



**SIGMA-ALDRICH**

## Material Safety Data Sheet

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Version 1.20

### Section 1 - Product and Company Information

|                           |                                        |
|---------------------------|----------------------------------------|
| Product Name              | DICHLOROMETHANE, 99.6%, A.C.S. REAGENT |
| Product Number            | D65100                                 |
| Brand                     | Aldrich Chemical                       |
| Company                   | Sigma-Aldrich                          |
| Street Address            | 3050 Spruce Street                     |
| City, State, Zip, Country | SAINT LOUIS, MO 63103 US               |
| Technical Phone:          | 314 771 5765                           |
| Fax:                      | 800 325 5052                           |
| Emergency Phone:          | 414 273 3850 Ext. 5996                 |

### Section 2 - Composition/Information on Ingredient

|                |                                                                                                                                                                                                                                                                                                                                                              |       |         |      |     |          |     |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------|------|-----|----------|-----|
| Substance Name | DICHLOROMETHANE (STABILIZER: <0.1% AMYLENE)                                                                                                                                                                                                                                                                                                                  | CAS # | 75-09-2 | QSHA | Yes | SARA 313 | Yes |
| Formula        | CH <sub>2</sub> Cl <sub>2</sub>                                                                                                                                                                                                                                                                                                                              |       |         |      |     |          |     |
| Synonyms       | Aerotherm MM, Chlorure de methylene (French), Dichloromethane (DOT-OSHA), F 30 (chlorocarbon), Freon 30, HCC 30, Khiaon 30, Methane dichloride, Methylene bichloride, Methylene chloride (ACGIH/OSHA), Methylene dichloride, Metylenu chlorek (Polish), Narkotil, NCI-C50102, R30 (refrigerant), RCRA waste number U080, Solaesthin, Soleana VDA, Solmethine |       |         |      |     |          |     |

### Section 3 - Hazards Identification

#### Emergency Overview

Toxic:  
Harmful by inhalation and if swallowed. Irritating to eyes, respiratory system, and skin. May cause cancer. Possible risk of harm to the unborn child.  
Confirmed Carcinogen (US). Readily absorbed through skin. Target organ: heart because methylene chloride is converted to carbon monoxide in the body. Target organ: central nervous system because of possible dizziness, headache, loss of consciousness and death at high concentrations.

HMIS Rating  
Health: 2 Flammability: 1 Reactivity: 1

NFPA Rating  
Health: 2 Flammability: 1 Reactivity: 1

\*additional chronic hazards present.

For additional information on toxicity, please refer to Section 11.

### Section 4 - First Aid Measures

#### Oral Exposure

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

#### Inhalation Exposure

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

#### Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water.

#### Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

### Section 5 - Fire Fighting Measures

Explosion Limits: Lower: 14 % Upper: 22 %

Autoignition Temp: 662 °C

#### Extinguishing Media

Suitable  
Water spray, Carbon dioxide, dry chemical powder, or appropriate foam.

#### Firefighting

##### Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

##### Specific Hazard(s)

Emits toxic fumes under fire conditions.

### Section 6 - Accidental Release Measures

#### Procedure to be Followed in Case of Leak or Spill

Evacuate area.

#### Procedure(s) of Personal Precaution(s)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

#### Methods for Cleaning Up

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

### Section 7 - Handling and Storage

#### Handling

##### User Exposure

Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure. For protection and handling requirements consult CFR title 29 part 1910.1052.

#### Storage

Suitable

Keep tightly closed. Store in a cool dry place.

#### Special Requirements

Protect from heat.

### Section 8 - Exposure Controls / PPE

#### Engineering Controls

Use only in a chemical fume hood. Safety shower and eye bath.

#### Personal Protective Equipment

##### Respiratory

Positive pressure respirator should be worn.

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Sigma-Aldrich Corporation  
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#### Hand

Compatible chemical-resistant gloves.

#### Other

Impervious protective clothing.

#### General Hygiene Measures

Wash contaminated clothing before reuse. Wash thoroughly after handling.

#### Exposure Limits, RTECS

| Country | Source | Type         | Value                           | Remarks |
|---------|--------|--------------|---------------------------------|---------|
| USA     | ACGIH  | TWA          | 50 PPM                          |         |
| USA     | MSHA   | Standard-air | 500 PPM (1750 MG/M3)            |         |
| USA     | OSHA   | PEL          | 8H TWA 500 PPM; CL 1000 PPM; PK |         |

check ACGIH TLV

LOWEST FEASIBLE CONCENTRATION

#### Section 9 - Physical/Chemical Properties

| Appearance | Color     | Form         |
|------------|-----------|--------------|
|            | Colorless | Clear liquid |

