SIGMA-ALDRICH

Material Safety Data Sheet

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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 St. 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

Substance Name	CAS #	OSHA	SARA 313
DICHLOROMETHANE	75-09-2	Yes	Yes

Formula CH2Cl2
Synonyms Aerothene MM, Chlorure de methylene (French), Dichloromethane (DOT:OSHA), Methane dichloride, Methylene bichloride, Methylene chloride (ACGIH:OSHA), Methylene dichloride, Metylenu chlorek (Polish), Narkotil, NCI-C50102, R 30, R30 (refrigerant), RCRA waste number U080, Solaesthin, Solmethine

Section 3 - Hazards Identification

Emergency Overview
Toxic.
May cause cancer. Possible risk of harm to the unborn child. Harmful if swallowed. Irritating to eyes, respiratory system, and skin. 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: 0

NFPA Ratings
Health: 2 Flammability: 1 Reactivity: 0

*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.

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.

General Hygiene Measures
Wash contaminated clothing before reuse. Wash thoroughly after handling.

Exposure Limits, RTECS

Country	Source	Type	Value	Remarks
USA	ACGIH	TWA	174 MG/M3 (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	Form
Colorless	Clear liquid

Molecular Weight: 84.93 AMU

Property	Value	At Temperature or Pressure
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

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.

Stabilizers Present
less than 0.1% amylene

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.
Inhalation
May be harmful if inhaled.
Ingestion
Harmful if swallowed.
Multiple Routes
Vapor or mist is irritating to the eyes, mucous membranes, and upper respiratory tract.

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:Paresthesis.
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)

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	*Species*	*Route*
Clear evidence. Anticipated to be a carcinogen.	Mouse/rat	Inhalation

ACGIH Carcinogen List

Rating
A3

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

Species	*Dose*	*Route*	*Exposure Time*	*Cell Type*	*Mutation test*
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

Species	*Dose*	*Route of Application*	*Exposure Time*
Rat	4500 PPM/24H	Inhalation	(1-17D PREG)

Result: Effects on Newborn: Behavioral.

Section 12 - Ecological Information

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
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.

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

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

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.

Handling and Storage

Store under nitrogen.

United States Regulatory Information

SARA 313 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

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause cancer.

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.