

SAFETY DATA SHEET

Preparation Date: 09/04/2015

Revision Date: Not Applicable

Revision Number: Not Applicable

1. IDENTIFICATION

Product identifier

Product code: B2232
Product Name: 2-BUTYNE-1,4-DIOL

Other means of identification

Synonyms: 1,4-Butinodiol [Spanish]
 1,4-Butynediol (VAN)
 1,4-Dihydroxy-2-butyne
 2-Butin-1,4-diol [Czech]
 2-Butin-1,4-diol [Czechoslovakia]
 2-Butynediol
 Agrisynth B3D
 Bis(hydroxymethyl)acetylene
 But-2-yne-1,4-diol
 Butynediol-1,4 [French]
 2-Butyne-1,4-diol
CAS #: 110-65-6
RTECS # ES0525000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: In pesticides. In textile additive. Corrosion inhibitor. Plasticizers. Synthetic resins.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 3
Acute toxicity - Dermal	Category 4
Acute toxicity - Inhalation (Gases)	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 3
Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A

Skin sensitization	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

Label elements

Danger

Hazard statements

Toxic if swallowed
 Toxic if inhaled
 Harmful in contact with skin
 Causes serious eye irritation
 Causes skin irritation
 May cause an allergic skin reaction
 May cause damage to organs through prolonged or repeated exposure



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Harmful to aquatic life with long lasting effects
 Harmful to aquatic life

Precautionary Statements - Prevention

Do not eat, drink or smoke when using this product
 Wear protective gloves/protective clothing/eye protection/face protection
 Do not breathe dust/fume/gas/mist/vapors/spray
 Use only outdoors or in a well-ventilated area
 Wash face, hands and any exposed skin thoroughly after handling
 Contaminated work clothing should not be allowed out of the workplace

Precautionary Statements - Response

Specific treatment (see .? on this label)

Specific measures (see .? on this label)

Specific treatment (see .? on this label)

Get medical advice/attention if you feel unwell

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

IF ON SKIN: Wash with plenty of soap and water

Call a POISON CENTER or doctor/physician if you feel unwell

Take off contaminated clothing and wash before reuse

If skin irritation or rash occurs: Get medical advice/attention

Call a POISON CENTER or doctor/physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Rinse mouth

Precautionary Statements - Storage

Store locked up
 Store in a well-ventilated place. Keep container tightly closed

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
2-Butyne-1,4-diol 110-65-6	110-65-6	100	*

4. FIRST AID MEASURES

First aid measures**General Advice:**

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eye with water for 15 minutes. Get medical attention.

Inhalation:

Toxic by inhalation. Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion:

Toxic if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed**Symptoms**

Toxic if swallowed. Toxic by inhalation. Harmful in contact with skin. Causes serious eye irritation. Causes skin irritation. May cause allergic skin reaction. May cause damage to organs through prolonged or repeated exposure.

Indication of any immediate medical attention and special treatment needed**Notes to Physician:**

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media**Suitable Extinguishing Media:**

Dry chemical. Carbon dioxide (CO₂). Water spray. Foam.

Unsuitable Extinguishing Media:

No information available.

Specific hazards arising from the chemical

Hazardous Combustion Products:

Carbon oxides

Specific hazards:

May be combustible at high temperatures

Special Protective Actions for Firefighters**Specific Methods:**

No information available.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures****Personal Precautions:**

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Avoid breathing dust. Avoid dust formation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Remove all sources of ignition. All equipment used when handling the product must be grounded.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up**Methods for containment**

Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up

Use appropriate tools to put the spilled solid in a suitable waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE**Precautions for safe handling****Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. All equipment used when handling the product must be grounded. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not breathe vapours/dust. Do not ingest. Do not smoke. Keep away from heat and sources of ignition. Use only in well-ventilated areas. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities**Technical Measures/Storage Conditions:**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

Alkali metal hydroxides (lithium hydroxide). Halides. Mercury salts. Strong acids. Oxidizing agents. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Control parameters****National occupational exposure limits****United States**

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL

2-Butyne-1,4-diol 110-65-6	None	None	None	None
-------------------------------	------	------	------	------

Canada

Components	Alberta	British Columbia	Ontario	Quebec
2-Butyne-1,4-diol 110-65-6	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
2-Butyne-1,4-diol 110-65-6	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

- Eye protection:** Goggles or Safety glasses with side-shields
- Skin and body protection:** Chemical resistant protective suit. Gloves. Boots.
- Respiratory protection:** Wear respirator with dust filter. Be sure to use an approved/certified respirator or equivalent..
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid.	Appearance: No information available	Color: Yellow.
Odor: No information available	Taste No information available	Molecular/Formula weight: 86.09
Formula: C4H6O2	Flammability: No information available	Flash point (°C): 152°C
Flashpoint (°C/°F): 152°C/ 305.6°F	Flash Point Tested according to: Open cup	Autoignition Temperature (°C/°F): 410°C/ 770°F
Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available	pH: No information available
Melting point/range(°C/°F): 53°C/ 127.4°F	Boiling point/range(°C/°F): 238°C/ 460.4°F	Bulk density: No information available
Decomposition temperature(°C/°F): No information available	Density (g/cm3): No information available	Specific gravity: No information available
Vapor pressure @ 20°C (kPa): No information available	Evaporation rate: No information available	Vapor density: No information available
VOC content (g/L): No information available	Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): -0.73
Viscosity: No information available	Miscibility: No information available	Solubility: Insoluble in diethyl ether Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity

Reactive with oxidizing agents, strong bases, strong acids, alkali metal hydroxides, halides, mercury salts

Chemical stability

Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Stable at normal conditions

Incompatible Materials: Alkali metal hydroxides (lithium hydroxide). Halides. Mercury salts. Strong acids. Oxidizing agents. Strong bases.