Molecular Weight: 84.93 AMU

|                       |                            |
|-----------------------|----------------------------|
| pH                    | N/A                        |
| BP/ BP Range          | 40 °C                      |
| MP/ MP Range          | -97 °C                     |
| Freezing Point        | N/A                        |
| Vapor Pressure        | 353.111 mmHg               |
| Vapor Density         | 2.9 g/l                    |
| Saturated Vapor Conc. | N/A                        |
| SG/Density            | 1.325 g/cm3                |
| Bulk Density          | N/A                        |
| Odor Threshold        | N/A                        |
| Volatiles%            | N/A                        |
| VOC Content           | N/A                        |
| Water Content         | N/A                        |
| Solvent Content       | N/A                        |
| Evaporation Rate      | N/A                        |
| Viscosity             | N/A                        |
| Partition Coefficient | N/A                        |
| Decomposition Temp.   | N/A                        |
| Flash Point °F        | N/A                        |
| Flash Point °C        | N/A                        |
| Explosion Limits      | Lower: 14 %<br>Upper: 22 % |
| Autoignition Temp     | 662 °C                     |
| Refractive Index      | 1.424                      |
| Solubility            |                            |

Solubility in Water: Slightly.  
Solvent: 0.1 g/ml EtOH, 0.1 g/ml diethyl ether, 0.1 g/ml acetone

#### Section 10 - Stability and Reactivity

|                     |  |
|---------------------|--|
| Stability           |  |
| Stable              |  |
| Stable              |  |
| Conditions to Avoid |  |
| Protect from heat.  |  |

#### Materials to Avoid

Alkali metals, Aluminum.

#### Hazardous Decomposition Products

Hazardous Decomposition Products

Carbon monoxide, Carbon dioxide, Hydrogen chloride gas, Phosgene gas.

#### Hazardous Polymerization

Hazardous Polymerization

Will not occur.

#### Section 11 - Toxicological Information

##### Route of Exposure

Skin Contact

Causes skin irritation.

Skin Absorption

May be harmful if absorbed through the skin.

Eye Contact

Causes eye irritation.

Inhalation

Harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.

Ingestion

Harmful if swallowed.

##### Target Organ(s) or System(s)

Target organ: heart because methylene chloride is converted to carbon monoxide in the body. Target organ: central nervous system because of possible dizziness, headache, loss of consciousness and death at high concentrations. Liver, Pancreas.

##### 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. A simple asphyxiant, exposure can cause anesthetic action, difficulty in breathing, headache, and dizziness. Prolonged or repeated contact with skin can cause defatting and dermatitis. Contact with eyes can cause redness, tearing, and blurred vision. Ingestion may cause gastrointestinal irritation, CNS depression, Parosmia. Somnolence, Convulsions, Conjunctivitis, Pulmonary edema. Effects may be delayed. Irregular breathing. Ingestion can cause gastrointestinal disorders, nausea, and vomiting. Drowsiness. Increased liver enzymes. Weakness. Heavy or prolonged skin exposure may result in the absorption of harmful amounts of material.

##### Conditions Aggravated by Exposure

Existing data suggests that methylene chloride may be a weak mutagen in mammalian systems.

RTECS Number: PA8050000

##### Toxicity Data

Oral - Human: 357 mg/kg (LDLO)

Remarks: Peripheral Nerve and Sensation; Parosmia.

Behavioral: Somnolence (general depressed activity).

Behavioral: Convulsions or effect on seizure threshold.

Oral - Rat: 1,600 mg/kg (LD50)

Remarks: Behavioral: Ataxia.

Inhalation - Rat: 52,000 mg/m3 (LC50)

Intraperitoneal - Rat: 916 MG/KG (LD50)

Oral - Mouse: 873 mg/kg (LD50)

Inhalation - Mouse: 14,400 ppm (LC50)

Intraperitoneal - Mouse: 437 MG/KG (LD50)

Subcutaneous - Mouse: 6460 MG/KG (LD50)

Intraperitoneal - Dog: 1274 MG/KG (LD50)

# **Irritation Data**

Skin - Rabbit: 810 mg 24H  
 Remarks: Severe irritation effect

Skin - Rabbit: 100 mg 24H  
 Remarks: Moderate irritation effect

Eyes - Rabbit: 162 mg  
 Remarks: Moderate irritation effect

Eyes - Rabbit: 10 mg  
 Remarks: Mild irritation effect

Eyes - Rabbit: 500 mg 24H  
 Remarks: Mild irritation effect

# **Chronic Exposure Carcinogen**

Result: This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Rat - Inhalation: 3500 PPM 6H/2Y 1

Result: Tumorigenic: Carcinogenic by RTECS criteria. Endocrine: Tumors.

Mouse - Inhalation: 2000 PPM 5H/2Y C

Result: Tumorigenic: Carcinogenic by RTECS criteria. Lungs, Thorax, or Respiration: Tumors.

# **IARC Carcinogen List**

Rat  
 Group 2B

# **NTP Carcinogen List**

Clear evidence.  
 Anticipated to be a carcinogen.

