

## SAFETY DATA SHEET

Revision Date 14-Feb-2020

Revision Number 2

### 1. Identification

**Product Name** 1,4-Butanediol

**Cat No. :** L03491

**CAS-No** 110-63-4  
**Synonyms** 1,4-Butylene glycol

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.  
**Details of the supplier of the safety data sheet**

**Company**

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
**Email:** tech@alfa.com  
www.alfa.com

**Emergency Telephone Number**

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.  
After normal business hours, call Carechem 24 at (866) 928-0789.

### 2. Hazard(s) identification

**Classification**

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

Acute oral toxicity	Category 4
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Central nervous system (CNS).	

**Label Elements**

**Signal Word**

Warning

**Hazard Statements**

Harmful if swallowed  
May cause drowsiness or dizziness

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Avoid breathing dust/fume/gas/mist/vapors/spray

Use only outdoors or in a well-ventilated area

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

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

**Ingestion**

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

Rinse mouth

**Storage**

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

Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
1,4-Butanediol	110-63-4	99

### 4. First-aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention.
<b>Inhalation</b>	Remove from exposure, lie down. Remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
<b>Ingestion</b>	Clean mouth with water. Get medical attention.
<b>Most important symptoms and effects</b>	No information available.
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media</b>	No information available

<b>Flash Point</b>	135 °C / 275 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	420 °C / 788 °F
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

**Specific Hazards Arising from the Chemical**

Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>).

**Protective Equipment and Precautions for Firefighters**

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

**NFPA**

**Health**  
2

**Flammability**  
0

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

<b>Personal Precautions</b>	Ensure adequate ventilation. Use personal protective equipment as required.
<b>Environmental Precautions</b>	See Section 12 for additional Ecological Information.

<b>Methods for Containment and Clean Up</b>	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Prevent product from entering drains. Keep in suitable, closed containers for disposal. Provide adequate ventilation. Do not flush into surface water or sanitary sewer system.
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## 7. Handling and storage

<b>Handling</b>	Avoid contact with skin and eyes. Do not breathe mist/vapors/spray. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
<b>Storage</b>	Keep in a dry place. Keep container tightly closed. Protect from direct sunlight. Store at room temperature.

## 8. Exposure controls / personal protection

<b>Exposure Guidelines</b>	This product does not contain any hazardous materials with occupational exposure limit established by the region specific regulatory bodies.
<b>Engineering Measures</b>	Ensure adequate ventilation, especially in confined areas.
<b>Personal Protective Equipment</b>	
<b>Eye/face Protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard

EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Viscous liquid Liquid
<b>Appearance</b>	Colorless
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	7-8 500 g/l aq. sol
<b>Melting Point/Range</b>	20 °C / 68 °F
<b>Boiling Point/Range</b>	229.2 °C / 444.6 °F @ 1013 hPa
<b>Flash Point</b>	135 °C / 275 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
Upper	No data available
Lower	No data available
<b>Vapor Pressure</b>	<0.1 hPa @ 20 °C
<b>Vapor Density</b>	3.1
<b>Specific Gravity</b>	1.010
<b>Solubility</b>	No information available
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	420 °C / 788 °F
<b>Decomposition Temperature</b>	> 150°C
<b>Viscosity</b>	70 cP at 24 °C
<b>Molecular Formula</b>	C4 H10 O2
<b>Molecular Weight</b>	90.12

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	Stable under normal conditions. Hygroscopic.
<b>Conditions to Avoid</b>	Keep away from open flames, hot surfaces and sources of ignition. Incompatible products. Exposure to moist air or water.
<b>Incompatible Materials</b>	Acids, Peroxides, Acid anhydrides, Acid chlorides, Reducing Agent
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> )
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

**Acute Toxicity**
**Product Information**  
**Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
1,4-Butanediol	LD50 = 1525 mg/kg ( Rat )	LD50 > 5000 mg/kg ( Rat )	LC50 > 15 mg/L ( Rat ) 4 h LC50 > 5.1 mg/L ( Rat ) 4 h

**Toxicologically Synergistic** No information available

**Products**

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

<b>Irritation</b>	No information available
<b>Sensitization</b>	No information available
<b>Carcinogenicity</b>	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
1,4-Butanediol	110-63-4	Not listed	Not listed	Not listed	Not listed	Not listed

<b>Mutagenic Effects</b>	Not mutagenic in AMES Test
<b>Reproductive Effects</b>	No information available.
<b>Developmental Effects</b>	No information available.
<b>Teratogenicity</b>	No information available.
<b>STOT - single exposure</b>	Central nervous system (CNS)
<b>STOT - repeated exposure</b>	None known
<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	No information available
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
1,4-Butanediol	EC50: > 500 mg/L, 92h (Desmodesmus subspicatus) EC50: > 500 mg/L, 72h (Desmodesmus subspicatus)	LC50: > 10000 mg/L, 96h static (Leuciscus idus) LC50: > 30000 mg/L, 96h static (Pimephales promelas) LC50: > 1240 mg/L, 96h semi-static (Cyprinus carpio)	Not listed	EC50: = 813 mg/L, 48h (Daphnia magna)

<b>Persistence and Degradability</b>	Miscible with water Persistence is unlikely based on information available.
<b>Bioaccumulation/ Accumulation</b>	No information available.
<b>Mobility</b>	. Will likely be mobile in the environment due to its water solubility.

Component	log Pow
1,4-Butanediol	-0.88

## 13. Disposal considerations

<b>Waste Disposal Methods</b>	Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.
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## 14. Transport information

<b>DOT</b>	Not regulated
<b>TDG</b>	Not regulated

IATA Not regulated  
 IMDG/IMO Not regulated

## 15. Regulatory information

### United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
1,4-Butanediol	110-63-4	X	ACTIVE	-

#### Legend:

TSCA - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

TSCA 12(b) - Notices of Export Not applicable

### International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
1,4-Butanediol	110-63-4	X	-	203-786-5	X	X	X	X	KE-03788

### U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations Not applicable

#### U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

### Other International Regulations

Mexico - Grade No information available

## 16. Other information

Prepared By Health, Safety and Environmental Department

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<b>Revision Date</b>	14-Feb-2020
<b>Print Date</b>	14-Feb-2020
<b>Revision Summary</b>	SDS authoring systems update, replaces ChemGes SDS No. 110-63-4/4.

**Disclaimer**

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**End of SDS**