



SAFETY DATA SHEET

1,4-BUTANEDIOL

SECTION 1: Identification of the substance/mixture and of the company/undertaking Trade name:

1.1 Product identifier:	
CAS Number:	110-63-4
EC number:	203-786-5
1.2 SYNONYMS:	<ul style="list-style-type: none"> • 1,4-Butylene glycol • Butane-1,4-diol • 1,4-Dihydroxybutane • BDO • Tetramethylene glycol • Butanediol (1,4-) • Butane-1,4-diol

SECTION 2: Hazards identification:

2.1 Classification of the substance or mixture:	Classification according to Regulation (EC) No 1272/2008 The substance is classified according to the CLP regulation.
2.2 Label elements:	Labelling according to Regulation (EC) No 1272/2008 Acute toxicity, oral (Category 4) Specific target organ toxicity - single exposure, (Category 3)
Hazard Pictograms:	 
Signal Word:	Danger
Hazard statements:	H226: Flammable liquid. H302: Harmful if swallowed. H336: May cause drowsiness or dizziness.
Precautionary Statements:	P261: Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P264: Wash skin thoroughly after handling.

	<p>P270: Do not eat, drink or smoke when using this product.</p> <p>P271: Use only outdoors or in a well-ventilated area.</p> <p>P301 + P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.</p> <p>P304 + P340 + P312: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.</p> <p>P403+P233: Store in a well-ventilated place. Keep container tightly closed.</p> <p>P405: Store locked up.</p> <p>P501: Dispose of contents/container to hazardous or special waste collection point</p>
2.3 Other hazards:	
Inhalation:	can cause respiratory irritation, dizziness, headaches, and, in high concentrations, may lead to central nervous system depression.
Ingestion:	can cause nausea, vomiting, abdominal pain, dizziness, and in severe cases, may lead to central nervous system depression, coma, or even death.
Skin Contact:	may cause mild irritation, redness, or dryness, and prolonged or repeated exposure could lead to dermatitis.
Eye contact:	can cause irritation, redness, and discomfort, with potential for more severe damage if exposure is prolonged.
Chronic Exposure:	may lead to central nervous system effects, including headaches, dizziness, and drowsiness, as well as

	potential liver or kidney damage with prolonged or repeated.
Aggravation of pre-existing conditions:	may aggravate pre-existing conditions such as respiratory issues, liver or kidney disease, and central nervous system disorders, potentially exacerbating symptoms like dizziness, headaches, or difficulty breathing.

SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation:	Substances
CAS No:	Description: 110-63-4 1,4-BUTANEDIOL
Identification number(s):	EC number: 203-786-5

SECTION 4: First aid measures

4.1 Description of first aid measures	
General information:	
After inhalation:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact:	Remove contaminated clothing. Wash with soap and water. Consult a physician.
After eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. consult a physician.
After swallowing:	Rinse mouth with water. Immediately after ingestion. Never give anything by mouth to an unconscious person. Do not induce vomiting. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed:	acute exposure include dizziness, headache, nausea, and respiratory irritation, while delayed effects may involve central nervous system depression, liver or kidney damage, and prolonged skin irritation.
4.3 Indication of any immediate medical attention and special treatment needed:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media:	Carbon dioxide. Water spray. Alcohol-resistant foam.
5.2 Special hazards arising from the substance or mixture:	Carbon oxides.
5.3 Advice for firefighters:	Wear fully protective suit, safety glasses and respiratory device. Cool tanks/drums with water spray/remove them into safety.
5.4 further information:	no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Avoid dust accumulation. Seek medical attention.
6.2 Environmental precautions:	Do not enter this chemical into drains.
6.3 Methods and material for containment and cleaning up:	Take up spill into absorbent material, e.g.: sand, earth, vermiculite, powdered limestone.

