1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Dichloromethane
Product Number : 270997
Brand : Sigma-Aldrich
Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Carcinogen, Target Organ Effect, Harmful by ingestion., Irritant

Target Organs
Liver, pancreas, Blood, Central nervous system, Heart, Kidney

GHS Classification
Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2B)
Carcinogenicity (Category 2)

GHS Label elements, including precautionary statements

Pictogram

Signal word
Warning

Hazard statement(s)
H302 Harmful if swallowed.
H315 + H320 Causes skin and eye irritation.
H351 Suspected of causing cancer.

Precautionary statement(s)
P281 Use personal protective equipment as required.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 0
NFPA Rating

Health hazard: 2
Fire: 0
Reactivity Hazard: 0

Potential Health Effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: Harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Methylene chloride
Formula: CH₂Cl₂
Molecular Weight: 84.93 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene chloride</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>75-09-2</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-838-9</td>
</tr>
<tr>
<td>Index-No.</td>
<td>602-004-00-3</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

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

Special protective equipment for firefighters
Wear self-contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage
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/PERSOAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene chloride</td>
<td>75-09-2</td>
<td>TWA</td>
<td>50 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Central Nervous System impairment Carboxyhemoglobinemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Substance listed; for more information see OSHA document 1910.1052</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See 1910.1052</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
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.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form liquid
Colour colourless
### Safety data

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: -97 °C (-143 °F)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>39.8 - 40 °C (103.6 - 104 °F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>no data available</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>556.1 °C (1,033.0 °F)</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>556.1 °C (1,033.0 °F)</td>
</tr>
<tr>
<td>Flash point/freezing point</td>
<td>-</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>12 %(V)</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>19 %(V)</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>470.9 hPa (353.2 mmHg) at 20.0 °C (68.0 °F)</td>
</tr>
<tr>
<td>Density</td>
<td>1.325 g/mL at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>slightly soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: 1.25</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>2.93 (Air = 1.0)</td>
</tr>
<tr>
<td>Odour</td>
<td>no data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>0.71</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
Heat, flames and sparks. Exposure to sunlight.

**Materials to avoid**
Alkali metals, Aluminum, Strong oxidizing agents, Bases, Amines, Magnesium, Strong acids and strong bases, Vinyl compounds

**Hazardous decomposition products**
Other decomposition products - no data available
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

Contains the following stabiliser(s):
2-Methyl-2-butene (>0.005 - <0.015 %)

### 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**
LD50 Oral - rat - 1,600 mg/kg

**Inhalation LC50**
LC50 Inhalation - rat - 52,000 mg/m3

**Dermal LD50**
no data available
Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit - Skin irritation - 24 h

Serious eye damage/eye irritation
Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization
no data available

Germ cell mutagenicity
Genotoxicity in vivo - rat - Oral
DNA damage

Carcinogenicity
Carcinogenicity - rat - Inhalation
Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Tumors.

Limited evidence of carcinogenicity in animal studies
IARC: 2B - Group 2B: Possibly carcinogenic to humans (Methylene chloride)
NTP: Reasonably anticipated to be a human carcinogen (Methylene chloride)

Reproductive toxicity
no data available

Teratogenicity

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion Harmful if swallowed.
Skin Harmful if absorbed through skin. Causes skin irritation.
Eyes Causes eye irritation.

Signs and Symptoms of Exposure
Dichloromethane is metabolized in the body producing carbon monoxide which increases and sustains carboxyhemoglobin levels in the blood, reducing the oxygen-carrying capacity of the blood., Acts as a simple asphyxiant by displacing air., anesthetic effects, Difficulty in breathing, Headache, Dizziness, Prolonged or repeated contact with skin may cause:, defatting, Dermatitis, Contact with eyes can cause:, Redness, Blurred vision, Provokes tears., Effects due to ingestion may include:, Gastrointestinal discomfort, Central nervous system depression, Paresthesia., Drowsiness, Convulsions, Conjunctivitis., Pulmonary edema. Effects may be delayed., Irregular breathing., Stomach/intestinal disorders, Nausea, Vomiting, Increased liver enzymes., Weakness, Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material., Abdominal pain

Synergistic effects
no data available

Additional Information
RTECS: PA8050000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish
LC50 - Pimephales promelas (fathead minnow) - 193.00 mg/l - 96 h
NOEC - Cyprinodon variegatus (sheepshead minnow) - 130 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 1,682.00 mg/l - 48 h

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**

UN number: 1593  Class: 6.1  Packing group: III
Proper shipping name: Dichloromethane
Reportable Quantity (RQ): 1000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

**IMDG**

UN number: 1593  Class: 6.1  Packing group: III  EMS-No: F-A, S-A
Proper shipping name: DICHLOROMETHANE
Marine pollutant: No

**IATA**

UN number: 1593  Class: 6.1  Packing group: III
Proper shipping name: Dichloromethane

15. REGULATORY INFORMATION

**OSHA Hazards**
Carcinogen, Target Organ Effect, Harmful by ingestion., Irritant

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards**
Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene chloride</td>
<td>75-09-2</td>
<td>2007-07-01</td>
</tr>
</tbody>
</table>
Pennsylvania Right To Know Components

Methylene chloride
CAS-No. 75-09-2
Revision Date 2007-07-01

New Jersey Right To Know Components

Methylene chloride
CAS-No. 75-09-2
Revision Date 2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.
Methylene chloride
CAS-No. 75-09-2
Revision Date 2007-09-28

16. OTHER INFORMATION

Further information
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