

## SAFETY DATA SHEET

Version 5.2  
Revision Date 10/13/2016  
Print Date 11/21/2018

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1. PRODUCT AND COMPANY IDENTIFICATION

## 1.1 Product identifiers

Product name : (R)-(+)-3-Butyn-2-ol

Product Number : 464821

Brand : Aldrich

CAS-No. : 42969-65-3

## 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

## 1.3 Details of the supplier of the safety data sheet

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

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

## 1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

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2. HAZARDS IDENTIFICATION

## 2.1 Classification of the substance or mixture

**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 3), H226

Acute toxicity, Oral (Category 2), H300

Acute toxicity, Inhalation (Category 1), H330

Skin irritation (Category 2), H315

Serious eye damage (Category 1), H318

Skin sensitisation (Category 1), H317

Carcinogenicity (Category 2), H351

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H226

Flammable liquid and vapour.

H300 + H330

Fatal if swallowed or if inhaled

H315

Causes skin irritation.

H317

May cause an allergic skin reaction.

H318

Causes serious eye damage.

H335

May cause respiratory irritation.

H351

Suspected of causing cancer.

**Precautionary statement(s)**

|                    |                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|
| P201               | Obtain special instructions before use.                                                                                          |
| P202               | Do not handle until all safety precautions have been read and understood.                                                        |
| P210               | Keep away from heat/sparks/open flames/hot surfaces. No smoking.                                                                 |
| P233               | Keep container tightly closed.                                                                                                   |
| P240               | Ground/bond container and receiving equipment.                                                                                   |
| P241               | Use explosion-proof electrical/ ventilating/ lighting/ equipment.                                                                |
| P242               | Use only non-sparking tools.                                                                                                     |
| P243               | Take precautionary measures against static discharge.                                                                            |
| P260               | Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.                                                                            |
| P264               | Wash skin thoroughly after handling.                                                                                             |
| P270               | Do not eat, drink or smoke when using this product.                                                                              |
| P271               | Use only outdoors or in a well-ventilated area.                                                                                  |
| P272               | Contaminated work clothing should not be allowed out of the workplace.                                                           |
| P280               | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                    |
| P284               | Wear respiratory protection.                                                                                                     |
| P301 + P310        | IF SWALLOWED: Immediately call a POISON CENTER/doctor.                                                                           |
| P303 + P361 + P353 | IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.                     |
| P304 + P340        | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.                                 |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P310               | Immediately call a POISON CENTER/doctor.                                                                                         |
| P320               | Specific treatment is urgent (see supplemental first aid instructions on this label).                                            |
| P330               | Rinse mouth.                                                                                                                     |
| P333 + P313        | If skin irritation or rash occurs: Get medical advice/ attention.                                                                |
| P362               | Take off contaminated clothing and wash before reuse.                                                                            |
| P370 + P378        | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.                                            |
| P403 + P233        | Store in a well-ventilated place. Keep container tightly closed.                                                                 |
| P403 + P235        | Store in a well-ventilated place. Keep cool.                                                                                     |
| P405               | Store locked up.                                                                                                                 |
| P501               | Dispose of contents/ container to an approved waste disposal plant.                                                              |

**2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none****3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

|                  |                                   |
|------------------|-----------------------------------|
| Formula          | : C <sub>4</sub> H <sub>6</sub> O |
| Molecular weight | : 70.09 g/mol                     |
| CAS-No.          | : 42969-65-3                      |

**Hazardous components**

| Component                   | Classification                                                                                                                                                        | Concentration |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| <b>(R)-(+)-3-Butyn-2-ol</b> |                                                                                                                                                                       |               |
|                             | Flam. Liq. 3; Acute Tox. 2;<br>Acute Tox. 1; Skin Irrit. 2; Eye<br>Dam. 1; Skin Sens. 1; Carc. 2;<br>STOT SE 3; H226, H300 +<br>H330, H315, H317, H318,<br>H335, H351 | <= 100 %      |

For the full text of the H-Statements mentioned in this Section, see Section 16.

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## 4. FIRST AID MEASURES

### 4.1 Description of 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. 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.

#### If swallowed

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

### 4.2 Most important symptoms and effects, both acute and delayed

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

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### 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.

### 5.2 Special hazards arising from the substance or mixture

No data available

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

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. For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

### 6.3 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).

### 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

## 7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. 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.

## 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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# 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## 8.1 Control parameters

### Components with workplace control parameters

Contains no substances with occupational exposure limit values.

## 8.2 Exposure controls

### Appropriate engineering controls

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

### Personal protective equipment

#### Eye/face 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 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.

