



Safety Data Sheet - Version 5.0

Preparation Date 10/16/2015

Latest Revision Date (If Revised)

SDS Expiry Date 10/14/2018

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Chemical Name Allyl Chloride

Catalogue # A549715

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Uses To be used only for scientific research and development. Not for use in humans or animals.

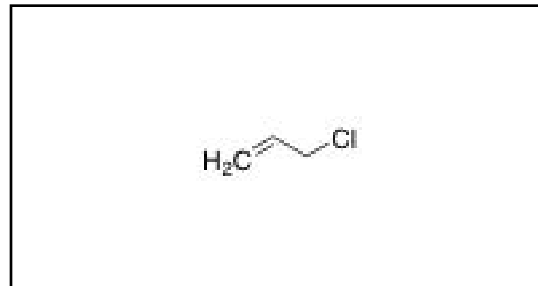
1.3 Details of the Supplier of the Safety Data Sheet

Company Toronto Research Chemicals
2 Brisbane Road
Toronto, ON M3J 2J8
CANADA

Telephone +14166659696

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1.4 Emergency Telephone Number

Emergency# +14166659696 between 0800-1700 (GMT-5)

2. HAZARDS IDENTIFICATION

WHMIS Classification (Canada)

B2 Flammable Liquid

D1B Toxic Material Causing Immediate and Serious Toxic Effects
Toxic by Ingestion/Skin Absorption/Inhalation

D2A Very Toxic Material Causing Other Toxic Effects
Carcinogen/Mutagen

D2B Toxic Material Causing Other Toxic Effects
Moderate Skin/Eye/Respiratory Tract Irritant

WHMIS Symbols (Canada)



2.1/2.2 Classification of the Substance or Mixture and Label Elements

GHS Hazards Classification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Flammable Liquids (Category 2)

Acute Toxicity, Oral (Category 3)

Acute Toxicity, Inhalation (Category 3)

Acute Toxicity, Dermal (Category 3)

Skin Irritation (Category 2)

Serious Eye Irritation (Category 2A)

Germ Cell Mutagenicity (Category 2)

Carcinogenicity (Category 2)

Specific Target Organ Toxicity, Single Exposure; Respiratory Tract Irritation (Category 3)

Hazardous to the Aquatic Environment, Acute Hazard (Category 1)

EU Classification (According to EU Regulation 67/548/EEC)

Highly flammable. Toxic by inhalation, in contact with skin and if swallowed. Irritating to eyes, respiratory system and

skin. Possible risk of irreversible effects. May cause cancer. Very toxic to aquatic organisms.

EU Risk and Safety Statements (According to EU Regulation 67/548/EEC)

Hazard Statements

Highly Flammable

Toxic

Environmental Hazard

Hazard Codes

F

T

N



Risk Codes and Phrases

R11 Highly flammable.

R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R36/37/38 Irritating to eyes, respiratory system and skin.

R68 Possible risk of irreversible effects.

R45 May cause cancer.

R50 Very toxic to aquatic organisms.

Safety Precaution Codes and Phrases

S16 Keep away from sources of ignition - No smoking.

S23 Do not breathe spray.

S61 Avoid release to the environment. Refer to special instructions.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show label where possible).

GHS Hazards Identification (According to EU Regulation 1272/2008 and US OSHA 1910.1200)

Signal Word Danger



GHS Hazard Statements

H225 Highly flammable liquid and vapour.

H301 Toxic if swallowed.

H331 Toxic if inhaled.

H311 Toxic in contact with skin.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H341 Suspected of causing genetic defects.

H351 Suspected of causing cancer.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

GHS Precautionary Statements

P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301/P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P302/P352 IF ON SKIN: Wash with plenty of soap and water

P312 Call a POISON CENTER or doctor/physician if you feel unwell.

P304/P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P311 Call a POISON CENTER or doctor/physician.

P314 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Get medical advice/attention if you feel unwell.

2.3 Unclassified Hazards/Hazards Not Otherwise Classified

Lachrymator.

Causes damage to organs (Nervous system, Liver, Kidney) through prolonged or repeated exposure.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Molecular Formula: C₃H₅Cl

Molecular Weight: 76.52

CAS Registry #: 107-05-1

EC#: 203-457-6

Synonyms

3-Chloro-1-propene; 3-Chloropropene; 1-Chloro-2-propene; 2-Propenyl Chloride; 3-Chloropropylene; NSC 20939

3.2 Mixtures

Not a mixture.

4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Advice

If medical attention is required, show this safety data sheet to the doctor.

If Inhaled

If inhaled, move person to fresh air. If not breathing, give artificial respiration and consult a physician.

In Case of Skin Contact

Wash affected area with soap and water. Consult a physician if any exposure symptoms are observed.

In Case of Eye Contact

Immediately rinse eyes with plenty of water for at least 15 minutes. Consult a physician.

If Swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Do NOT induce vomiting unless advised to do so by a physician or Poison Control Center. Seek medical attention.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

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

4.3 Indication of any Immediate Medical Attention and Special Treatment Needed

No data available.

