

## Chemical Safety Data Sheet MSDS / SDS

**2-Butyne-1,4-diol**

Revision Date:2023-12-02 Revision Number:1

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : 2-Butyne-1,4-diol  
CBnumber : CB6852816  
CAS : 110-65-6  
EINECS Number : 203-788-6  
Synonyms : 2-Butyne-1,4-diol,BOZ

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

**SECTION 2: Hazards identification****GHS Label elements, including precautionary statements**

Symbol(GHS)



Signal word

Danger

**Precautionary statements**

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.  
P240 Ground/bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting/.../equipment.  
P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash hands thoroughly after handling.  
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.  
P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P314 Get medical advice/attention if you feel unwell.

P501 Dispose of contents/container to.....

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

#### **Hazard statements**

H402 Harmful to aquatic life

H373 May cause damage to organs through prolonged or repeated exposure

H372 Causes damage to organs through prolonged or repeated exposure

H331 Toxic if inhaled

H317 May cause an allergic skin reaction

H314 Causes severe skin burns and eye damage

H312 Harmful in contact with skin

H301 Toxic if swallowed

H228 Flammable solid

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## SECTION 3: Composition/information on ingredients

### **Substance**

|              |                         |
|--------------|-------------------------|
| Product name | : 2-Butyne-1,4-diol     |
| Synonyms     | : 2-Butyne-1,4-diol,BOZ |
| CAS          | : 110-65-6              |
| EC number    | : 203-788-6             |
| MF           | : C4H6O2                |
| MW           | : 86.09                 |

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

#### **If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### **If swallowed**

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not

available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

### 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

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

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Water Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Carbon oxides Combustible.

Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

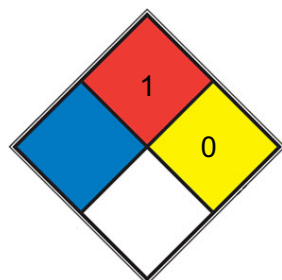
### Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



■ HEALTH

Materials that require considerable preheating, under all ambient temperature conditions, before ignition and combustion

■ FIRE 1 can occur. Includes some finely divided suspended solids that do not require heating before ignition can occur. Flash point at or above 93.3 °C (200 °F). (e.g. [mineral oil](#), ammonia)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N<sub>2</sub>](#))

□ SPEC.

## SECTION 6: Accidental release measures

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

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### **Environmental precautions**

Do not let product enter drains.

### **Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### **Reference to other sections**

For disposal see section 13.

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## SECTION 7: Handling and storage

### **Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### **Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Air and moisture sensitive. Handle and store under inert gas.

#### **Specific end use(s)**

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

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## SECTION 8: Exposure controls/personal protection

### **control parameter**

## Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

## Exposure controls

### Personal protective equipment

#### Eye/face protection

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

#### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

#### Body Protection

protective clothing

#### Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

#### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

|                 |  |
|-----------------|--|
| Appearance      | beige crystalline  |
| Odour           | No data available  |
| Odour Threshold | No data available d) pH 4 - 7,5 at 100 g/l at 23 °C Melting point/freezing point Initial boiling point and boiling range Melting point/range: 53 - 58 °C - lit. 238 °C - lit. Flash point 152 °C - closed cup Evaporation rate No data available Flammability (solid, gas) Upper/lower flammability or explosive |

limits No data available No data available Vapour pressure < 0,1 hPa at 55 °C Vapour density No data available Relative density No data available Water solubility 3.740 g/l at 20 °C Partition coefficient: n-octanol/water Autoignition temperature Decomposition temperature log Pow: -0,73 at 25 °C No data available No data available Viscosity Viscosity, kinematic: No data available Viscosity, dynamic: No data available Explosive properties No data available Oxidizing properties No data available

|  |   |
|--|---|
| Melting point/freezing point                 | Melting point/range: 53 - 58 °C - lit.  |
| Initial boiling point and boiling range      | 238 °C - lit.   |
| Flash point                                  | 152 °C - closed cup   |
| Evaporation rate                             | 306 °F  |
| Flammability (solid, gas)                    | No data available   |
| Upper/lower flammability or explosive limits | No data available   |
| Vapour pressure                              | < 0,1 hPa at 55 °C  |
| Vapour density                               | <0.1 mm Hg ( 55 °C)   |
| Relative density                             | No data available   |
| Water solubility                             | 3.740 g/l at 20 °C  |
| Partition coefficient: n-octanol/water       | log Pow: -0,73 at 25 °C   |
| Autoignition temperature                     | No data available   |
| Decomposition temperature                    | No data available   |
| Viscosity                                    | Viscosity, kinematic: No data available Viscosity, dynamic: No data available |
| Explosive properties                         | No data available   |
| Oxidizing properties                         | No data available   |

### Other safety information

No data available

## SECTION 10: Stability and reactivity

### Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Risk of explosion with:

alkali salts

alkali hydroxides halogen compounds Heavy metal salts mercury compounds acid halides

Strong acids

Exothermic reaction with:

alkaline earth hydroxides Acid anhydrides

### **Conditions to avoid**

Air Avoid moisture. Strong heating.

### **Incompatible materials**

No data available

### **Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - male - 132 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 0,669 mg/l (OECD Test Guideline 403)

LD50 Dermal - 400 mg/kg

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Causes burns. (OECD Test Guideline 404)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Risk of serious damage to eyes. (OECD Test Guideline 405)

#### **Respiratory or skin sensitization**

No data available

#### **Germ cell mutagenicity**

No data available

Test Type: Chromosome aberration test in vitro Test system: fibroblast

Metabolic activation: with and without metabolic activation Result: negative

Test Type: Micronucleus test Species: Mouse

Application Route: Intraperitoneal Method: Mutagenicity (micronucleus test) Result: negative

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

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

No data available

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

May cause damage to organs through prolonged or repeated exposure.

#### **Aspiration hazard**

No data available

### **Toxicity**

LD50 orally in Rabbit: 100 mg/kg

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## SECTION 12: Ecological information

### **Toxicity**

#### **Toxicity to algae**

static test EC50 - *Desmodesmus subspicatus* (green algae) - 1.048 mg/l - 72 h  
(OECD Test Guideline 201)

#### **Persistence and degradability**

Biodegradability Result: - Readily biodegradable.

Remarks: No data available

#### **Bioaccumulative potential**

No data available

#### **Mobility in soil**

No data available

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

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

#### **Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

### **Waste treatment methods**

#### **Product**

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14: Transport information

### **UN number**

ADR/RID: 2716 IMDG: 2716

### **UN proper shipping name**



ADR/RID: 1,4-BUTYNEEDIOL IMDG: 1,4-BUTYNEEDIOL IATA: 1,4-Butynediol

### **Transport hazard class(es)**

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

### **Packaging group**

ADR/RID: III IMDG: III IATA: III

### **Environmental hazards**

ADR/RID: no IMDG Marine pollutant: no IATA: no

### **Special precautions for user**

No data available

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## SECTION 15: Regulatory information

### **Safety, health and environmental regulations/legislation specific for the substance or mixture**

#### **Regulations on the Safety Management of Hazardous Chemicals**

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

#### **Measures for Environmental Management of New Chemical Substances**

EC Inventory:Listed.

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

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## SECTION 16: Other information

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

## Other Information

There is no odour warning even when toxic concentrations are present. Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.