#### 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.

#### 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).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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# 9. PHYSICAL AND CHEMICAL PROPERTIES

## 9.1 Information on basic physical and chemical properties

- |                                            |                                      |
|--------------------------------------------|--------------------------------------|
| a) Appearance                              | Form: liquid<br>Colour: light yellow |
| b) Odour                                   | No data available                    |
| c) Odour Threshold                         | No data available                    |
| d) pH                                      | No data available                    |
| e) Melting point/freezing point            | No data available                    |
| f) Initial boiling point and boiling range | 108 - 111 °C (226 - 232 °F) - lit.   |
| g) Flash point                             | 26 °C (79 °F) - closed cup           |
| h) Evaporation rate                        | No data available                    |
| i) Flammability (solid, gas)               | No data available                    |
| j) Upper/lower                             | No data available                    |

flammability or  
explosive limits

- |                                           |                                         |
|-------------------------------------------|-----------------------------------------|
| k) Vapour pressure                        | No data available                       |
| l) Vapour density                         | No data available                       |
| m) Relative density                       | 0.89 g/cm <sup>3</sup> at 25 °C (77 °F) |
| n) Water solubility                       | No data available                       |
| o) Partition coefficient: n-octanol/water | No data available                       |
| p) Auto-ignition temperature              | No data available                       |
| q) Decomposition temperature              | No data available                       |
| r) Viscosity                              | No data available                       |
| s) Explosive properties                   | No data available                       |
| t) Oxidizing properties                   | No data available                       |

## 9.2 Other safety information

No data available

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## 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

Oxidizing agents, acids, Strong bases, Metallic salts, Acid anhydrides, Copper

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - No data available

In the event of fire: see section 5

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

No data available

Inhalation: No data available

Dermal: No data available

No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitisation

#### Germ cell mutagenicity

No data available

## **Carcinogenicity**

Limited evidence of carcinogenicity in animal studies

- 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**

No data available

No data available

## **Specific target organ toxicity - single exposure**

Inhalation - May cause respiratory irritation.

## **Specific target organ toxicity - repeated exposure**

No data available

## **Aspiration hazard**

No data available

## **Additional Information**

RTECS: Not available

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

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## **12. ECOLOGICAL INFORMATION**

### **12.1 Toxicity**

No data available

### **12.2 Persistence and degradability**

No data available

### **12.3 Bioaccumulative potential**

No data available

### **12.4 Mobility in soil**

No data available

### **12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

### **12.6 Other adverse effects**

No data available

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## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste treatment methods**

#### **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.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 2929      Class: 6.1 (3)      Packing group: II  
Proper shipping name: Toxic liquids, flammable, organic, n.o.s. ((R)-(+)-3-Butyn-2-ol)

Poison Inhalation Hazard: No

**IMDG**

UN number: 2929      Class: 6.1 (3)      Packing group: II      EMS-No: F-E, S-D  
Proper shipping name: TOXIC LIQUID, FLAMMABLE, ORGANIC, N.O.S. ((R)-(+)-3-Butyn-2-ol)

**IATA**

UN number: 2929      Class: 6.1 (3)      Packing group: II  
Proper shipping name: Toxic liquid, flammable, organic, n.o.s. ((R)-(+)-3-Butyn-2-ol)

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**15. REGULATORY INFORMATION****SARA 302 Components**

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

**SARA 313 Components**

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, Acute Health Hazard

**Massachusetts Right To Know Components**

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

**Pennsylvania Right To Know Components**

|                      | CAS-No.    | Revision Date |
|----------------------|------------|---------------|
| (R)-(+)-3-Butyn-2-ol | 42969-65-3 |               |

**New Jersey Right To Know Components**

|                      | CAS-No.    | Revision Date |
|----------------------|------------|---------------|
| (R)-(+)-3-Butyn-2-ol | 42969-65-3 |               |

**California Prop. 65 Components**

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

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**16. OTHER INFORMATION****Full text of H-Statements referred to under sections 2 and 3.**

|             |                                      |
|-------------|--------------------------------------|
| Acute Tox.  | Acute toxicity                       |
| Carc.       | Carcinogenicity                      |
| Eye Dam.    | Serious eye damage                   |
| Flam. Liq.  | Flammable liquids                    |
| H226        | Flammable liquid and vapour.         |
| H300        | Fatal if swallowed.                  |
| H300 + H330 | Fatal if swallowed or if inhaled     |
| H315        | Causes skin irritation.              |
| H317        | May cause an allergic skin reaction. |
| H318        | Causes serious eye damage.           |
| H330        | Fatal if inhaled.                    |
| H335        | May cause respiratory irritation.    |
| H351        | Suspected of causing cancer.         |

**HMIS Rating**

|                        |   |
|------------------------|---|
| Health hazard:         | 4 |
| Chronic Health Hazard: |   |
| Flammability:          | 3 |
| Physical Hazard        | 0 |

**NFPA Rating**

|                    |   |
|--------------------|---|
| Health hazard:     | 4 |
| Fire Hazard:       | 3 |
| Reactivity Hazard: | 0 |

**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 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](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

**Preparation Information**

Sigma-Aldrich Corporation  
Product Safety – Americas Region  
1-800-521-8956

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