5. FIREFIGHTING MEASURES

5.1 Extinguishing Media

Conditions of flammability

Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No Smoking.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from chemical

Flash back possible over considerable distance. Container explosion may occur under fire conditions.

5.2 Special Hazards Arising from the Substance or Mixture

Carbon oxides, Hydrogen chloride

5.3 Advice for Firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further Information

No data available.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use recommended personal protective equipment (see Section 8). Adequate ventilation must be provided to ensure vapours or mists are not inhaled. Vapours are heavier than air and may accumulate in low areas. All sources of ignition, including sources of static discharge, must be removed from area.

6.2 Environmental Precautions

Material should not be allowed to enter the environment. Prevent further spillage or discharge into drains, if safe to do

so.

6.3 Methods and Materials for Containment and Cleaning Up

Contain the spill and then collect using non-combustible absorbent material (such as clay, diatomaceous earth, vermiculite or other appropriate material). Place material in a suitable, sealable container and then dispose according to local/national regulations and guidance (see Section 13).

6.4 Reference to Other Sections

For protective equipment, refer to Section 8. For disposal, see Section 13.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Ventilation and proper handling are to be used to prevent the formation of vapours and mists. Remove all sources of ignition and take precautionary measures to prevent the buildup of electrostatic discharge (ground and bond containers as appropriate). No smoking, eating or drinking around this material. Wash hands after use.

7.2 Conditions for Safe Storage, Including any Incompatibilities

Ensure container is kept securely closed before and after use. Keep in a well ventilated area and do not store with strong oxidizers or other incompatible materials (see Section 10).

Storage conditions: No Data Available

7.3 Specific End Uses

For scientific research and development only. Not for use in humans or animals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
3-chloro-1-propene	107-05-1	STEV	2.000000 ppm 6.000000 mg/m3	Canada. Ontario OELs
		TWAEV	1 ppm 3 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWAEV	1.000000 ppm 3.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	1.000000 ppm 3.100000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		STEL	2.000000 ppm 6.200000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	1.000000 ppm	Canada. British Columbia OEL
Remarks	Contributes significantly to the overall exposure by the skin route.			
	STEL	2.000000 ppm	Canada. British Columbia OEL	
	Contributes significantly to the overall exposure by the skin route.			
	TWAEV	1.000000 ppm 3.000000 mg/m3	Canada. Ontario OELs	
	STEV	2.000000 ppm 6.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants	
STEV	2 ppm	Québec. Regulation respecting occupational health		

	6 mg/m3	and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
TWA	1.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
STEL	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
STEL	2 ppm	USA. ACGIH Threshold Limit Values (TLV)

8.2 Exposure Controls

Appropriate Engineering Controls

A laboratory fumehood or other appropriate form of local exhaust ventilation should be used to avoid exposure.

Personal Protective Equipment

All recommendations below are advisory in nature and a risk assessment should be performed by the employer/end user prior to use of this product. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.

Eye/Face Protection

Safety goggles or face shield. All equipment should have been tested and approved under appropriate standards, such as NIOSH (US), CSA (Canada), or EN 166 (EU).

Skin Protection

Gloves should be used when handling this material. Gloves are to be inspected prior to use. Contaminated gloves are to be removed using proper glove removal technique so that the outer surface of the glove does not contact bare skin. Dispose of contaminated gloves after use in compliance with good laboratory practices and local requirements.

Gloves used for incidental exposures (splash protection) should be designated as "chemical resistant" by EU standard EN 374 with the resistance codes corresponding to the anticipated use of the material. Unrated gloves are not recommended.

Suggested gloves: AnsellPro Sol-Vex nitrile gloves style 37-175, 15 mil thickness.
Penetration time has not been determined.

Gloves used for prolonged direct exposure (immersion) should be designated "chemical resistant" as per EN 734 with the resistance codes corresponding to the anticipated use of the material.

Suggested gloves: AnsellPro Viton/Butyl gloves style 38-612, 4/8 mil thickness.
Penetration time has not been determined.

These recommendations may not apply if the material is mixed with any other chemical, or dissolved into a solution. A risk assessment must be performed to ensure the gloves will still offer acceptable protection.

Body Protection

Chemical-resistant bodysuit (laminated Tychem SL or equivalent).

