

1-Chloro-2-propanol

sc-237518



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key:

EXTREME

HIGH

MODERATE

LOW

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

1-Chloro-2-propanol

STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

NFPA



SUPPLIER

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EMERGENCY

ChemWatch

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(1-800-CHEMCALL) or call +613 9573 3112

SYNONYMS

C3-H7-Cl-O, CH₃CH(OH)CH₂Cl, "2-propanol, 1-chloro-", "1-chloroisopropyl alcohol", "sec-propylene chlorohydrin", "alpha-propylene chlorohydrin"

Section 2 - HAZARDS IDENTIFICATION

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	3	
Toxicity:	3	
Body Contact:	2	
Reactivity:	1	
Chronic:	2	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



CANADIAN WHMIS SYMBOLS



EMERGENCY OVERVIEW

RISK

Harmful by inhalation.
Irritating to eyes, respiratory system and skin.
Flammable.

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
- Mice fed 10000 ppm 11-chloro-2-propanol (propylene chlorohydrin) for 14 days in drinking water showed decreased mean body weight gains.
Water consumption by a group of animals receiving 3300 and 10000 ppm was significantly reduced.

EYE

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

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.

CHRONIC HEALTH EFFECTS

- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Under the conditions of a two-year drinking water study, there was no evidence of carcinogenic activity of technical grade 1-chloro-2-propanol (propylene chlorohydrin) in male and female rats exposed to 150, 325 or 650 ppm, nor in male or female mice exposed to 250, 500 or 1000 ppm.

1-Chloro-2-propanol is a mutagen in vitro. It is weakly mutagenic in S.typhimurium strain TA100 in the presence of hamster or rat liver S9 activation enzymes and was positive, with and without S9, in TA1535. In cytogenic tests with Chinese hamster ovary cells, it induced high levels of sister chromatid exchanges and chromosomal aberrations in the presence and the absence of S9. The marked ability of 1-chloro-2-propanol to induce chromosomal effects in vitro was not seen in vivo.

No reproductive effects were seen in rats whose drinking water contained up to 1300 ppm 1-chloro-2-propanol.
National Toxicology Program: Technical Report Series No.477, September 1998.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
1-chloro-2-propanol	127-00-4	>98

Section 4 - FIRST AID MEASURES

SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh 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.

SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

NOTES TO PHYSICIAN

■ Treat symptomatically.
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.

Section 5 - FIRE FIGHTING MEASURES

Vapor Pressure (mmHg):	4.875 @ 20 C
Upper Explosive Limit (%):	Not available
Specific Gravity (water=1):	1.111
Lower Explosive Limit (%):	Not available

EXTINGUISHING MEDIA

- Water spray or fog.
- Foam.

FIRE FIGHTING

- Alert Emergency Responders and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.

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 vapor are flammable.

- Moderate fire hazard when exposed to heat or flame.

Combustion products include: carbon dioxide (CO₂), carbon monoxide (CO), hydrogen chloride, phosgene, other pyrolysis products typical of burning organic material.

May emit poisonous fumes.

FIRE INCOMPATIBILITY

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

PERSONAL PROTECTION

Glasses:

Chemical goggles.

Gloves:

1.BUTYL 2.VITON

Respirator:

Type A Filter of sufficient capacity

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

- Remove all ignition sources.
- Clean up all spills immediately.

MAJOR SPILLS

- Clear area of personnel and move upwind.
- Alert Emergency Responders and tell them location and nature of hazard.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

- DO NOT allow clothing wet with material to stay in contact with skin.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- 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.

RECOMMENDED STORAGE METHODS

- Lined metal can, Lined metal pail/drum
- Plastic pail.

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.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
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US ACGIH Threshold Limit Values (TLV)	1-chloro-2-propanol (1-Chloro-2-propanol)	1				TLV Basis: liver damage
Canada - Alberta Occupational Exposure Limits	1-chloro-2-propanol (1-Chloro-2-propanol and 2-Chloro-1-propanol)	1	4			
Canada - British Columbia Occupational Exposure Limits	1-chloro-2-propanol (1-Chloro-2-propanol Revised 2008)	1				Skin; R
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	1-chloro-2-propanol (1-Chloro-2-propanol and 2-Chloro-1-propanol)	1		3		Skin
Canada - Nova Scotia Occupational Exposure Limits	1-chloro-2-propanol (1-Chloro-2-propanol)	1				TLV Basis: liver damage
Canada - Prince Edward Island Occupational Exposure Limits	1-chloro-2-propanol (1-Chloro-2-propanol)	1				TLV Basis: liver damage

ENDOELTABLE

PERSONAL PROTECTION



RESPIRATOR

Type A Filter of sufficient capacity
Consult your EHS staff for recommendations

EYE

- Safety glasses with side shields.
- Chemical goggles.