# **Chronic Exposure - Teratogen**

Result: Possible risk of congenital malformation in the fetus.  
 1250 PPM/7H  
 Inhalation  
 Result: Specific Developmental Abnormalities: Musculoskeletal system.  
 Specific Developmental Abnormalities: Urogenital system.  
 1250 PPM/7H  
 Inhalation  
 Result: Specific Developmental Abnormalities: Musculoskeletal system.

# **Chronic Exposure - Mutagen**

| Species | Dose          | Route      | Exposure Time | Cell Type  | Mutation test                       |
|---------|---------------|------------|---------------|------------|-------------------------------------|
| Human   | 5000 PPM      |            | 1H            | fibroblast | DNA inhibition                      |
| Rat     | 160 UMOL/L    | Oral       |               | Embryo     | Morphological transformation.       |
| Rat     | 1275 MG/KG    |            |               |            | DNA damage                          |
| Rat     | 30 UMOL/L     |            |               | liver      | DNA damage                          |
| Mouse   | 27760         | Inhalation |               |            | Micronucleus test                   |
|         | MG/M3/6H/2W-1 |            |               |            |                                     |
| Mouse   | 400 UMOL/L    |            |               | liver      | DNA damage                          |
| Mouse   | 4000 PPM      | Inhalation | 6H            |            | DNA damage                          |
| Mouse   | 1720 MG/KG    | Oral       |               |            | DNA damage                          |
| Mouse   | 27760         | Inhalation |               |            | Cytogenetic analysis                |
|         | MG/M3/6H/2W-1 |            |               |            |                                     |
| Mouse   | 13880         | Inhalation |               |            | Sister chromatid exchange           |
|         | MG/M3/6H/2W-1 |            |               |            |                                     |
| Hamster | 1300 UL/PLATE |            |               | Embryo     | Morphological transformation.       |
| Hamster | 3000 PPM      |            |               | ovary      | DNA damage                          |
| Hamster | 5000 PPM      |            | 1H            | lung       | DNA inhibition                      |
| Hamster | 6628 MG/L     |            |               | ovary      | Other mutation test systems         |
| Hamster | 1 UMOL/L      |            |               | lung       | Cytogenetic analysis                |
| Hamster | 6628 MG/L     |            |               | ovary      | Cytogenetic analysis                |
| Hamster | 5000 PPM      |            | 1H            | lung       | Sister chromatid exchange           |
| Hamster | 3000 PPM      |            |               | ovary      | Mutation in mammalian somatic cells |

# **Chronic Exposure - Reproductive Hazard**

Species: Rat  
 Dose: 4500 PPM/24H  
 Route of Application: Inhalation  
 Exposure Time: (1-170 PREG)  
 Result: Effects on Newborn: Behavioral.

# **Section 12 - Ecological Information**

No data available.

# **Section 13 - Disposal Considerations**

**Appropriate Method of Disposal of Substance or Preparation**  
 Contact a licensed professional waste disposal service to dispose of this material.  
 Observe all federal, state, and local environmental regulations.

# **Section 14 - Transport Information**

## **DOT**

Proper Shipping Name: Dichloromethane  
 UN#: 1593  
 Class: 6.1  
 Packing Group: Packing Group III  
 Hazard Label: Keep away from food  
 PIH: Not PIH

## **IATA**

Proper Shipping Name: Dichloromethane  
 IATA Number: 1593  
 Hazard Class: 6.1  
 Packing Group: III

## Section 15 - Regulatory Information

### EU Directives Classification

Symbol of Danger: Xn

Indication of Danger

Harmful

R: 40

Possible risk of irreversible effects.

Safety Statements S: 23 24/25 36/37

Do not breathe vapor. Avoid contact with skin and eyes. Wear suitable protective clothing and gloves.

### US Classification and Label Text

Indication of Danger

Toxic.

#### Risk Statements

Harmful by inhalation and if swallowed. Irritating to eyes, respiratory system, and skin. May cause cancer. Possible risk of harm to the unborn child.

#### Safety Statements

Avoid exposure - obtain special instructions before use. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Wear suitable protective clothing, gloves, and eye/face protection. Do not breathe vapor.

#### US Statements

Confirmed Carcinogen (US). Readily absorbed through skin. Target organ: heart because methylene chloride is converted to carbon monoxide in the body. Target organ: central nervous system because of possible dizziness, headache, loss of consciousness and death at high concentrations.

### United States Regulatory Information

SARA Listed: Yes

Deminitis: 0.1 %

Notes: This product is subject to SARA section 313 reporting requirements.

### OSHA Remarks

OSHA-regulated carcinogen. See CFR title 29 part 1910.1052.

### TSCA Inventory Item: Yes

### United States - State Regulatory Information

California Prop - 65

This product is or contains chemical(s) known to the state of California to cause cancer.

### Canada Regulatory Information

WHMIS Classification

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

## Section 16 - Other Information

### Warranty

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. Sigma-Aldrich Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2001 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.