Respiratory Protection

Recommended respirators are NIOSH-approved OV/Multi-gas/P100 or CEN-approved ABEK-FFP3 respirators. These are to be only used as a backup to local exhaust ventilation or other engineering controls. If the respirator is the only means of protection, a full-face supplied air respirator must be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

A) Appearance

No Data Available

C) Odour Threshold

No data available

E) Melting Point/Freezing Point

No Data Available

G) Flash point

-31.99 °C (-25.58 °F) - closed cup

I) Flammability (Solid/Gas)

B) Odour

No data available

D) pH

No data available

F) Initial Boiling Point/Boiling Range

No data available

H) Evaporation Rate

No data available

J) Upper/Lower Flammability/Explosive Limits

No data available
K) Vapour Pressure
No data available
M) Relative Density
0.939 g/cm³ at 25 °C (77 °F)
O) Partition Coefficient: n-octanol/water
No data available
Q) Decomposition Temperature
No data available
S) Explosive Properties
No data available

Lower: 3.2%(V) Upper: 11.2%(V)
L) Vapour Density
2.64 (Air = 1.0)
N) Solubility
No Data Available
P) Auto-Ignition Temperature
No data available
R) Viscosity
No data available
T) Oxidizing Properties
No data available

9.2 Other Information

no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

Vapours may form explosive mixture with air.

10.4 Conditions to Avoid

Heat, flames and sparks.

10.5 Incompatible Materials

Strong oxidizing agents, Boron trifluoride, Sulfuric acid, Nitric acid, Strong oxidizing agents.

10.6 Hazardous Decomposition Products

In the event of fire: See section 5. **Other decomposition products:** No data available.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

A) Acute Toxicity

Oral LD50: Rat - 460 mg/kg

Inhalation LC50: Rat - 2 h - 11,000 mg/m³

Dermal LD50: Rabbit - 2,066 mg/kg

B) Skin Corrosion/Irritation

No data available

C) Serious Eye Damage/Irritation

Moderate eye irritant.

D) Respiratory or Skin Sensitization

No data available

E) Germ Cell Mutagenicity

Possible human mutagen. Laboratory results have shown mutagenicity in several model systems.

F) Carcinogenicity

Limited evidence of a carcinogenic effect.

This compound has been designated as Group 3: Not classifiable as to its carcinogenicity in humans.

G) Reproductive Toxicity/Teratogenicity

No data available

H) Single Target Organ Toxicity - Single Exposure

Mild respiratory tract irritation.

I) Single Target Organ Toxicity - Repeated Exposure

No data available

J) Aspiration Hazard

No data available

K) Potential Health Effects and Routes of Exposure

Inhalation

May be harmful if inhaled. Causes respiratory tract irritation.

Ingestion

Toxic if swallowed.

Skin

Toxic if absorbed through skin. Causes skin irritation.

Eyes

Causes eye irritation.

L) Signs and Symptoms of Exposure

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

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

M) Additional Information

RTECS: UC7350000

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to daphnia and other aquatic invertebrates:

EC50 - Daphnia magna (Water flea) - 250 mg/l - 24 h

12.2 Persistence and Degradability

aerobic

Result: 95 % - Readily biodegradable

Method: OECD Test Guideline 301C

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Results of PBT and vPvB Assessment

No data available.

12.6 Other Adverse Effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

A) Product

Product may be burned in an incinerator equipped with afterburner and scrubber. Excess and expired materials are to be offered to a licensed hazardous material disposal company. Ensure that all Federal and Local regulations regarding the disposal and destruction of this material are followed.

B) Contaminated Packaging

Dispose of as above.

C) Other Considerations

Product is not to be disposed of in sanitary sewers, storm sewers, or landfills.

14. TRANSPORT INFORMATION

14.1 UN Number

DOT (US): UN1100

IATA: UN1100

IMDG: UN1100

ADR/RID: UN1100

14.2 UN Proper Shipping Name

DOT (US)/IATA:

Allyl chloride

IMDG/ARD/RID:

ALLYL CHLORIDE

14.3 Transport Hazard Class(es)

DOT (US): 3 (6.1)

IATA: 3 (6.1)

IMDG: 3 (6.1)

ADR/RID: 3 (6.1)

14.4 Packing Group

DOT (US): I

IATA: I

IMDG: I

ADR/RID: I

14.5 Environmental Hazards

DOT (US): None

IATA: None

IMDG: None

ADR/RID: None

14.6 Special Precautions for User

15. REGULATORY INFORMATION

This safety data sheet complies with the requirements of WHMIS (Canada), OSHA 1910.1200 (US), and EU Regulation EC No. 1907/2006 (European Union).

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture**A) Canada**

DSL/NDSL Status: This product or a component of this product is registered on the Canadian DSL/NDSL.

B) United States

TSCA Status: This product or a component is listed on the US EPA TSCA.

C) European Union

ECHA Status: This product or a component is registered with the EU ECHA.

15.2 Chemical Safety Assessment

No data available

16. OTHER INFORMATION**16.1 Revision History**

Original Publication Date: 10/16/2015

16.2 List of Abbreviations

LD50	Median lethal dose of a substance required to kill 50% of a test population.
LC50	Medial lethal concentration of a substance required to kill 50% of a test population.
LDLo	Lowest known lethal dose
TDLo	Lowest known toxic dose
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
RTECS	Registry of Toxic Effects of Chemical Substances

16.3 Further Information

Copyright 2015. Toronto Research Chemicals Inc. Copies may be made for internal use only. The above information is believed to be correct to the best of our knowledge, but is to be only used as a guide. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Please take all due care when handling this product.