

**Material Safety Data Sheet**

Version 3.0  
Revision Date 08/20/2009  
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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : (S)-(+)-1,3-Butanediol

Product Number : 237620  
Brand : Aldrich

Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +18003255832  
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**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula :  $C_4H_{10}O_2$   
Molecular Weight : 90.12 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>(S)-(+)-Butane-1,3-diol</b>			
24621-61-2	246-363-0	-	-

**3. HAZARDS IDENTIFICATION****Emergency Overview**

**OSHA Hazards**  
Irritant

**HMIS Classification**

**Health Hazard:** 2  
**Flammability:** 1  
**Physical hazards:** 0

**NFPA Rating**

**Health Hazard:** 2  
**Fire:** 1  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation.  
**Skin** May be harmful if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** May be harmful if swallowed.

**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**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**5. FIRE-FIGHTING MEASURES****Flammable properties**

Flash point 121 °C (250 °F) - closed cup

Ignition temperature 394 °C (741 °F)

**Suitable extinguishing media**

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

**Special protective equipment for fire-fighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

**Environmental precautions**

Do not let product enter drains.

**Methods for cleaning up**

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

**7. HANDLING AND STORAGE****Handling**

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.

**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.

hygroscopic

**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**

Handle with gloves.

**Eye protection**

Safety glasses with side-shields conforming to EN166

**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 clear, viscous liquid

Colour light yellow

**Safety data**

pH no data available

Melting point no data available

Boiling point 109 °C (228 °F) at 19 hPa (14 mmHg) - lit.

Flash point 121 °C (250 °F) - closed cup

Ignition temperature 394 °C (741 °F)

Lower explosion limit no data available

Upper explosion limit no data available

Vapour pressure 0.08 hPa (0.06 mmHg) at 20 °C (68 °F)

Density 1.005 g/mL at 25 °C (77 °F)

Water solubility no data available

Relative vapour density 3.11  
- (Air = 1.0)

**10. STABILITY AND REACTIVITY****Storage stability**

Stable under recommended storage conditions.

**Materials to avoid**

Acid chlorides, Acid anhydrides, Oxidizing agents, Chloroformates, Reducing agents

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - Carbon oxides

**11. TOXICOLOGICAL INFORMATION****Acute toxicity**

no data available

**Irritation and corrosion**

no data available

#### **Sensitisation**

no data available

#### **Chronic exposure**

- 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.

#### **Signs and Symptoms of Exposure**

Gastrointestinal disturbance, Nausea, Headache, Vomiting

#### **Potential Health Effects**

- |                   |  |
|-------------------|--|
| <b>Inhalation</b> | May be harmful if inhaled. Causes respiratory tract irritation.  |
| <b>Skin</b>       | May be harmful if absorbed through skin. Causes skin irritation. |
| <b>Eyes</b>       | Causes eye irritation.   |
| <b>Ingestion</b>  | May be harmful if swallowed.                                     |

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## **12. ECOLOGICAL INFORMATION**

#### **Elimination information (persistence and degradability)**

no data available

#### **Ecotoxicity effects**

no data available

#### **Further information on ecology**

no data available

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## **13. DISPOSAL CONSIDERATIONS**

#### **Product**

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.

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## **14. TRANSPORT INFORMATION**

#### **DOT (US)**

Not dangerous goods

#### **IMDG**

Not dangerous goods

#### **IATA**

Not dangerous goods

## 15. REGULATORY INFORMATION

### OSHA Hazards

Irritant

### DSL Status

This product contains the following components that are not on the Canadian DSL nor NDSL lists.

(S)-(+)-Butane-1,3-diol

CAS-No.  
24621-61-2

### 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

Acute Health Hazard

### Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

### Pennsylvania Right To Know Components

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### New Jersey Right To Know Components

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### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

## 16. OTHER INFORMATION

### Further information

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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.