



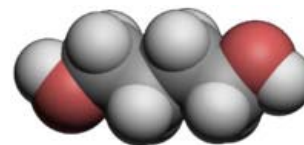
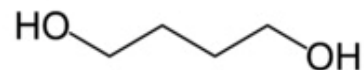
BUTANDIOL

Chemical Formula: $\text{HO}(\text{CH}_2)_4\text{OH}$

CAS Registry Number: 110-63-4

Molecular Weight: 90.12

PRODUCT INFORMATION



Synonyms:

- 1,4-BUTANDIOL
- 1,4-Butanediol
- 1,4-Butanediol 1,4-butylene glycol butylene glycol
- 1,4-Butylene glycol
- 1,4-Dihydroxybutane
- 1,4-Tetramethylene glycol
- Butan-1,4-diol
- Butane-1,4-diol
- butano-1,4-diol
- Butylene glycol
- Dabco DBO
- Diol 14B
- NSC 406696
- Polycure D
- POLYESTER OF 1,4-BUTANEDIOL
- Sucol B
- Tetramethylene 1,4-diol
- Tetramethylene glycol
- Vibracure A 250
- ZM 0025

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Physical and Chemical Properties

Appearance: Colorless viscous liquid.

Odor: Odorless.

Solubility: Complete (100%)

Specific Gravity: 1.0171 @ 20°C/4°C

pH: No information found.

% Volatiles by volume @ 21°C (70°F): N/A

Boiling Point: 230°C (446°F)

Melting Point: 20.1°C (68°F)

Vapor Density (Air=1): 3.1

Vapor Pressure (mm Hg): 0.01 @ 25°C (77°F)

Evaporation Rate (BuAc=1): Nonvolatile.

Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products:

When heated to decomposition, emits tetrahydrofuran and carbon oxides.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

1,4-Butanediol incompatibilities include strong inorganic oxidizers, nitric acid, strong hydrogen peroxide. Forms highly flammable tetrahydrofuran when heated in presence of sulfuric acid.

Conditions to Avoid:

Heat, flames, ignition sources and incompatibles.

Hazards Identification

Emergency Overview

CAUTION! MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY AFFECT KIDNEYS.

Health Rating: 2 - Moderate (Life)

Flammability Rating: 1 - Slight

Reactivity Rating: 1 - Slight

Contact Rating: 1 - Slight

Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES

Storage Color Code: Green (General Storage)



Potential Health Effects

Inhalation:

A nonvolatile liquid - vapor inhalation is unlikely. Inhalation of high vapor concentrations may cause respiratory tract irritation and have a narcotic effect with symptoms of drunkenness.

Ingestion:

Large oral dose may produce symptoms of narcosis, incoordination, and kidney damage.

Skin Contact:

No adverse health effects expected. Prolonged contact may cause slight irritation.

Eye Contact:

May cause mild irritation, possible reddening.

Chronic Exposure:

No information found.

Aggravation of Pre-existing Conditions:

No information found.

First Aid Measures

Inhalation:

Remove to fresh air. Get medical attention for any breathing difficulty.

Ingestion:

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

Skin Contact:

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops.

Eye Contact:

Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids occasionally. Get medical attention if irritation persists.

Fire Fighting Measures

Fire:

Flash point: 121C (250F) OC

Autoignition temperature: 402.5C (756F)

Slight fire hazard when exposed to heat or flame.

Hazardous Combustion Products: Highly flammable tetrahydrofuran may be produced.

Explosion:

Not considered to be an explosion hazard.

Fire Extinguishing Media:

Use alcohol foam, dry chemical or carbon dioxide. (Water may be ineffective.) Water or foam may cause frothing. Direct stream of water can scatter and spread flames. Water spray may be used to keep fire exposed containers cool. Do not allow water runoff to enter sewers or waterways.

Special Information:



In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

In general, dilution ventilation is a satisfactory health hazard control for this substance. However, if conditions of use create discomfort to the worker, a local exhaust system should be considered.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Skin Protection:

Wear protective gloves and clean body-covering clothing.

Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.



Ecological Information

Environmental Fate:

When released into the soil, this material may biodegrade to a moderate extent. When released into water, this material may biodegrade to a moderate extent. When released into water, this material is not expected to evaporate significantly. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

Environmental Toxicity:

No information found.

Other Information

NFPA Ratings: Health: **1** Flammability: **1** Reactivity: **0**

Label Hazard Warning:

CAUTION! MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT. MAY AFFECT KIDNEYS.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Wash thoroughly after handling.

Avoid breathing mist.

Keep container closed.

Use with adequate ventilation.

Label First Aid:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.
