

Material Safety Data Sheet

Version 4.0
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1,2-Dichloroethane

Product Number : 319929

Brand : Sigma-Aldrich

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2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Heart, Central nervous system, Liver, Kidney, Pancreas.

WHMIS Classification

B2 Flammable liquid
D1A
D2A
D2B

Flammable liquid
Highly toxic by inhalation
Carcinogen
Moderate skin irritant
Moderate eye irritant
Mutagen

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H225 Highly flammable liquid and vapour.
H302 Harmful if swallowed.
H313 May be harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H350 May cause cancer.
H371 May cause damage to organs.
H413 May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)

P201 Obtain special instructions before use.
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTER or doctor/physician.

HMIS Classification

Health hazard:

2

Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

Potential Health Effects

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Ethylene dichloride
Ethylene chloride

Formula : $C_2H_4Cl_2$
Molecular Weight : 98.96 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Ethylene dichloride			
107-06-2	203-458-1	602-012-00-7	-

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

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low 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

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

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. Store in cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Update	Basis
Ethylene dichloride	107-06-2	TWA	1 ppm	2006-11-29	Canada. British Columbia OEL
Remarks	IARC "2B" applies to substances deemed possibly carcinogenic to humans.				
		STEL	2 ppm	2006-11-29	Canada. British Columbia OEL
	IARC "2B" applies to substances deemed possibly carcinogenic to humans.				
		TWAE V	10 ppm 40 mg/m3	2005-12-17	Canada. Ontario OELs
		TWA	10 ppm 40 mg/m3	2007-01-01	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWAE V	1 ppm 4 mg/m3	2006-12-29	Canada. Quebec OELs
	A substance to which exposure must be reduced to a minimum in accordance with section 42 Carcinogenic effect suspected in humans				
		STEV	2 ppm 8 mg/m3	2006-12-29	Canada. Quebec OELs
	A substance to which exposure must be reduced to a minimum in accordance with section 42 Carcinogenic effect suspected in humans				

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 ABEK (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.

Eye protection

Face shield and safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	clear, liquid
Colour	colourless

Safety data

pH	no data available
Melting point	-35 °C (-31 °F) - lit.
Boiling point	83 °C (181 °F) - lit.
Flash point	13.0 °C (55.4 °F) - closed cup - Tested according to Annex V of Directive 67/548/EEC.
Ignition temperature	413 °C (775 °F) at 1,013 hPa (760 mmHg)
Lower explosion limit	6.2 %(V)
Upper explosion limit	16.2 %(V)
Vapour pressure	33.3 hPa (25.0 mmHg) at 0 °C (32 °F) 86 hPa (65 mmHg) at 20 °C (68 °F) - Tested according to Annex V of Directive 67/548/EEC. 312 hPa (234 mmHg) at 50 °C (122 °F)
Density	1.256 g/mL at 25 °C (77 °F) - lit.
Water solubility	8.69 g/l at 20 °C (68 °F) - Tested according to Annex V of Directive 67/548/EEC. - slightly soluble 10.3 g/l at 56 °C (133 °F)
Partition coefficient: n-octanol/water	log Pow: 1.48 at 20 °C (68 °F) - Tested according to Annex V of Directive 67/548/EEC.

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

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

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 670.0 mg/kg

LC50 Inhalation - rat - 7 h - 1000 ppm

Remarks: Behavioral:Coma. Cyanosis Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

LD50 Dermal - rabbit - 2,800 mg/kg

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and Taste):Eye:Lacrimation.

Skin corrosion/irritation

Skin - rabbit - irritating - 72 h - Draize Test

Serious eye damage/eye irritation

Eyes - rabbit - Moderate eye irritation

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

Laboratory experiments have shown mutagenic effects.

Genotoxicity in vitro - Ames test - S. typhimurium - positive

Carcinogenicity

Carcinogenicity - rat - Oral

Tumorigenic: Carcinogenic by RTECS criteria. Gastrointestinal: Tumors. Skin and Appendages: Other: Tumors.

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

Possible human carcinogen

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Ethylene dichloride)

Reproductive toxicity

Reproductive toxicity - rat - Inhalation

Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Specific target organ toxicity - single exposure (GHS)

May cause damage to organs.

Specific target organ toxicity - repeated exposure (GHS)

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	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

Signs and Symptoms of Exposure

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.

Additional Information

RTECS: KI0525000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 225.00 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) - 540.00 mg/l - 24 h Immobilization EC50 - Daphnia magna (Water flea) - 160 mg/l - 48 h

Persistence and degradability

Biodegradability	Biotic/Aerobic Result: < 20 % - Not readily biodegradable. Remarks: not applicable
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Bioaccumulative potential

Bioaccumulation Lepomis macrochirus (Bluegill) - 14 d
Bioconcentration factor (BCF): 2

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN-Number: 1184 Class: 3 (6.1) Packing group: II
Proper shipping name: Ethylene dichloride
Reportable Quantity (RQ): 100 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 1184 Class: 3 (6.1) Packing group: II EMS-No: F-E, S-D
Proper shipping name: ETHYLENE DICHLORIDE
Marine pollutant: No

IATA

UN-Number: 1184 Class: 3 (6.1) Packing group: II
Proper shipping name: Ethylene dichloride

15. REGULATORY INFORMATION**DSL Status**

All components of this product are on the Canadian DSL list.

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1A		Highly toxic by inhalation
D2A		Carcinogen
D2B		Moderate skin irritant
		Moderate eye irritant
		Mutagen

16. OTHER INFORMATION**Further information**

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