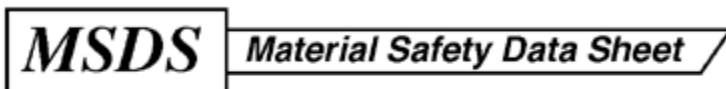


MSDS Number: **B3440** * * * * * *Effective Date: 10/19/05* * * * * * *Supercedes: 02/18/03*



From: Mallinckrodt Baker, Inc.
222 Red School Lane
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151
CHEMTREC: 1-800-424-9300

National Response in Canada
CANUTEC: 613-996-6666

Outside U.S. and Canada
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

BISMUTH SUBNITRATE

1. Product Identification

Synonyms: Bismuth hydroxide nitrate oxide; Basic bismuth nitrate

CAS No.: 1304-85-4

Molecular Weight: 1461.99

Chemical Formula: $4\text{BiNO}_3(\text{OH})_2 \text{BiO}(\text{OH})$

Product Codes: 0298, 0308, 4618

2. Composition/Information on Ingredients

Ingredient	CAS No	Percent
Hazardous		
-----	-----	-----

Bismuth Subnitrate	1304-85-4	90 - 100%
Yes		

3. Hazards Identification

Emergency Overview

DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

SAF-T-DATA^(tm) Ratings (Provided here for your convenience)

Health Rating: 2 - Moderate (Life)

Flammability Rating: 0 - None

Reactivity Rating: 3 - Severe (Oxidizer)

Contact Rating: 2 - Moderate

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

Storage Color Code: Yellow (Reactive)

Potential Health Effects

Inhalation:

May cause mild irritation to the respiratory tract.

Ingestion:

Bismuth salts are poorly absorbed. Should absorption occur, symptoms may include loss of appetite, headache, skin rashes, kidney damage, and rarely mild jaundice. Formation of nitrites has produced blood disorders such as methemoglobinemia and carboxyhemoglobin in humans.

Skin Contact:

May cause mild irritation. Absorption may occur only minimally through broken skin.

Eye Contact:

May cause mild irritation.

Chronic Exposure:

Repeated or prolonged ingestion may cause mental deterioration, convulsions, and a "bismuth line", black spots on the gums, foul breath, and salivation.

Aggravation of Pre-existing Conditions:

No information found.

4. First Aid Measures

Inhalation:

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

Ingestion:

Give several glasses of water to drink to dilute. If large amounts were swallowed, get medical advice.

Skin Contact:

Wash exposed area with soap and water. Get medical advice 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.

5. Fire Fighting Measures

Fire:

Not combustible, but substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition.

Explosion:

Contact with combustible materials, flammable materials, or powdered metals can cause fire or explosion. Sealed containers may rupture when heated.

Fire Extinguishing Media:

Use any means suitable for extinguishing surrounding fire.

Special Information:

Use protective clothing and breathing equipment appropriate for the surrounding fire.

6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Sweep up and containerize for reclamation or disposal. Vacuuming or wet sweeping may be used to avoid dust dispersal.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Avoid storage on wood floors. Separate from incompatibles, combustibles, organic or other readily oxidizable materials. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

None established.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as

low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved):

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face 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. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:

White powder.

Odor:

Odorless.

Solubility:

Essentially insoluble in water.

Density:

4.93

pH:

Acidic to litmus.

% Volatiles by volume @ 21C (70F):

0

Boiling Point:

Not applicable.

Melting Point:

260C (500F)

Vapor Density (Air=1):

No information found.

Vapor Pressure (mm Hg):

No information found.

Evaporation Rate (BuAc=1):

No information found.

10. Stability and Reactivity

Stability:

Stable under ordinary conditions of use and storage. Hygroscopic.

Hazardous Decomposition Products:

May produce oxides of carbon and the contained metal.

Hazardous Polymerization:

Will not occur.

Incompatibilities:

Alkaline bicarbonates, soluble iodines, gallic acid, calomel, salicylic acid, tannin and sulfur.

Conditions to Avoid:

Moisture, light, heat and incompatibles.

11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Bismuth Subnitrate (1304-85-4) None	No	No	

12. Ecological Information

Environmental Fate:

No information found.

Environmental Toxicity:

No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Not regulated.

15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----

Ingredient TSCA EC Japan
Australia

Bismuth Subnitrate (1304-85-4) Yes Yes No
Yes

-----\Chemical Inventory Status - Part 2\-----

Ingredient Korea --Canada--
Phil. DSL NDSL

Bismuth Subnitrate (1304-85-4) Yes Yes No
Yes

-----\Federal, State & International Regulations - Part 1\-----

313-----
Ingredient -SARA 302- -----SARA
Chemical Catg. RQ TPQ List

Bismuth Subnitrate (1304-85-4) No No No
Nitrate Cmpd

-----\Federal, State & International Regulations - Part 2\-----

TSCA- -RCRA- -
Ingredient CERCLA 261.33 8 (d)

Bismuth Subnitrate (1304-85-4) No No No

Chemical Weapons Convention: No TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: No Fire: Yes Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: 1[T]

Poison Schedule: S4

WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

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

Label Hazard Warning:

DANGER! OXIDIZER. CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

Label Precautions:

- Keep from contact with clothing and other combustible materials.
- Store in a tightly closed container.
- Remove and wash contaminated clothing promptly.
- Do not store near combustible materials.
- Avoid breathing dust.
- Avoid contact with eyes, skin and clothing.
- Wash thoroughly after handling.
- Use with adequate ventilation.

Label First Aid:

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.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS Section(s) changed since last revision of document include: 3.

Disclaimer:

Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

Prepared by: Environmental Health & Safety
Phone Number: (314) 654-1600 (U.S.A.)