

# 1,2-Dichloroethyl ethyl ether

sc-222827



The Power to Question

## Material Safety Data Sheet

Hazard Alert Code  
Key:

EXTREME

HIGH

MODERATE

LOW

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

1,2-Dichloroethyl ethyl ether

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY

ChemWatch  
Within the US & Canada: 877-715-9305  
Outside the US & Canada: +800 2436 2255  
(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

C4-H8-C12-O, ClCH<sub>2</sub>CH(Cl)OC<sub>2</sub>H<sub>5</sub>, "ether, dichlorodiethyl", "1, 2-dichlorodiethyl ether", "ethyl 1, 2-dichloroethyl ether", "1, 2-dichloro-1-ethoxyethane"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max	
Flammability	3		 Min/Nil=0 Low=1 Moderate=2 High=3 Extreme=4
Toxicity	3		
Body Contact	2		
Reactivity	2		
Chronic	2		

### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

May form explosive peroxides.

Harmful if swallowed.

Irritating to eyes, respiratory system and skin.

Flammable.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

■ Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

■ At sufficiently high doses the material may be nephrotoxic(i.

e.

■ At sufficiently high doses the material may be hepatotoxic(i.

e.

##### EYE

■ This material can cause eye irritation and damage in some persons.

■ Irritation of the eyes may produce a heavy secretion of tears (lachrymation).

##### SKIN

■ This material can cause inflammation of the skin oncontact in some persons.

■ The material may accentuate any pre-existing dermatitis condition.

■ Skin contact with the material may damage the health of the individual; systemic effects may result following absorption.

■ Open cuts, abraded or irritated skin should not be exposed to this material.

■ Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

##### INHALED

■ The material can cause respiratory irritation in some persons.

The body's response to such irritation can cause further lung damage.

■ Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may produce serious damage to the health of the individual.

■ Anaesthetics and narcotic effects (with dulling of senses and odour fatigue) are a consequence of exposure to chlorinated solvents.

Individual response varies widely; odour may not be considered objectionable at levels which quickly induce central nervous system effects.

■ Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.

e.

##### CHRONIC HEALTH EFFECTS

■ Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

This material possibly demonstrates effects similar to those experienced with carbon tetrachloride. Liver and kidney injury may result following over-exposure or repeated exposures.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
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### Section 4 - FIRST AID MEASURES

#### SWALLOWED

- IF SWALLOWED, REFER FOR MEDICAL ATTENTION, WHERE POSSIBLE, WITHOUT DELAY.
- For advice, contact a Poisons Information Centre or a doctor.
- Urgent hospital treatment is likely to be needed.
- In the mean time, qualified first-aid personnel should treat the patient following observation and employing supportive measures as indicated by the patient's condition.

#### EYE

If this product comes in contact with the eyes

- Immediately hold eyelids apart and flush the eye continuously with running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
- Transport to hospital or doctor without delay.

#### SKIN

If skin contact occurs

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

#### INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

#### NOTES TO PHYSICIAN

■ for poisons (where specific treatment regime is absent)

#### BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema .

Treat symptomatically.

DO NOT administer sympathomimetic drugs as they may cause ventricular arrhythmias.

### Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	1.167
Lower Explosive Limit (%)	Not available

#### EXTINGUISHING MEDIA

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).

- Carbon dioxide.

#### **FIRE FIGHTING**

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.

When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 500 metres in all directions.

#### **GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS**

- Liquid and vapour are flammable.
- Moderate fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Moderate explosion hazard when exposed to heat or flame.

Combustion products include carbon dioxide (CO<sub>2</sub>), carbon monoxide (CO), hydrogen chloride, phosgene, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

WARNING Long standing in contact with air and light may result in the formation of potentially explosive peroxides.

#### **FIRE INCOMPATIBILITY**

- Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

### **Section 6 - ACCIDENTAL RELEASE MEASURES**

#### **MINOR SPILLS**

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.

#### **MAJOR SPILLS**

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.

### **Section 7 - HANDLING AND STORAGE**

#### **PROCEDURE FOR HANDLING**

The substance accumulates peroxides which may become hazardous only if it evaporates or is distilled or otherwise treated to concentrate the peroxides. The substance may concentrate around the container opening for example.

Purchases of peroxidisable chemicals should be restricted to ensure that the chemical is used completely before it can become peroxidised.

- A responsible person should maintain an inventory of peroxidisable chemicals or annotate the general chemical inventory to indicate which chemicals are subject to peroxidation. An expiration date should be determined. The chemical should either be treated to remove peroxides or disposed of before this date.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- DO NOT allow clothing wet with material to stay in contact with skin

#### **RECOMMENDED STORAGE METHODS**

- Lined metal can, lined metal pail/ can.
- Plastic pail.
- Polyliner drum.
- Packing as recommended by manufacturer.

For low viscosity materials

- Drums and jerricans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

<. All inner and sole packagings for substances that have been assigned to Packaging Groups I or II on the basis of inhalation toxicity criteria, must be hermetically sealed.