Hazardous decomposition products: Carbon oxides.

Other Information

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Skin. Eyes. Inhalation. Ingestion.

Acute Toxicity

Component Information

2-Butyne-1,4-diol - 110-65-6

- LD50/oral/rat** = 100 mg/kg Oral LD50 Rat
- LD50/oral/mouse** = 100 mg/kg
- LD50/dermal/rat** = No information available
- LD50/dermal/rabbit** = 2000 mg/kg Dermal LD50Rabbit
- LC50/inhalation/rat** = 2.5 mg/L Inhalation LC50 Rat 4 h
- LC50/inhalation/mouse** = No information available
- Other LD50 or LC50 information** = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 100mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = 100mg/kg

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = 2000mg/kg

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = 2.5mg/l (4-hr.)

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

- Skin Contact:** Harmful in contact with skin. Causes skin irritation. May cause allergic skin reaction.
- Eye Contact:** Causes serious eye irritation.
- Inhalation** Toxic by inhalation. Causes respiratory tract irritation..
- Ingestion** Toxic if swallowed. May affect behavior/central nervous system (somnolence). It may affect the kidneys and liver. May cause changes in pulmonary vascular resistance and changes in blood vessels or in circulation of kidney. May affect respiration (respiratory depression).
- Aspiration hazard** No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity No information available

Sensitization: May cause sensitization by skin contact

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
2-Butyne-1,4-diol	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Harmful to aquatic organisms, causes long-term adverse effects in the aquatic environment.

2-Butyne-1,4-diol - 110-65-6

Freshwater Algae Data: 430 mg/L EC50 *Desmodesmus subspicatus* 96 h

480 mg/L EC50 *Desmodesmus subspicatus* 72 h

Freshwater Fish Species Data: 46-100 mg/L LC50 *Leuciscus idus* 96 h static 1

49.3-58.3 mg/L LC50 *Pimephales promelas* 96 h flow-through 1

Water Flea Data: 26.8 mg/L EC50 *Daphnia magna* Straus 48 h

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
2-Butyne-1,4-diol	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Subsidiary Risk:
Packing Group: III
ERG No: 153
Marine Pollutant: No data available
DOT RQ (lbs): No information available

Symbol(s):

TDG (Canada)

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

ADR

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Packing Group: III
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
Classification Code: No information available

14. TRANSPORT INFORMATION

Description: No information available

ICAO

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

IATA

UN-No: UN2716
Proper Shipping Name: 1,4-Butynediol
Hazard Class: 6.1
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 6L
Description: No information available

15. REGULATORY INFORMATION**International Inventories**

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
2-Butyne-1,4-diol	Present	Present KE-04384	Present	Present (2)-268	Present	Present	Present 203-788-6

U.S. Regulations

2-Butyne-1,4-diol

New Jersey RTK Hazardous Substance List: 0298

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
2-Butyne-1,4-diol	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
2-Butyne-1,4-diol	None	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
2-Butyne-1,4-diol	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

D1B Toxic materials
D2B Toxic materials

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Inventory

Components	Canada (DSL)	Canada (NDSL)
2-Butyne-1,4-diol	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
2-Butyne-1,4-diol	Not listed	Not listed

EU Classification

R-phrase(s)

R21 - Harmful in contact with skin.
R34 - Causes burns.
R43 - May cause sensitization by skin contact.
R48 - Danger of serious damage to health by prolonged exposure.
R23/25 - Toxic by inhalation and if swallowed.
R48/22 - Harmful: danger of serious damage to health by prolonged exposure if swallowed.

S -phrase(s)

S25 - Avoid contact with eyes.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S46 - If swallowed, seek medical advice immediately and show this container or label.
S 1/2 - Keep locked up and out of the reach of children.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	Classification	Concentration Limits:	Safety Phrases
2-Butyne-1,4-diol	Xn; R21-48/22 T; R23/25 C; R34 R43	50%≤C: T,C; R21-23/25-34-48/22-43 25%≤C<50%: T; R21-23/25-36/38-48/22-43 10%≤C<25%: Xn; R20/22-48/22-43 3%≤C<10%: Xn; R20/22-43 1%≤C<3%: Xi; R43	S1/2 S25 S26 S36/37/39 S45 S46

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

Xn - Harmful.
T - Toxic
C - Corrosive.



16. OTHER INFORMATION

Preparation Date: 09/04/2015
Revision Date: Not Applicable
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet