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ISO 9001: 2015

MATERIAL SAFETY DATA SHEET

1. Identification

1.1 GHS Product identifier

Dichloromethane, 98%

Code D 1545

2. Hazard identification

2.1 Classification of the substance or mixture

Carcinogenicity, Category 2

2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H351 Suspected of causing cancer

Precautionary statement(s)

Prevention

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P308+P313 IF exposed or concerned: Get medical advice/attention.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
dichloromethane	dichloromethane	75-09-2	none	100%

4. First-aid measures

4.1 Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

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

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

INHALATION: anesthetic effects, nausea and drunkenness. CONTACT WITH SKIN AND EYES: skin irritation, irritation of eyes and nose. (USCG, 1999)

4.3 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. /Chlorinated fluorocarbons (CFCs) and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use dry chemical, carbon dioxide, foam, or water spray. Use water spray to keep fire-exposed containers cool.

5.2 Specific hazards arising from the chemical

Special Hazards of Combustion Products: Dissociation products generated in a fire may be irritating or toxic. (USCG, 1999)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions

Personal protection: self-contained breathing apparatus. Ventilation. 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.

6.3 Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. Handling and storage

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Separated from strong oxidants, strong bases, metals and food and feedstuffs. See Chemical Dangers. Cool. Well closed. Ventilation along the floor. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Heat sensitive. Store under inert gas.

8. Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

NIOSH considers methylene chloride a potential occupational carcinogen.

NIOSH usually recommends that occupational exposures to carcinogens be limited to the lowest feasible concentration.

Biological limit values

no data available

8.2 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

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

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9. Physical and chemical properties

Physical state A colorless liquid with a sweet, penetrating, ether-like odor

Colour Colorless liquid [Note: A gas above 104 degrees F]

Odour Sweet, pleasant odor, like chloroform

Melting point/ freezing point -97 °C

Boiling point or initial boiling point and boiling range 39.8-40 °C (lit.)

Flammability Combustible Liquid Combustible under specific conditions. Gives off irritating or toxic fumes (or gases) in a fire.

Lower and upper explosion limit / flammability limit Lower flammable limit: 13% by volume; Upper flammable limit:

23% by volume

Flash point 39-40 °C

Auto-ignition temperature 661.67 °C

Decomposition temperature no data available

pH no data available

Kinematic viscosity 0.437 mPa.s at 20 °C

Solubility In water: 20 g/L (20 °C)

Partition coefficient n-octanol/water (log value) log Kow = 1.25

Vapour pressure 24.45 psi (55 °C)

Density and/or relative density 1.325g/mL at 25°C (lit.)
Relative vapour density 2.9 (vs air)
Particle characteristics no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

In the absence of moisture at ordinary temp, dichloromethane is relatively stable when compared with its congeners, chloroform and carbon tetrachloride.

10.3 Possibility of hazardous reactions

It is flammable in the range of 12-19% in air but ignition is difficult. The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated. DICHLOROMETHANE reacts vigorously with active metals such as lithium, sodium and potassium, and with strong bases such as potassium tert-butoxide. It is incompatible with strong oxidizers, strong caustics and chemically active metals such as aluminum or magnesium powders. The liquid will attack some forms of plastic, rubber and coatings. This compound reacts with sodium-potassium alloy, (potassium hydrogen + N-methyl-N-nitrosurea), nitrogen tetroxide and liquid oxygen. It also reacts with titanium. On contact with water it corrodes iron, some stainless steels, copper and nickel. It is incompatible with alkali metals. It is incompatible with amines, zinc and alloys of aluminum, magnesium and zinc. This compound is liable to explode when mixed with dinitrogen pentoxide or nitric acid. Mixtures of this compound in air with methanol vapor are flammable.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

Mixtures of /dinitrogen/ tetraoxide with ... dichloromethane ... are explosive when subjected to shock of 25 g TNT equiv or less.

10.6 Hazardous decomposition products

It can be decomposed by contact with hot surfaces and open flame, and then yield toxic fumes that are irritating and give warning of their presence. When heated to decomposition it emits highly toxic fumes of phosgene and /hydrogen chloride/.

11. Toxicological information

Acute toxicity

Oral: LD50 Rat oral 1600 mg/kg

Inhalation: LC50 Mouse inhalation 16000 ppm/7 hr plus 1 hr observation

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

NTP: Reasonably anticipated to be a human carcinogen

Reproductive toxicity

No studies were located regarding developmental or reproductive effects in humans from inhalation or oral exposure. Animal studies have demonstrated that methylene chloride crosses the placental barrier, and minor skeletal variations and lowered fetal body weights have been noted.

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12. Ecological information

12.1 Toxicity

Toxicity to fish: LC50; Species: Danio rerio (Zebra danio); Conditions: freshwater, flow through, 23°C, pH 8.15; Concentration: 254000 ug/L for 48 hr /formulation

Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water flea) age < or =24 hr; Conditions: freshwater, static, 22°C, pH 7.4-9.4, dissolved oxygen 6.5-9.1 mg/L; Concentration: 310000 ug/L for 24 hr (95% confidence interval: 280000-340000 ug/L) /> or =80% purity

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

12.2 Persistence and degradability

AEROBIC: Dichloromethane is reported to completely biodegrade under aerobic conditions with sewage seed or activated sludge between 6 hours to 7 days (1-5). Dichloromethane, present at 100 mg/L, reached 13% of its theoretical BOD in 4 weeks using an activated sludge inoculum at 30 mg/L in the Japanese MITI test (OECD 301C Method)(6). Using a respirometer test method, 49% of initial dichloromethane (10 mg/L) biodegraded using an adapted activated sludge inoculum(7). Using a SaproMat respirometer test method, nearly 100% of initial dichloromethane (660 mg/L) biodegraded using an adapted sewage inoculum(7). Dichloromethane

was degraded at a concentration of 3.3 mg/L in the aqueous phase of natural sediment with a corresponding half-life of 10.9 days(8). Dichloromethane, at 50 mg/L, had 0% degradation in a Manometric respirometry test over a 28-day incubation period(9).

12.3 Bioaccumulative potential

Using carp (*Cyprinus carpio*) which were exposed over a 6-week period, a BCF range of 2.0-40 was determined for dichloromethane at initial concentrations of 25 and 250 ug/L(1). According to a classification scheme(2), this BCF range suggests bioconcentration in aquatic organisms is low to moderate(SRC).

12.4 Mobility in soil

Dichloromethane has reported experimentally derived Koc values of 28(1), 36(2), 48 and 8(3). According to a classification scheme(4), these Koc values suggest that dichloromethane is expected to have very high mobility in soil. Dichloromethane is adsorbed strongly to peat moss, less strongly to clay, only slightly to dolomite limestone, and not at all to sand(5).

12.5 Other adverse effects

no data available

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.

14. Transport information

14.1 UN Number

ADR/RID: UN1593

IMDG: UN1593

IATA: UN1593

14.2 UN Proper Shipping Name

ADR/RID: DICHLOROMETHANE

IMDG: DICHLOROMETHANE

IATA: DICHLOROMETHANE

14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

14.4 Packing group, if applicable

ADR/RID: III

IMDG: III

IATA: III

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 Annex II of MARPOL 73/78 and the IBC Code

no data available

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
dichloromethane	dichloromethane	75-09-2	none
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.

Section 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.