

# SAFETY DATA SHEET

Version 6.5  
Revision Date 16.07.2021  
Print Date 30.01.2022

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifiers

Product name : 1,2-Dichloroethane  
Product Number : 02562  
Brand : Sigma-Aldrich  
Index-No. : 602-012-00-7  
CAS-No. : 107-06-2

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

### 1.3 Details of the supplier of the safety data sheet

Company : MilliporeSigma Canada Ltd  
2149 WINSTON PARK DRIVE  
OAKVILLE ON L6H 6J8  
CANADA  
Telephone : +1 905 829-9500  
Fax : +1 905 829-9292

### 1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC  
(International)  
24 Hours/day; 7 Days/week

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### GHS Classification in accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)

Flammable liquids (Category 2), H225  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 3), H331  
Skin irritation (Category 2), H315  
Eye irritation (Category 2A), H319  
Carcinogenicity (Category 1B), H350  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Aspiration hazard (Category 1), H304

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 GHS Label elements, including precautionary statements

Sigma-Aldrich - 02562

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Pictogram



Signal word

Danger

Hazard statement(s)

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H350	May cause cancer.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

- none

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms : Ethylene dichloride  
Ethylene chloride

Formula : C<sub>2</sub>H<sub>4</sub>Cl<sub>2</sub>  
Molecular weight : 98.96 g/mol  
CAS-No. : 107-06-2  
EC-No. : 203-458-1  
Index-No. : 602-012-00-7

Component	Classification	Concentration *
<b>1,2-Dichloroethane</b>		
	Flam. Liq. 2; Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 1B; STOT SE 3; Asp. Tox. 1; H225, H302, H331, H315, H319, H350, H335, H304	<= 100 %
* Weight %		

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

#### In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

#### If swallowed

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### **4.3 Indication of any immediate medical attention and special treatment needed** No data available

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### **SECTION 5: Firefighting measures**

#### **5.1 Extinguishing media**

##### **Suitable extinguishing media**

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

##### **Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

#### **5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Hydrogen chloride gas

Combustible.

Pay attention to flashback.

Vapors are heavier than air and may spread along floors.

Risk of dust explosion.

Development of hazardous combustion gases or vapours possible in the event of fire.

Forms explosive mixtures with air at ambient temperatures.

#### **5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### **5.4 Further information**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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### **SECTION 6: Accidental release measures**

#### **6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

#### **6.2 Environmental precautions**

Do not let product enter drains. Risk of explosion.

#### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

#### **6.4 Reference to other sections**

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class (TRGS 510): 3: Flammable liquids

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
1,2-Dichloroethane	107-06-2	TWA	10 ppm 40 mg/m <sup>3</sup>	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	1 ppm	Canada. British Columbia OEL
Remarks	IARC '2B' applies to substances deemed possibly carcinogenic to humans.			
		STEL	2 ppm	Canada. British Columbia OEL
	IARC '2B' applies to substances deemed possibly carcinogenic to humans.			
		STEV	2 ppm 8 mg/m <sup>3</sup>	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Carcinogenic effect suspected in humans			

		TWAEV	1 ppm 4 mg/m <sup>3</sup>	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Carcinogenic effect suspected in humans			
		TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)

## 8.2 Exposure controls

### Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

### Personal protective equipment

#### Eye/face protection

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

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 10 min

Material tested: KCL 720 Camapren®

#### Body Protection

Flame retardant antistatic protective clothing.

#### Respiratory protection

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

#### Control of environmental exposure

Do not let product enter drains. Risk of explosion.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: viscous liquid Color: colorless
b) Odor	of solvents
c) Odor Threshold	3 ppm
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -35 °C (-31 °F) - lit.
f) Initial boiling point and boiling range	83 °C 181 °F - lit.
g) Flash point	ca.13 °C (55 °F) - closed cup - DIN 51755 Part 1
h) Evaporation rate	4.1
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 15.9 %(V) Lower explosion limit: 6 %(V)
k) Vapor pressure	102 hPa at 25 °C (77 °F) 87 hPa at 20 °C(68 °F)
l) Vapor density	4.1 at 20 °C(68 °F)
m) Density	1.256 g/mL at 25 °C (77 °F) - lit.
Relative density	No data available
n) Water solubility	7.9 g/l at 25 °C (77 °F) - OECD Test Guideline 105 - soluble
o) Partition coefficient: n-octanol/water	log Pow: 1.45 at 20 °C (68 °F) - Bioaccumulation is not expected.
p) Autoignition temperature	440 °C (824 °F) at 1,013 hPa - DIN 51794
q) Decomposition temperature	300 °C (572 °F) -
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

### 9.2 Other safety information

Surface tension	32.45 mN/m at 20 °C (68 °F)
Relative vapor density	4.1 at 20 °C (68 °F)

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## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

Vapors may form explosive mixture with air.

