

SAFETY DATA SHEET

Creation Date 11-Oct-2011

Revision Date 18-Dec-2025

Revision Number 8

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name Bismuth(III) nitrate pentahydrate

Cat No. : B337-500

CAS No 10035-06-0
Synonyms Nitric acid, bismuth(3+) salt, pentahydrate; Bismuth trinitrate pentahydrate.

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

| | |
|-----------------------------------|------------|
| Oxidizing solids | Category 2 |
| Serious Eye Damage/Eye Irritation | Category 2 |

Label Elements

Signal Word

Danger

Hazard Statements

May intensify fire; oxidizer
Causes serious eye irritation

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling
 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 Keep away from clothing and other combustible materials
 Take any precaution to avoid mixing with combustibles
 Wear protective gloves/protective clothing/eye protection/face protection

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 If eye irritation persists: Get medical advice/attention

Fire

In case of fire: Use CO₂, dry chemical, or foam to extinguish

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

None identified

Hazards classified under paragraph (d)(1)(ii) of 1910.1200

No information available

3. Composition/information on Ingredients

| Component | CAS No | Weight % |
|-------------------------------|------------|----------|
| Bismuth nitrate pentahydrate | 10035-06-0 | <=100 |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | - |

4. First-aid measures

| | |
|--|---|
| General Advice | If symptoms persist, call a physician. |
| Eye Contact | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention. |
| Skin Contact | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| Inhalation | Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur. |
| Most important symptoms and effects | None reasonably foreseeable. May cause methemoglobinemia |
| Notes to Physician | Treat symptomatically |

5. Fire-fighting measures

| | |
|---|--|
| Suitable Extinguishing Media | Water spray. Carbon dioxide (CO ₂). Dry chemical. Chemical foam. |
| Unsuitable Extinguishing Media | No information available |
| Flash Point | No information available |
| Method - | No information available |
| Autoignition Temperature | No information available |
| Explosion Limits | |
| Upper | No data available |
| Lower | No data available |
| Oxidizing Properties | Oxidizer |
| Sensitivity to Mechanical Impact | No information available |
| Sensitivity to Static Discharge | No information available |

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.). Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Combustion Products

Nitrogen oxides (NO_x).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

| Health | Flammability | Instability | Physical hazards |
|--------|--------------|-------------|------------------|
| 2 | 0 | 1 | OX |

6. Accidental release measures

| | |
|---|--|
| Personal Precautions | Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. |
| Environmental Precautions | Should not be released into the environment. |
| Methods for Containment and Clean Up | Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. |

7. Handling and Storage

| | |
|-----------------|---|
| Handling | Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation. Keep away from clothing and other combustible materials. |
| Storage. | Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. Store under an inert atmosphere. Air sensitive. Incompatible Materials. Strong acids. Reducing Agent. Finely powdered metals. Strong reducing agents. Combustible material. |

8. Exposure controls / personal protection

| | |
|-----------------------------|---|
| Exposure Guidelines | This product does not contain any hazardous materials with occupational exposure limit established by the region specific regulatory bodies. |
| Engineering Measures | Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. |

Personal Protective Equipment

| | |
|---------------------------------|---|
| Eye/face Protection | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. |
| Skin and body protection | Wear appropriate protective gloves and clothing to prevent skin exposure. |
| Respiratory Protection | Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. |
| Recommended Filter type: | Particulates filter conforming to EN 143. |
| Hygiene Measures | Handle in accordance with good industrial hygiene and safety practice. |

9. Physical and chemical properties

Appearance

| | |
|---------------------------------|--------------------------|
| Physical State | Solid |
| Color | White |
| Odor | Odorless |
| Odor Threshold | No information available |
| Property | Values |
| Melting Point/Range | 30 °C / 86 °F |
| Softening Point | No data available |
| Boiling Point/Range | 80 °C / 176 °F |
| Flash Point | No information available |
| Flammability (liquid) | Not applicable |
| Flammability (solid,gas) | No information available |
| Explosion Limits | No data available |

Remarks**• Method**

| | | |
|--|--------------------------|-------|
| Autoignition Temperature | No data available | |
| Decomposition Temperature | No data available | |
| pH | No information available | |
| Viscosity | Not applicable | Solid |
| Water Solubility | No information available | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Vapor Pressure | No data available | |
| Density / Specific Gravity | | |
| Bulk Density | No data available | |
| Vapor Density | Not applicable | Solid |
| Particle characteristics | No data available | |
| Other Information | | |
| Molecular Formula | Bi N3 O9 . 5 H2 O | |
| Molecular Weight | 485.07 | |
| Oxidizing Properties | Oxidizer | |
| Evaporation Rate | Not applicable - Solid | |

10. Stability and reactivity

| | |
|------------------------|--|
| Reactive Hazard | Yes |
| Stability | Hygroscopic. Oxidizer: Contact with combustible/organic material may cause fire. |

| | |
|---|--|
| Conditions to Avoid | Exposure to light. Incompatible products. Exposure to moist air or water. Combustible material. Excess heat. |
| Incompatible Materials | Strong acids, Reducing Agent, Finely powdered metals, Strong reducing agents, Combustible material |
| Hazardous Decomposition Products | Nitrogen oxides (NOx) |
| Hazardous Polymerization | Hazardous polymerization does not occur. |
| Hazardous Reactions | None under normal processing. |

