

SAFETY DATA SHEET

Preparation Date: 07/17/2015

Revision Date: 10/02/2015

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: B2500
Product Name: N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98+%

Other means of identification

Synonyms:
 4-(Butylnitrosamino)-1-butanol
 4-(Butylnitrosoamino)butanol
 4-(N-Butylnitrosamino)-1-butanol
 4-Hydroxybutylbutylnitrosamine
 BBN
 Butanol (4)-butyl-nitrosamine
 Butyl-butanol(4)-nitrosamin [German]
 Butyl-butanol-nitrosamine
 Dibutylamine, 4-hydroxy-N-nitroso-
 N-Butyl-(4-hydroxybutyl)nitrosamine
 N-Butyl-N-(4-hydroxybutyl)nitrosamine
 N-Nitroso-N-butyl-(4-hydroxybutyl)amine
 N-Nitrosobutylbutanolamine
 1-Butanol, 4-(butylnitrosoamino)-
 N-Nitroso-N-butyl-N-(4-carboxypropyl)amine
 [ChemIDplus] 4-Butylnitrosamino-1-butanol
 4-Hydroxy-n-nitrosodibutylamine
 Butylbutanolnitrosamine
 N-Butyl-N-(1-hydroxybutyl)nitrosamine
 N-Nitrosobutyl-4-hydroxybutylamine
 N-Nitrosobutylbutan-4-olamine
 [CAMEO] N-Butyl-N-butan-4-ol-nitrosamine
 N-Butyl-N-nitroso-4-aminobutanol
CAS #: 3817-11-6
RTECS # EL1225000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: No information available.
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)

Product code: B2500

Product name: N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98+%

2. HAZARDS IDENTIFICATION

Classification

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

Acute toxicity - Oral	Category 4
Carcinogenicity	Category 1B

Label elements

Danger

Hazard statements

Harmful if swallowed
May cause cancer



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Wash face, hands and any exposed skin thoroughly after handling

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98% 3817-11-6	3817-11-6	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).

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention if irritation develops. Consult a physician if necessary.

Eye Contact:

Flush eyes with water for 15 minutes. Get medical attention if irritation occurs. If symptoms persist, call a physician.

Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Harmful if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms

May cause eye irritation. May cause skin irritation. Harmful if swallowed. Muscle weakness. It may affect the kidneys. May affect the bladder. May cause cancer.

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:

Do not use a solid (straight) water stream as it may scatter and spread fire.

Specific hazards arising from the chemical

Hazardous Combustion Products:

carbon monoxide; carbon dioxide; nitrogen oxides

Specific hazards:

May be combustible at high temperatures
Container explosion may occur under fire conditions or when heated

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. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Remove all sources of ignition.

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. Absorb spill with inert material (e.g. vermiculite, dry sand or earth).

Methods for cleaning up Use appropriate tools to put the spilled material in a suitable chemical 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. Remove all sources of ignition. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Do not smoke. Keep away from heat and sources of ignition. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Store at 2-8 deg. C. Store under inert gas. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition. Store away from incompatible materials.

Incompatible Materials:

Oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98% 3817-11-6	None	None	None	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98% 3817-11-6	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98% 3817-11-6	None	None

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles

Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves.

Respiratory protection: Vapor respirator. 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

Physical state: Liquid.	Appearance: No information available	Color: Yellow. Dark yellow.
Odor: No information available	Taste No information available	Molecular/Formula weight: 174.24
Formula: C8H18N2O2	Flammability: No information available	Flash point (°C): 147°C
Flashpoint (°C/°F): 147°C/ 297°F	Flash Point Tested according to: Closed cup	Autoignition Temperature (°C/°F): No information available
Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available	pH: No information available
Melting point/range(°C/°F): No information available	Boiling point/range(°C/°F): 167°C/ 333°F	Decomposition temperature(°C/°F): No information available
Bulk density: No information available	Density (g/cm3): No information available	Specific gravity: 1.006-1.014
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): No information available
Viscosity: No information available	Miscibility: No information available	Solubility: No information available

10. STABILITY AND REACTIVITY

Reactivity

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10. STABILITY AND REACTIVITY

Reactive with oxidizing agents

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Heat. Ignition sources. Incompatible materials.

Incompatible Materials: Oxidizing agents.

Hazardous decomposition products: Carbon oxides. Nitrogen oxides (NO_x).

Other Information

Corrosivity: No information available

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

N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98% - 3817-11-6

LD50/oral/rat = 1800 mg/kg Oral LD50 Rat

LD50/oral/mouse = No information available

LD50/dermal/rat = No information available

LD50/dermal/rabbit = No information available

LC50/inhalation/rat = No information available

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = 1800mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = No information available

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat

VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

Product code: B2500

Product name: N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98+%

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VALUE-Vapor = No information available
 VALUE-Gas = No information available
 VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available
 VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: May cause skin irritation.
Eye Contact: May cause eye irritation.
Inhalation May cause respiratory tract irritation.
Ingestion Harmful if swallowed. May cause muscle weakness.
Aspiration hazard No information available

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

Chronic Toxicity Prolonged or repeated ingestion may cause muscle weakness, bladder informaiton and tumors of the kidneys and bladder.
Sensitization: No information available
Mutagenic Effects: Experiments with bacteria and/or yeast have shown mutagenic effects Mutations in microorganisms
Carcinogenic effects: May cause cancer.

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	Not listed	Not listed	Reasonably Anticipated To Be A Human Carcinogen	Present	Not listed	Not listed

NTP (National Toxicology Program)

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 No information available
Target Organs: No information available

12. ECOLOGICAL INFORMATION

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Ecotoxicity

Ecotoxicity effects: No data available.

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
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: None
ERG No: No information available
Marine Pollutant: No data available
DOT RQ (lbs): No information available

TDG (Canada)

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

ADR

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: No information available
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available

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14. TRANSPORT INFORMATION

CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Classification Code: No information available
Description: No information available

ICAO

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

IATA

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%</i>	Not Listed	Not present	Not present	Not present	Not present	Not present	Not present

U.S. Regulations

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)

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Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	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 <i>de minimis</i>
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	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
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

Non-controlled

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)
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	Not Listed	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%	Not listed	Not listed

EU Classification

R-phrase(s)

R22 - Harmful if swallowed.

R45 - May cause cancer.

S -phrase(s)

S46 - If swallowed, seek medical advice immediately and show this container or label.

Components	Classification	Concentration Limits:	Safety Phrases
N-Butyl-N-(4-hydroxybutyl) nitrosamine, 98%		No information	

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

Indication of danger:

Xn - Harmful.



16. OTHER INFORMATION

Preparation Date: 07/17/2015
Revision Date: 10/02/2015
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