

2,3-Butane-d₈-diol (mixture of stereoisomers)

Section 1. Chemical product and company identifications

Product code: D-3234

Chemical formula: C₄H₂D₈O₂

CAS: 347841-77-4

CAS (unlabelled): 513-85-9

Synonyms: 2,3-Butylene Glycol, 2,3-Dihydroxybutane, Butane-2,3-diol

Supplier / Manufacturer:

C/D/N Isotopes Inc.

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Pointe-Claire (Québec) H9R 1H1

Phone: 514-697-6254

Toll-Free (Canada & USA): 1-800-565-4696

Fax: 514-697-6148

Website: www.cdnisotopes.com

In case of emergency:

TOXYSCAN HOTLINE: 1-855-780-0599

Section 2. Hazards identifications

Physical state: Liquid

Warning: Combustible liquid. Causes eye irritation.

Routes of entry: Inhalation, skin and eyes

GHS (Globally Harmonized System of Classification and Labelling of Chemicals):

GHS Classification:

- Flammable liquid (category 4)
- Serious Eye Damage/Eye Irritation Category 2

GHS Label elements:

- Pictograms: 
- Signal word: Warning

Hazards statement:

- H227 Combustible liquid.
- H320 Causes eye irritation.

Precautionary statement:

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.

Section 3. Composition and information on ingredients

<u>Name</u>	<u>CAS</u>	<u>Concentration %</u>
2,3-Butane-d ₈ -diol	347841-77-4	> 98

Section 4. First aid measures

Eye contact: Flush eyes with water as a precaution.

Skin contact: Wash off with soap and plenty of water. Consult a physician.

Inhalation: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Section 5. Firefighting measures

Flammability of the product: Not flammable or combustible.

Lower explosion limit: 3.1 Vol%

Upper explosion limit: 11.4 Vol%

Auto-ignition temperature: No data available.

Flash point: 85 °C (185 °F) - closed cup

Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides.

Firefighting media and instructions: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Section 6. Accidental release measures

Personal precautions: Avoid dust formation. Avoid breathing vapours, mist or gas.

Environmental precautions: Do not let product enter drains.

Methods for cleaning up: Sweep up and shovel. Keep in suitable, closed containers for disposal.

Section 7. Handling and storage

Handling: Provide appropriate exhaust ventilation at places where dust is formed.

Storage: Store at room temperature. Adequate ventilation. Protect from heat and ignition sources. Protect from moisture.

Section 8. Exposure Controls, Personal Protections

Engineering controls: Use mechanical exhaust or laboratory fumehood to avoid exposure.

Eyes: Safety glasses with side-shields conforming to NIOSH (US).

Respiratory: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US).

Hands: Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Skin/body: Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Section 9. Physical and chemical properties (unlabelled)

Molecular weight: 90.12 g/mol

Physical status: Liquid

Color: Colourless

Odour: No data available.

Density: 1.002 g/cm³ at 20 °C (68 °F)

Melting point: 25 °C (77 °F)

Boiling point: 183 - 184 °C (361 - 363 °F)

Vapour pressure: 0.243 mmHg at 25 °C (77 °F)

Vapour density: 3.61 (Air = 1)

Partition coefficient (octanol/water): log Pow: -0.92

Water solubility: Soluble

Section 10. Stability and reactivity

Stability and reactivity: Stable under recommended storage conditions.

Incompatibility: Acid chlorides, acid anhydrides, oxidizing agents, chloroformates, reducing agents.

Products of combustion: Hazardous decomposition products formed under fire conditions: Carbon oxides.

Reactivity conditions: No data available.

Section 11. Toxicological information (unlabelled)

Toxicological data: 2,3-Butanediol

Information on ingredients:

<u>Name</u>	<u>CAS</u>	<u>LD₅₀</u>	<u>LC₅₀</u>
2,3-Butanediol	513-85-9	Oral - Rat - > 5,000 mg/kg Intraperitoneal - Mouse - 6,075 mg/kg	No data available

Potential acute effects

- **Eyes:** May cause eye irritation.
- **Skin:** May be harmful if absorbed through skin. May cause skin irritation.
- **Inhalation:** May be harmful if inhaled. May cause respiratory tract irritation.
- **Ingestion:** May be harmful if swallowed.

Potential chronic effects

- **Carcinogenic effects:** IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
- **Mutagenic effects:** Genotoxicity in vitro - S. typhimurium - with and without metabolic activation – negative.
- **Teratogenic effects:** No data available.
- **Medical conditions aggravated by overexposure:** No data available.

Section 12. Ecological information

Ecological data:

<u>Name</u>	<u>Results</u>	<u>Species</u>	<u>Period</u>
2,3-Butanediol	> 100 mg/l EC50 > 1,000 mg/l EC50	Daphnia magna Sludge Treatment	48 h 0.5 h

Effects on environment: No data available.

Mobility: No data available.

Environmental precautions: No data available

Persistence and degradability: Result: > 90 % - Readily biodegradable. Method: OECD Test Guideline 301A.

Bioaccumulative potential: No data available

Section 13. Disposal considerations

Waste disposal: Offer surplus and non-recyclable solutions to a licensed disposal company.

Section 14. Transportation information

Classification DOT/IMDG/IATA label:

Shipping name: Not dangerous goods

UN number: None

Class: None

Packaging group: None

Additional information: None

Section 15. Regulatory information

UNITED STATES: NFPA classification



Health: 2
Flammable: 2
Reactivity: 1
Specials conditions: None

Legend: 4: Severe, 3: High, 2: Moderate, 1: Slightly, 0: Not hazardous

U.S. Federal regulations:

TSCA 8(b) inventory: 2,3-Butanediol

SARA 302/304/311/312 extremely hazardous substances: Not Listed

SARA 302/304 emergency planning and notification: Not Listed

SARA 302/304/311/312 hazardous chemicals: Not Listed

SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard: Listed

CWA (Clean Water Act) 307: Not Listed

CWA (Clean Water Act) 311: Not Listed

CAA (Clean Air Act) 112 accidental release prevention: Not Listed

CAA (Clean Air Act) 112 regulated flammable substances: Not Listed

CAA (Clean Air Act) 112 regulated toxic substances: Not Listed

State regulations:

DEA List I Chemicals (Precursor Chemicals): Not Listed

DEA List II Chemicals (Essential Chemicals): Not Listed

Substances in Massachusetts: Not Listed

Dangerous substances in New Jersey: Not Listed

New York – Dangerous substances with acute effects: Not Listed

Dangerous substances in Pennsylvania – right to know: Not Listed

WHMIS (Canada):



B3 - Combustible liquid



D2B - Toxic materials

Section 16. Additional information

References:

- ANSI Z400.1, MSDS Standard, 2001.
- Manufacturer's Material Safety Data Sheet.
- 29CFR Part1910.1200 OSHA MSDS Requirements.
- 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. -Canada
- Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List".
- Federal act on the controlled products
- Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2002.
- Toxicological repertory, HSC.
- Material safety data sheet from the components.

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