



SIGMA-ALDRICH

Material Safety Data Sheet

Date Printed: 11/27/2001
Date Updated: 03/02/2001
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	Emergency Phone: 414 273 3850 Ext. 5996
Fax:	800 325 5052	

Section 2 - Composition/Information on Ingredient

<u>Substance Name</u>	<u>CAS #</u>	<u>OSHA</u>	<u>SARA 313</u>
DICHLOROMETHANE (STABILIZER: <0.1% AMYLENE)	75-09-2	Yes	Yes

Formula	CH ₂ Cl ₂
Synonyms	Aerotherne MM, Chlorure de methylene (French), Dichloromethane (DOT:OSHA), F 30 (chlorocarbon), Freon 30, HCC 30, Khladon 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
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NFPA Rating

Health: 2	Flammability: 1	Reactivity: 1
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*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.

Hand

Compatible chemical-resistant gloves.

Other

Impervious protective clothing.

*1,1-Dichloromethane 99.67
ACS Reagent***General Hygiene Measures**

Wash contaminated clothing before reuse. Wash thoroughly after handling.

Exposure Limits, RTECS

<u>Country</u>	<u>Source</u>	<u>Type</u>	<u>Value</u>	<u>Remarks</u>
USA	ACGIH	TWA	50 PPM	
USA	MSHA Standard-air	TWA	500 PPM (1750 MG/M3)	
USA	OSHA.	PEL	8H TWA 500 PPM;CL 1000 PPM;PK	
New Zealand	OEL			check ACGIH TLV
USA	NIOSH		LOWEST FEASIBLE CONCENTRATION	

Section 9 - Physical/Chemical Properties**Appearance****Color**
Colorless**Form**
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

20 °C

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**Volatile%** 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 %

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. Paresthesia. 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: Paresthesia.

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 I

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

Rating

Group 2B

NTP Carcinogen List

Rating

Clear evidence.

Anticipated to be a carcinogen.

Species

Mouse/rat

Route

Inhalation

Chronic Exposure - Teratogen

Species

Dose

Route of Application

Exposure Time

Result: Possible risk of congenital malformation in the fetus.

Rat

1250 PPM/7H

Inhalation

(6-15D PREG)

Result: Specific Developmental Abnormalities: Musculoskeletal system.

Specific Developmental Abnormalities: Urogenital system.

Mouse

1250 PPM/7H

Inhalation

(6-15D PREG)

Result: Specific Developmental Abnormalities: Musculoskeletal system.

Chronic Exposure - Mutagen

<u>Species</u>	<u>Dose</u>	<u>Route</u>	<u>Exposure Time</u>	<u>Cell Type</u>	<u>Mutation test</u>
Human	5000 PPM		1H	fibroblast	DNA inhibition
Rat	160 UMOL/L			Embryo	Morphological transformation.
Rat	1275 MG/KG	Oral			DNA damage
Rat	30 UMOL/L			liver	DNA damage
Mouse	27760 MG/M3/6H/2W-I	Inhalation			Micronucleus test
Mouse	400 UMOL/L			liver	DNA damage
Mouse	4000 PPM	Inhalation	6H		DNA damage
Mouse	1720 MG/KG	Oral			DNA damage
Mouse	27760 MG/M3/6H/2W-I	Inhalation			Cytogenetic analysis
Mouse	13880 MG/M3/6H/2W-I	Inhalation			Sister chromatid exchange
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

<u>Species</u>	<u>Dose</u>	<u>Route of Application</u>	<u>Exposure Time</u>
Rat	4500 PPM/24H	Inhalation	(1-17D 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

Dichloromethane
99.6% ACS Reagent

EU Directives Classification

Symbol of Danger: Xn

Indication of Danger

Harmful.

Risk Statements 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

Deminimis: 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.