

## Material Safety Data Sheet

Version 4.0  
Revision Date 03/14/2010  
Print Date 01/12/2012

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 1-Chlorobutane  
Product Number : 414255  
Brand : Sigma-Aldrich  
Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA  
Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

## 2. HAZARDS IDENTIFICATION

## Emergency Overview

OSHA Hazards  
Flammable liquid

## GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H225 : Highly flammable liquid and vapour.  
H303 : May be harmful if swallowed.

Precautionary statement(s)

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

## HMIS Classification

Health hazard:

Flammability:

Physical hazards:

NFPA Rating

Health hazard:

Fire:

Reactivity Hazard:

Potential Health Effects

Inhalation

Skin

Eyes

Ingestion

May be harmful if inhaled. May cause respiratory tract irritation.  
May be harmful if absorbed through skin. May cause skin irritation.  
May cause eye irritation.  
May be harmful if swallowed.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Butyl chloride

Formula : C<sub>4</sub>H<sub>9</sub>Cl

Molecular Weight : 92.57 g/mol

Sigma-Aldrich - 414255

Delivery 0840676351-000010 Purchase Order P0109641

00000962

| CAS-No.        | EC-No.    | Index-No.    | Concentration |
|----------------|-----------|--------------|---------------|
| Butyl chloride |           |              |               |
| 109-69-3       | 203-696-6 | 602-059-00-3 | -             |

## 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

Wash off with soap and plenty of water. Consult a physician.

## In case of eye contact

Flush eyes with water as a precaution.

## If swallowed

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

## 5. FIRE-FIGHTING MEASURES

## Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

## Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

## Further information

Use water spray to cool unopened containers.

## 6. ACCIDENTAL RELEASE MEASURES

## Personal precautions

Avoid breathing vapors, 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.

## Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

## 7. HANDLING AND STORAGE

## Precautions for safe handling

Avoid inhalation of vapour or mist.

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. Store in cool place.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

### 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

For prolonged or repeated contact use protective gloves.

#### Eye protection

Face shield and safety glasses

#### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

#### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form liquid

### Safety data

|                         |                                             |
|-------------------------|---------------------------------------------|
| pH                      | no data available                           |
| Melting point           | -123 °C (-189 °F) - lit.                    |
| Boiling point           | 77 - 78 °C (171 - 172 °F) - lit.            |
| Flash point             | -12 °C (10 °F) - closed cup                 |
| Ignition temperature    | 460 °C (860 °F)                             |
| Lower explosion limit   | 1.8 %(V)                                    |
| Upper explosion limit   | 10.1 %(V)                                   |
| Vapour pressure         | 106.8 hPa (80.1 mmHg) at 78.4 °C (173.1 °F) |
| Density                 | 0.886 g/cm3 at 25 °C (77 °F)                |
| Water solubility        | no data available                           |
| Relative vapour density | 3.2<br>- (Air = 1.0)                        |

## 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

Heat, flames and sparks.

### Materials to avoid

Strong oxidizing agents, Strong bases

## 11. TOXICOLOGICAL INFORMATION

### Hazardous decomposition products

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

### Acute toxicity

LD50 Oral - rat - 2,670 mg/kg

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

Genotoxicity in vitro - mouse - lymphocyte  
Mutation in mammalian somatic cells.

### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Reproductive toxicity

Developmental Toxicity - rat - Oral  
Effects on Embryo or Fetus: Fetal death.

### Specific target organ toxicity - single exposure (GHS)

no data available

### Specific target organ toxicity - repeated exposure (GHS)

no data available

### Aspiration hazard

no data available

### Potential health effects

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

**Ingestion** May be harmful if swallowed.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

### Additional information

RTECS: EJ6300000

## 12. ECOLOGICAL INFORMATION

### Toxicity

Toxicity to daphnia EC50 - Daphnia magna (Water flea) - 3,020 mg/l - 48 h  
and other aquatic invertebrates.

### Persistence and degradability

no data available

### Bioaccumulative potential

16. OTHER INFORMATION

Further information

Copyright 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only. 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 Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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. Observe all federal, state, and local environmental regulations. 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: 1127 Class: 3 Packing group: II  
Proper shipping name: Chlorobutanes  
Marine pollutant: No  
Poison Inhalation Hazard: No

IMDG

UN-Number: 1127 Class: 3 Packing group: II EMS-No: F-E, S-D  
Proper shipping name: CHLOROBUTANES  
Marine pollutant: No

IATA

UN-Number: 1127 Class: 3 Packing group: II  
Proper shipping name: Chlorobutanes

15. REGULATORY INFORMATION

OSHA Hazards

Flammable liquid

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard

Massachusetts Right To Know Components

Butyl chloride

Pennsylvania Right To Know Components

Butyl chloride

New Jersey Right To Know Components

CAS-No.  
109-69-3

Revision Date  
1993-04-24

CAS-No.  
109-69-3

Revision Date  
1993-04-24

CAS-No.

Revision Date