

## Material Safety Data Sheet

Date Printed: 14/JUN/2005

Date Updated: 17/APR/2004

Version 1.6

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

---

1 - Product and Company Information

---

Product Name 1-BROMOBUTANE, REAGENTPLUS(TM), 99%  
Product Number B59497

Company Sigma-Aldrich Pty. Ltd.  
12 Anella Avenue  
Castle Hill NSW 2154  
Australia

Technical Phone # +61 2 9841 0555 (1800 800 097)

Fax +61 2 9841 0500 (1800 800 096)

Emergency Phone # +44 8701906777 (1800 448 465)

---

2 - Composition/Information on Ingredients

---

Product Name	CAS #	EC no	Annex I Index Number
1-BROMOBUTANE	109-65-9	203-691-9	None

Formula C4H9Br

Molecular Weight 137.03 AMU

Synonyms Butyl bromide \* n-Butyl bromide \* 1-Bromobutane  
\* 1-Butyl bromide

---

3 - Hazards Identification

---

## SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

Highly flammable. Irritating to eyes, respiratory system and skin.  
Toxic to aquatic organisms, may cause long-term adverse effects in  
the aquatic environment.

---

4 - First Aid Measures

---

## AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give  
artificial respiration. If breathing is difficult, give oxygen.

## AFTER SKIN CONTACT

In case of contact, immediately wash skin with soap and copious  
amounts of water.

## AFTER EYE CONTACT

In case of contact, immediately flush eyes with copious amounts  
of water for at least 15 minutes.

## AFTER INGESTION

If swallowed, wash out mouth with water provided person is  
conscious. Call a physician.

---

## 5 - Fire Fighting Measures

---

### EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

### SPECIAL RISKS

Specific Hazard(s): Flammable liquid. Emits toxic fumes under fire conditions.

Explosion Hazards: Vapor may travel considerable distance to source of ignition and flash back. Container explosion may occur under fire conditions. Forms explosive mixtures in air.

### SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

### SPECIFIC METHOD(S) OF FIRE FIGHTING

Use water spray to cool fire-exposed containers.

---

## 6 - Accidental Release Measures

---

### PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

### PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

### METHODS FOR CLEANING UP

Cover with dry-lime, sand, or soda ash. Place in covered containers using non-sparking tools and transport outdoors. Ventilate area and wash spill site after material pickup is complete.

---

## 7 - Handling and Storage

---

### HANDLING

Directions for Safe Handling: Avoid breathing vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

### STORAGE

Conditions of Storage: Keep container closed. Keep away from heat, sparks, and open flame.

---

## 8 - Exposure Controls / Personal Protection

---

### ENGINEERING CONTROLS

Safety shower and eye bath. Use nonsparking tools. Mechanical exhaust required.

### GENERAL HYGIENE MEASURES

Wash thoroughly after handling. Wash contaminated clothing before reuse.

### PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

---

## 9 - Physical and Chemical Properties

Appearance	Physical State: Clear liquid Color: Faintly brown-yellow	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	99 - 101 °C	
MP/MP Range	-112 °C	
Flash Point	10 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	265 °C	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	Lower: 2.8 % Upper: 6.6 %	
Vapor Pressure	40 mmHg	25 °C
SG/Density	1.273 g/cm3	
Partition Coefficient	Log Kow: 2.75	
Viscosity	N/A	
Vapor Density	4.7 g/l	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

---

## 10 - Stability and Reactivity

---

### STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents, Strong bases, Magnesium, Potassium, Sodium.

### HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen bromide gas.

### HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

---

## 11 - Toxicological Information

---

RTECS NUMBER: EJ6225000

### ACUTE TOXICITY

LC50

Inhalation

Rat

237,000 mg/m3

4 H

LD50

Oral

Rat

2761 mg/kg

Remarks: Behavioral: Somnolence (general depressed activity).

Behavioral:Tremor. Behavioral:Ataxia.

LD50  
Intraperitoneal  
Rat  
4450 MG/KG

LD50  
Intraperitoneal  
Mouse  
1424 MG/KG

LC50  
Inhalation  
Mammal  
25,800 mg/m3

#### SIGNS AND SYMPTOMS OF EXPOSURE

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

#### ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.  
Skin Absorption: May be harmful if absorbed through the skin.  
Eye Contact: Causes eye irritation.  
Inhalation: May be harmful if inhaled. Material is irritating to mucous membranes and upper respiratory tract.  
Ingestion: May be harmful if swallowed.

---

### 12 - Ecological Information

---

#### ELIMINATION

Elimination: 1 %  
Classification: Not significantly biodegradable.

#### ECOTOXICOLOGICAL EFFECTS

Test Type: LC50 Fish  
Species: Pimephales promelas (Fathead minnow)  
Time: 96 h  
Value: 36.7 mg/l

Test Type: EC50 Daphnia  
Time: 48 h  
Value: 8.8 mg/l

---

### 13 - Disposal Considerations

---

#### SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. 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.

---

### 14 - Transport Information

---

#### RID/ADR

UN#: 1126  
Class: 3  
PG: II

Proper Shipping Name: 1-Bromobutane

IMDG

UN#: 1126  
Class: 3  
PG: II  
Proper Shipping Name: 1-Bromobutane  
Marine Pollutant: No  
Severe Marine Pollutant: No

IATA

UN#: 1126  
Class: 3  
PG: II  
Proper Shipping Name: 1-Bromobutane  
Inhalation Packing Group I: No

---

15 - Regulatory Information

---

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: F Xi N

Highly Flammable. Irritant. Dangerous for the environment.

R-PHRASES: 11 36/37/38 51/53

Highly flammable. Irritating to eyes, respiratory system and skin. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 16 26 60

Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. This material and its container must be disposed of as hazardous waste.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2 (self-classification)

---

16 - Other Information

---

WARRANTY

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 Inc., 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. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

DISCLAIMER

For R&D use only. Not for drug, household or other uses.