HANDS/FEET

■ Wear chemical protective gloves, eg. PVC.

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

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

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- Neoprene gloves.

OTHER

- Overalls.
- Eyewash unit.
- 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

■ Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Liquid	Molecular Weight	94.54
Melting Range (°F)	Not available	Viscosity	Not Available
Boiling Range (°F)	259- 261	Solubility in water (g/L)	Miscible
Flash Point (°F)	125	pH (1% solution)	Not applicable
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not available	Vapor Pressure (mmHg)	4.875 @ 20 C
Upper Explosive Limit (%)	Not available	Specific Gravity (water=1)	1.111
Lower Explosive Limit (%)	Not available	Relative Vapor Density (air=1)	>1
Volatile Component (%vol)	Not available	Evaporation Rate	Not available

APPEARANCE

Clear, colourless liquid with mild odour; mixes with water and alcohol.

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.

STORAGE INCOMPATIBILITY

- Avoid oxidizing agents, acids, acid chlorides, acid anhydrides.

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

Section 11 - TOXICOLOGICAL INFORMATION

1-chloro-2-propanol

TOXICITY AND IRRITATION

1-CHLORO-2-PROPANOL:

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

TOXICITY IRRITATION

Inhalation (rat) LC50: 1000 ppm/4h Nil Reported

■ 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. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

CARCINOGEN

VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	CA Prop 65; IARC; NTP 11th ROC
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SKIN

1-chloro-2-propanol	Canada - Alberta Occupational Exposure Limits - Skin	Substance Interaction	1
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Section 12 - ECOLOGICAL INFORMATION

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

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
1-chloro-2-propanol	LOW		LOW	HIGH

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.

‡ 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 equipment to enter drains. Collect all wash water for treatment before disposal.

· Recycle wherever possible.

· Consult manufacturer for recycling options or consult Waste Management Authority for disposal if no suitable treatment or disposal facility can be identified.

Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 6.1

Identification Numbers: UN2611 PG: II

Label Codes: 6.1, 3 Special provisions: IB2, T7, TP2, TP13

Packaging: Exceptions: 153 Packaging: Non- bulk: 202

Packaging: Exceptions: 153 Quantity limitations: 5 L

Passenger aircraft/rail:

Quantity Limitations: Cargo 60 L Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: 12, 40, 48

Hazardous materials descriptions and proper shipping names:

Propylene chlorohydrin

Air Transport IATA:

ICAO/IATA Class: 6.1 (3) ICAO/IATA Subrisk: None

UN/ID Number: 2611 Packing Group: II

Special provisions: None

Cargo Only

Packing Instructions: 60 L Maximum Qty/Pack: 5 L

Passenger and Cargo Passenger and Cargo

Packing Instructions: 662 Maximum Qty/Pack: 654

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 1 L Maximum Qty/Pack: Y641

Shipping Name: PROPYLENE CHLOROXYDRIN

Maritime Transport IMDG:

IMDG Class: 6.1 IMDG Subrisk: 3

UN Number: 2611 Packing Group: II

EMS Number: F-E , S-D Special provisions: None

Limited Quantities: 100 ml

Shipping Name: PROPYLENE CHLOROXYDRIN

Section 15 - REGULATORY INFORMATION

1-chloro-2-propanol (CAS: 127-00-4) is found on the following regulatory lists;

"Canada - Alberta Occupational Exposure Limits","Canada - British Columbia Occupational Exposure Limits","Canada - Nova Scotia Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits","Canada - Prince Edward Island Occupational Exposure Limits - Carcinogens","Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits","Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)","US - Massachusetts

Oil & Hazardous Material List","US - New Jersey Right to Know Hazardous Substances","US - Pennsylvania - Hazardous Substance List","US ACGIH Threshold Limit Values (TLV)","US ACGIH Threshold Limit Values (TLV) - Carcinogens","US Toxic Substances Control Act (TSCA) - Inventory"

Section 16 - OTHER INFORMATION

ND

Substance CAS Suggested codes 1- chloro- 2- propanol 127- 00- 4 Mut3; R68 Rep3; R63 Xn; R22 R43 Xi; R38

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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.

■ 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. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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