### **10.2 Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **10.3 Possibility of hazardous reactions**

Exothermic reaction with:

Alkaline earth metals

alkali amides

Nitric acid

nitrogen oxides

Oxidizing agents

Chlorine

powdered magnesium

Zinc

Risk of explosion with:

Alkali metals

powdered aluminium

Powdered metals

Potassium

nitrogen dioxide

### **10.4 Conditions to avoid**

Warming.

### **10.5 Incompatible materials**

various plastics, Light metals, Iron

### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - male - 770 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 7.8 mg/l

(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - 4,890 mg/kg

(OECD Test Guideline 402)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: irritating

(OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Eye irritation



(OECD Test Guideline 405)

**Respiratory or skin sensitization**

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

**Germ cell mutagenicity**

Test Type: Ames test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Result: positive

Remarks: (ECHA)

Test Type: Ames test

Test system: *Escherichia coli*

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 471

Result: positive

Test Type: In vitro mammalian cell gene mutation test

Test system: human lymphoblastoid cells

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 476

Result: positive

Test Type: In vitro mammalian cell gene mutation test

Test system: human lymphoblastoid cells

Metabolic activation: without metabolic activation

Result: positive

Remarks: (ECHA)

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster lung cells

Metabolic activation: with and without metabolic activation

Result: positive

Remarks: (ECHA)

Test Type: unscheduled DNA synthesis assay

Test system: rat hepatocytes

Metabolic activation: without metabolic activation

Method: OECD Test Guideline 482

Result: positive

Test Type: Micronucleus test

Species: Mouse

Application Route: Intraperitoneal

Method: OECD Test Guideline 474

Result: negative

Test Type: Mutagenicity (mammal cell test): micronucleus.

Species: Mouse

Cell type: Red blood cells (erythrocytes)

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Test Type: sister chromatid exchange assay

Species: Rat

Cell type: mammary gland

Application Route: inhalation (vapor)

Result: negative  
Remarks: (ECHA)

Species: Drosophila melanogaster  
Cell type: sperm  
Application Route: Inhalation  
Method: OECD Test Guideline 477  
Result: positive

Test Type: Transgenic rodent somatic cell gene mutation assay  
Species: Mouse

Application Route: Intraperitoneal

Result: negative  
Remarks: (ECHA)

**Carcinogenicity**

Presumed to have carcinogenic potential for humans

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

Aspiration may cause pulmonary edema and pneumonitis.

**11.2 Additional Information**

Repeated dose toxicity - Rat - male and female - Oral - 90 d - NOAEL (No observed adverse effect level) - 37.5 mg/kg  
Remarks: Subchronic toxicity

Repeated dose toxicity - Mouse - male and female - Inhalation - 104 Weeks

RTECS: KI0525000

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.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Pancreas. -

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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	flow-through test LC50 - Pimephales promelas (fathead minnow) - 136 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 160 mg/l - 48 h Remarks: (in soft water) (IUCLID)
Toxicity to algae	static test EC50 - Desmodesmus subspicatus (green algae) - 166 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - 35,500 mg/l - 3 h (OECD Test Guideline 209)

### 12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 20 d Result: > 90 % - Inherently biodegradable. Remarks: (ECHA)
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### 12.3 Bioaccumulative potential

Bioaccumulation	Lepomis macrochirus - 14 d at 16 °C - 0.957 mg/l(1,2-Dichloroethane)  Bioconcentration factor (BCF): 2
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### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### 12.6 Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### TDG

UN number: 1184 Class: 3 (6.1) Packing group: II  
Proper shipping name: ETHYLENE DICHLORIDE

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Subsidiary risk : 6.1  
Labels: 3  
(6.1)ERG Code: 131  
Marine pollutant: no

**IMDG**

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

**IATA**

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

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**SECTION 15: Regulatory information**

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

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**SECTION 16: Other information**

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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