#### **STORAGE REQUIREMENTS**

- Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.

### Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

#### **EXPOSURE CONTROLS**

The following materials had no OELs on our records

- 1,2-dichloroethyl ethyl ether CAS623-46-1

#### **PERSONAL PROTECTION**



#### **RESPIRATOR**

- Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 1432000 & 1492001, ANSI Z88 or national equivalent)

#### **EYE**

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent]

#### **HANDS/FEET**

- Wear chemical protective gloves, eg. PVC.
- Wear safety footwear or safety gumboots, eg. Rubber

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

#### **OTHER**

- Overalls.
- Eyewash unit.

- Barrier cream.
- Skin cleansing cream.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

### ENGINEERING CONTROLS

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### PHYSICAL PROPERTIES

Toxic or noxious vapors/gas.

State	LIQUID	Molecular Weight	143.01
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	284- 293	Solubility in water (g/L)	Reacts
Flash Point (°F)	109	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapour Pressure (mmHG)	Not available
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.167
Lower Explosive Limit (%)	Not available	Relative Vapour Density (air=1)	>1
Volatile Component (%vol)	100	Evaporation Rate	Not available

### APPEARANCE

Liquid; decomposes in water. Soluble in most organic solvents.

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

### STORAGE INCOMPATIBILITY

- Segregate from alcohol, water.
- Avoid reaction with oxidising agents
- NOTE May develop pressure in containers; open carefully. Vent periodically.

For incompatible materials - refer to Section 7 - Handling and Storage.

## Section 11 - TOXICOLOGICAL INFORMATION

1,2-dichloroethyl ethyl ether

### TOXICITY AND IRRITATION

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.  
 No significant acute toxicological data identified in literature search.

**Section 12 - ECOLOGICAL INFORMATION**

This material and its container must be disposed of as hazardous waste.

**Section 13 - DISPOSAL CONSIDERATIONS**

**US EPA Waste Number & Descriptions**

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

**Disposal Instructions**

All waste must be handled in accordance with local, state and federal regulations.

- Containers may still present a chemical hazard/ danger when empty.
- Return to supplier for reuse/ recycling if possible.

Otherwise:

- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill.
- Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- Recycle wherever possible.
- Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
- Dispose of by: burial in a land-fill specifically licenced to accept chemical and / or pharmaceutical wastes or Incineration in a licenced apparatus (after admixture with suitable combustible material).
- Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

**Section 14 - TRANSPORTATION INFORMATION**

DOT:

Symbols:	None	Hazard class or Division:	6.1
Identification Numbers:	UN2929	PG:	II
Label Codes:	6.1, 3	Special provisions:	IB2, T11, TP2, TP13, TP27
Packaging: Exceptions:	153	Packaging: Non-bulk:	202

Packaging: Exceptions:	153	Quantity limitations: Passenger aircraft/rail:	5 L
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Quantity Limitations: Cargo aircraft only:	60 L	Vessel stowage: Location:	B
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Vessel stowage: Other:	40
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Hazardous materials descriptions and proper shipping names:

Toxic liquids, flammable, organic, n.o.s.

**Air Transport IATA:**

ICAO/IATA Class:	6.1	ICAO/IATA Subrisk:	3
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UN/ID Number:	2929	Packing Group:	II
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Special provisions:	A4
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Cargo Only

Packing Instructions:	662	Maximum Qty/Pack:	60 L
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Passenger and Cargo	Passenger and Cargo
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Packing Instructions:	654	Maximum Qty/Pack:	5 L
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Passenger and Cargo Limited Quantity	Passenger and Cargo Limited Quantity
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Packing Instructions:	Y641	Maximum Qty/Pack:	1 L
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Shipping name: TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.(contains 1,2-dichloroethyl ethyl ether)

**Maritime Transport IMDG:**

IMDG Class:	6.1	IMDG Subrisk:	3
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UN Number:	2929	Packing Group:	II
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EMS Number:	F-E,S-D	Special provisions:	274
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Limited Quantities: 100 ml

Shipping name: TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S.(contains 1,2-dichloroethyl ethyl ether)

**Section 15 - REGULATORY INFORMATION**

**1,2-dichloroethyl ethyl ether (CAS: 623-46-1) is found on the following regulatory lists;**

"Canada Non-Domestic Substances List (NDSL)", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

**Section 16 - OTHER INFORMATION**

**LIMITED EVIDENCE**

- Skin contact may produce health damage\*.
- Inhalation may produce serious health damage\*.
- Cumulative effects may result following exposure\*.

\*(limited evidence).

**Denmark Advisory list for selfclassification of dangerous substances**

Substance	CAS	Suggested codes
1, 2- dichloroethyl ethyl ether	623- 46- 1	Carc3; R40 Xn; R22 Xi; R38 R52/53

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■ Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references. A list of reference resources used to assist the committee may be found at: [www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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