emergency Response Guide (ERG) Number : 115

IMDG
Limited quantities (IMDG) : 0
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P200
Tank instructions (IMDG) : T50
EmS-No. (Fire) : F-D - FIRE SCHEDULE Delta - FLAMMABLE GASES
EmS-No. (Spillage) : S-U - SPILLAGE SCHEDULE Uniform - GASES (FLAMMABLE, TOXIC OR CORROSIVE)
Stowage category (IMDG) : B
Stowage and handling (IMDG) : SW2
Flash point (IMDG) : '
Properties and observations (IMDG) : Explosive limits: 3.5% to 15% Much heavier than air (2.2). Boiling point: 13°C.
MFAG-No : 115

IATA
PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 200
CAO max net quantity (IATA) : 0.3kg
Special provision (IATA) : A1
ERG code (IATA) : 10A

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

CHLOROETHANE (D5, 98%) (19199-91-8)

SARA Section 302 Threshold Planning Quantity (TPQ)	Subject to reporting requirements of United States SARA Section 302
SARA Section 311/312 Hazard Classes	Fire hazard Sudden release of pressure hazard Delayed (chronic) health hazard

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
CHLOROETHANE (D5, 98%)	19199-91-8	Not present	-	

15.2. International regulations

CANADA

CHLOROETHANE (D5, 98%) (19199-91-8)

Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

CHLOROETHANE (D5, 98%)

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

EU-Regulations

No additional information available

National regulations

CHLOROETHANE (D5, 98%) (19199-91-8)

CAUTION: This material is supplied for research and development purposes subject to the R&D exemption under TSCA, 40 CFR 720.36, and must meet the requirements of the exemption, including supervision by a "technically qualified individual" as defined by 40 CFR 720.3(ee). The use of this material for "commercial purposes" as defined by 40 CFR 720.3(r) is not permitted in the United States.

Listed on TECI (Thailand Existing Chemicals Inventory)

15.3. US State regulations

CHLOROETHANE (D5, 98%) (19199-91-8)

U.S. - California - Proposition 65 - Carcinogens List	Yes
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U.S. - California - Proposition 65 - Developmental Toxicity	No
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U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
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U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
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SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 11/30/2023

Other information : This product is not radioactive. The data given for this product are those of the corresponding unlabeled compound, unless specifically indicated otherwise. Health and safety data for labeled compounds are generally not available, but are assumed to be similar or identical to the corresponding unlabeled compound.

Full text of H-phrases

H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated
H351	Suspected of causing cancer
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

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