	<p>Scoop absorbed substance into closing containers. Spill must not return in its original container. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.</p>
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SECTION 7: Handling and storage

7.1 Precautions for safe handling:	<p>For use in are with adequate ventilation.</p> <p>Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material</p> <p>Do not use in confined spaces. Electrostatic discharge protection. Minimize dust generation and accumulation. Avoid ingestion and inhalation.</p>
7.2 Conditions for safe storage, including any incompatibilities:	<p>Store in original containers. Keep containers securely sealed</p> <p>Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers. Protect containers against physical damage and check regularly for leaks. Store in a dry and dark area. Do not handle in flammable atmospheres.</p>
Requirements to be met by storerooms and receptacles:	<p>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.</p>
7.3 Specific end uses:	no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters	
Additional information about design of technical facilities:	A system of local and general exhaust is recommended.
8.2 Exposure controls	
Appropriate engineering controls	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment:	Dust respirator, protective masks, wearing anti chemical gloves, rubber gloves, etc.
General protective and hygienic measures:	Eyes, body and hand protection, maintain indoor air unobstructed. Wear protective equipment.
	Respiratory protection: Required.
Protection of hands:	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. Wash and dry hands.
	Eye protection: Required
Protection of Body:	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties General Information	
Appearance: Form:	Viscous liquid
Colour:	Colourless
Odour:	Slightly sweet
pH-value:	6

Melting point/Melting range:	22°C
Boiling point/Boiling range:	240°C
Flammability (solid, gaseous):	Flammable liquid
Ignition temperature:	400°C
Decomposition temperature:	No data available
Self-igniting:	None
Flash point:	135°C
Danger of explosion:	None
Explosion limits: Lower:	2.6%
Explosion limits: Upper:	12%
Vapour pressure:	3.2
Density at 20 °C:	1.017g/cm ³
Relative density:	1.017
Vapour density:	3.2
Evaporation rate:	Not determined
Solubility in / Miscibility with- water at 20 °C:	Soluble
Partition coefficient:(n- octanol/water)	-0.46
Viscosity:	4.4cP at 25°C

SECTION 10: Stability and reactivity

10.1 Reactivity	Forms explosive mixtures with air on intense heating.
10.2 Chemical stability	This chemical is stable under storage conditions.
10.3 Possibility of hazardous reactions	No data available
10.4 Conditions to avoid	Heat, Open flames or sparks, Excessive heat.
10.5 Incompatible materials	Strong oxidizing agents, Strong acids, Strong bases, aluminium.
10.6 Hazardous decomposition products	carbon monoxide, carbon dioxide, Aldehydes, Acids.

SECTION 11: Toxicological information

11.1 Information on toxicological effects	
Acute Toxicity:	LD50 (Oral, Rat): 1500 mg/kg LD50 (Dermal, Rabbit): 2000 mg/kg LC50 (Inhalation Rat): 15 mg/l (4hrs)
Skin corrosion/Irritation:	No data available
Serious eye damage/irritation:	No data available
Respiratory damage/irritation:	No data available
Ingestion:	May cause gastrointestinal irritation.
Germ cell mutagenicity:	No data available
Carcinogenicity:	No data available
Reproductive toxicity:	No data available
Specific target organ toxicity - single exposure:	May cause drowsiness or dizziness, Central Nervous system.
Specific target organ toxicity - repeated exposure:	No data available
Aspiration hazard:	No data available
Signs and Symptoms of Exposure:	Refer section 2.3
11.2 Additional toxicological information	
Biodegradability:	Readily Biodegradable

SECTION 12: Ecological information

12.1 Toxicity Aquatic toxicity:	LC50(fish): 30 mg/l (96hr) EC50(daphnia): 813 mg/l (48 hr) ErC50(algae): 500 mg/l (72 hr)
12.2 Persistence and degradability:	Readily Biodegradable
12.3 Bioaccumulative potential:	low bioaccumulative
12.4 Mobility in soil:	High mobility
12.5 Other adverse effects:	No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods	
Uncleaned packaging Recommendation:	dispose of in accordance with local hazardous waste regulations
Recommended cleansing agents:	Water, Soap or Detergent, Isopropyl alcohol, Acetone, Mild Solvents, Absorbent Materials.

SECTION 14: Transport information

14.1 UN-Number · ADR, ADN, IMDG, IATA:	1170
14.2 UN proper shipping name · ADR, ADN, IMDG, IATA:	Alcohols
14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA :	3
14.4 Packing group · ADR, IMDG, IATA:	3
14.5 Environmental hazards:	None
14.6 Special precautions for user:	Handle responsibly.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Directive 2012/18/EU	Directive 2012/18/EU, under that this substance is classified in listed substance as flammable substance.
Named dangerous substances:	This substance is listed in the annex 1 to the directive.
15.2 Chemical safety assessment:	Chemical assessment has not been carried out

SECTION 16: Other information

The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the

limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

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