11. Toxicological information

Information on expected route of exposure

| | |
|-------------------|--|
| Inhalation | Not an expected route of exposure. |
| Ingestion | May be harmful if swallowed. |
| Eyes | Avoid contact with eyes. Irritating to eyes. |
| Skin | Avoid contact with skin. May cause irritation. |

Toxicology data for the components

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|------------------------------|---------------------------|-------------|-----------------|
| Bismuth nitrate pentahydrate | LD50 = 4042 mg/kg (Rat) | - | - |

Toxicologically Synergistic Products No information available

(b) skin corrosion/irritation; No data available

(c) serious eye damage/irritation; Category 2

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | CAS No | IARC | NTP | ACGIH | OSHA | Mexico |
|-------------------------------|------------|------------|------------|------------|------------|------------|
| Bismuth nitrate pentahydrate | 10035-06-0 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | Not listed | Not listed | Not listed | Not listed | Not listed |

(g) reproductive toxicity; No data available

(h) STOT-single exposure; No data available

(i) STOT-repeated exposure; No data available

| | |
|--|--|
| Target Organs | None known. |
| (j) aspiration hazard; | Not applicable Solid |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |
| Symptoms / effects,both acute and delayed | May cause methemoglobinemia. |
| Other Adverse Effects | The toxicological properties have not been fully investigated. |
| Endocrine Disrupting Properties | This product does not contain any known or suspected endocrine disruptors. |

12. Ecological information

Ecotoxicity

Do not empty into drains. .

| | |
|--------------------------------------|---|
| Persistence and Degradability | Persistence is unlikely based on information available. |
| Bioaccumulation/ Accumulation | No information available. |
| Mobility | Will likely be mobile in the environment due to its volatility. |

13. Disposal considerations

| | |
|-------------------------------|---|
| Waste Disposal Methods | Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification. |
|-------------------------------|---|

14. Transport information

DOT

| | |
|--------------------------------|-----------------------------|
| UN-No | UN1477 |
| Proper Shipping Name | NITRATES, INORGANIC, N.O.S. |
| Technical Shipping Name | Bismuth Nitrate |
| Hazard Class | 5.1 |
| Packing Group | II |

TDG

| | |
|--------------------------------|-----------------------------|
| UN-No | UN1477 |
| Proper Shipping Name | NITRATES, INORGANIC, N.O.S. |
| Technical Shipping Name | Bismuth Nitrate |
| Hazard Class | 5.1 |
| Packing Group | II |

IATA

| | |
|--------------------------------|-----------------------------|
| UN-No | UN1477 |
| Proper Shipping Name | NITRATES, INORGANIC, N.O.S. |
| Technical Shipping Name | Bismuth Nitrate |
| Hazard Class | 5.1 |
| Packing Group | II |

IMDG/IMO

| | |
|--------------------------------|-----------------------------|
| UN-No | UN1477 |
| Proper Shipping Name | NITRATES, INORGANIC, N.O.S. |
| Technical Shipping Name | Bismuth Nitrate |
| Hazard Class | 5.1 |
| Packing Group | II |

15. Regulatory Information

United States of America Inventory

| Component | CAS No | TSCA | TSCA Inventory notification - Active-Inactive | TSCA - EPA Regulatory Flags |
|-------------------------------|------------|------|---|-----------------------------|
| Bismuth nitrate pentahydrate | 10035-06-0 | - | - | - |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | X | ACTIVE | - |

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT) Not applicable

TSCA 12(b) - Notices of Export Not applicable

International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDSL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-------------------------------|------------|-----|------|-----------|-------|------|------|------|-------|----------|
| Bismuth nitrate pentahydrate | 10035-06-0 | - | - | - | X | - | | X | X | - |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | X | - | 233-791-8 | X | X | X | X | X | KE-03368 |

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

California Proposition 65 This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

| Component | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-----------------|---------------|------------|--------------|----------|--------------|
| Bismuth nitrate | - | X | - | X | - |

| | | | | | |
|-------------------------------|---|---|---|---|---|
| pentahydrate | | | | | |
| Nitric acid, bismuth(3+) salt | - | X | - | X | - |

U.S. Department of Transportation

Reportable Quantity (RQ): N
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade No information available

Authorisation/Restrictions according to EU REACH Not applicable

| Component | CAS No | REACH (1907/2006) - Annex XIV - Substances Subject to Authorization | REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances | REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC) |
|-------------------------------|------------|---|---|---|
| Bismuth nitrate pentahydrate | 10035-06-0 | - | - | - |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | - | - | - |

Safety, health and environmental regulations/legislation specific for the substance or mixture

| Component | CAS No | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|-------------------------------|------------|----------------|------------------------------|---------------------------|--|
| Bismuth nitrate pentahydrate | 10035-06-0 | Not applicable | Not applicable | Not applicable | Not applicable |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | Not applicable | Not applicable | Not applicable | Not applicable |

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

| Component | CAS No | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|-------------------------------|------------|---|--|----------------------------|------------------------------------|
| Bismuth nitrate pentahydrate | 10035-06-0 | Not applicable | Not applicable | Not applicable | Not applicable |
| Nitric acid, bismuth(3+) salt | 10361-44-1 | Not applicable | Not applicable | Not applicable | Not applicable |

16. Other Information

Prepared By Product stewardship (Regulatory Affairs)
 Thermo Fisher Scientific
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(OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS