SAFETY DATA SHEET

Version 4.16
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Allyl bromide
Product Number	:	A29585
Brand	:	Aldrich
Product Use	:	For laboratory research purposes.

Supplier	:	Sigma-Aldrich Canada Co. 2149 Winston Park Drive OAKVILLE ON L6H 6J8 CANADA
Telephone	:	+1 9058299500
Fax	:	+1 9058299292
Emergency Phone # (For both supplier and manufacturer)	:	+1-703-527-3887 (CHEMTREC)
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

Manufacturer	:	Sigma-Aldrich Corporation 3050 Spruce St. St. Louis, Missouri 63103 USA

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Liver, Kidney

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Toxic by ingestion
D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Severe eye irritant
E	Corrosive Material	Mutagen Corrosive to skin

GHS Classification

Flammable liquids (Category 2)
Acute toxicity, Oral (Category 3)
Skin corrosion/irritation (Sub-category 1B)
Serious eye damage/eye irritation (Category 1)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1B)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H225	Highly flammable liquid and vapour.
H301	Toxic if swallowed.

H314	Causes severe skin burns and eye damage.
H340	May cause genetic defects.
H350	May cause cancer.
H400	Very toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
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.

HMIS Classification

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

Potential Health Effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes	Causes eye burns. Causes eye irritation.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : 3-Bromo-1-propene

Formula : C_3H_5Br

CAS-No.	EC-No.	Index-No.	Concentration
Methyloxirane			
75-56-9	200-879-2	603-055-00-4	<= 0.1 %
3-Bromopropene			
106-95-6	203-446-6	-	>= 99 %
Methyloxirane			
75-56-9	200-879-2	603-055-00-4	<= 0.1 %
3-Bromopropene			
106-95-6	203-446-6	-	>= 99 %

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
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

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

5. FIREFIGHTING MEASURES

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

Special protective equipment for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

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

Explosion data - sensitivity to mechanical impact
No data available

Explosion data - sensitivity to static discharge
No data available

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapours, 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. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment. 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.

Recommended storage temperature 2 - 8 °C

Moisture sensitive. Light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
3-Bromopropene	106-95-6			Canada. British Columbia OEL
Remarks	No British Columbia exposure limit at this time			
		TWA	0.100000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		STEL	0.200000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Methyloxirane	75-56-9	TWA	2.000000 ppm 4.700000 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	2.000000 ppm	Canada. British Columbia OEL
Remarks	IARC '2B' applies to substances deemed possibly carcinogenic to humans. Sensitizer: sensitization critical effect			
		TWAEV	20.000000 ppm 48.000000 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	A substance which may not be recirculated in accordance with section 108 A substance to which exposure must be reduced to a minimum in accordance with section 42 Carcinogenic effect suspected in humans			
		TWA	2.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)

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. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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

Specific engineering controls
Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	clear, liquid
Colour	colourless

Safety data

pH	No data available
Melting point/freezing point	Melting point/range: -119 °C (-182 °F)
Boiling point	70 - 71 °C (158 - 160 °F)
Flash point	-0.99 °C (30.22 °F) - closed cup
Ignition temperature	290 °C (554 °F)
Auto-ignition temperature	No data available
Lower explosion limit	4.3 %(V)
Upper explosion limit	7.3 %(V)
Vapour pressure	No data available
Density	1.398 g/mL at 25 °C (77 °F)
Water solubility	3.83 g/l at 25 °C (77 °F)
Partition coefficient: n-octanol/water	log Pow: 1.79 at 20 °C (68 °F)
Relative vapour density	No data available
Odour	unpleasant
Odour Threshold	No data available
Evaporation rate	No data available

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
May polymerize on exposure to light. Exposure to moisture Exposure to air.
Heat, flames and sparks.

Materials to avoid
Oxidizing agents, Alkali metals, Alkaline earth metals, Light metals, Amides, Amines, Powdered metals

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen bromide gas
Other decomposition products - No data available

Contains the following stabiliser(s):
Methyloxirane (<=0.1 %)

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
LD50 Oral - Rat - 120 mg/kg

Inhalation LC50
LC50 Inhalation - Rat - 30 min - 10,000 mg/l

Dermal LD50
No data available

Other information on acute toxicity
LD50 Intraperitoneal - Rat - 48 mg/kg

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Genotoxicity in vitro - S. typhimurium - positive
Other mutation test systems

Carcinogenicity

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

Reproductive toxicity

No data available

Teratogenicity

No data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
No data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
No data available

Aspiration hazard
No data available

Potential health effects

Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Causes respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	May be harmful if absorbed through skin. Causes skin burns. Causes skin irritation.
Eyes	Causes eye burns. Causes eye irritation.

Signs and Symptoms of Exposure

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Synergistic effects
No data available

Additional Information
RTECS: UC7090000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	mortality LC50 - Carassius auratus (goldfish) - < 0.8 mg/l - 24.0 h

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

PBT and vPvB assessment
No data available

Other adverse effects

Biochemical Oxygen Demand (BOD)	0.82 mg/g
Chemical Oxygen Demand (COD)	0.82 mg/g

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

Very toxic to aquatic life.

Additional ecological information	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. Offer surplus and non-recyclable solutions to a licensed disposal company. 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: 1099 Class: 3 (6.1) Packing group: I
Proper shipping name: Allyl bromide
Reportable Quantity (RQ):
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1099 Class: 3 (6.1) Packing group: I EMS-No: F-E, S-D
Proper shipping name: ALLYL BROMIDE
Marine pollutant: Marine pollutant

IATA

UN number: 1099 Class: 3 (6.1) Packing group: I
Proper shipping name: Allyl bromide
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Toxic by ingestion
D2A	Very Toxic Material Causing Other Toxic Effects	Carcinogen
D2B	Toxic Material Causing Other Toxic Effects	Severe eye irritant
E	Corrosive Material	Mutagen
		Corrosive to skin

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Text of H-code(s) and R-phrase(s) mentioned in Section 3

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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.