

MSDS# 02440

Section 1 - Chemical Product and Company Identification

MSDS Name: Barium nitrate

Catalog Numbers: AC203150000, AC203150025, AC203150050, AC203155000, B53-500, NC9344971

Synonyms: Barium dinitrate; Nitric acid, barium salt.

Company Identification: Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410

For information in the US, call: 201-796-7100

Emergency Number US: 201-796-7100

CHEMTREC Phone Number, US: 800-424-9300

Section 2 - Composition, Information on Ingredients

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CAS#: 10022-31-8

Chemical Name: Barium nitrate

%: 100

EINECS#: 233-020-5

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Hazard Symbols:

XN O



Risk Phrases:

20/22 8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! Strong oxidizer. Contact with other material may cause a fire. May cause kidney damage. May cause central nervous system effects. May cause cardiac disturbances. Harmful if inhaled or swallowed. Causes eye, skin, and respiratory tract irritation. Target Organs: Kidneys, central nervous system, muscles, cardiovascular system.

Potential Health Effects

Eye: Causes eye irritation.

Skin: Causes skin irritation. May be harmful if absorbed through the skin.

Ingestion: Harmful if swallowed. May cause kidney damage. Ingestion of nitrate containing compounds can lead to methemoglobinemia. The barium ion is a muscle poison causing stimulation and then paralysis. Initial symptoms are gastrointestinal, including nausea, vomiting, colic, and diarrhea, followed by myocardial and general muscular stimulation with tingling in the extremities. The barium ion is a muscle poison causing stimulation and then paralysis. Initial symptoms are gastrointestinal, including nausea, vomiting, colic, and diarrhea, followed by myocardial and general muscular stimulation with tingling in the extremities. The barium ion is a muscle poison causing stimulation and then paralysis. Initial symptoms are gastrointestinal, including nausea, vomiting, colic, and diarrhea, followed by myocardial and general muscular stimulation with tingling in the extremities.

Inhalation: Harmful if inhaled. Causes respiratory tract irritation. Inhalation at high concentrations may cause CNS depression and asphyxiation.

Chronic: Chronic exposure may cause effects similar to those of acute exposure.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower

eyelids. Get medical aid.

Skin: Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists.

Ingestion: Call a poison control center. If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Notes to Physician: For methemoglobinemia, administer oxygen alone or with Methylene Blue depending on the methemoglobin concentration in the blood. Institute cardiac monitoring for all significant ingestions of soluble barium salts. Institute cardiac monitoring for all significant ingestions of soluble barium salts.

### Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire.

Extinguishing Media: Use water spray to cool fire-exposed containers. Contact professional fire-fighters immediately. For small fires, do NOT use dry chemicals, carbon dioxide, halon or foams. USE WATER ONLY. For large fires, flood fire area with water from a distance.

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits: Lower: Not available

Explosion Limits: Upper: Not available

NFPA Rating: ; instability: OX

### Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill.

### Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not get on skin or in eyes. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

Storage: Keep away from heat, sparks, and flame. Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from reducing agents.

### Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Barium nitrate	0.5 mg/m <sup>3</sup> TWA (as Ba) (listed under Barium, soluble compounds).	0.5 mg/m <sup>3</sup> TWA (as Ba) 50 mg/m <sup>3</sup> IDLH (as Ba)	0.5 mg/m <sup>3</sup> TWA (as Ba) (listed under Barium, soluble compounds).

OSHA Vacated PELs: Barium nitrate: 0.5 mg/m<sup>3</sup> TWA (as Ba) (listed under Barium, soluble compounds)

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

## Exposure Limits

## Personal Protective Equipment

- Eyes: 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: Wear appropriate gloves to prevent skin exposure.
- Clothing: Wear a chemical apron. Wear appropriate clothing to prevent skin exposure.
- Respirators: 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.

## Section 9 - Physical and Chemical Properties

Physical State: Crystals

Color: white

Odor: odorless

pH: 5.0-8.0, 5% Aq. soln.

Vapor Pressure: Negligible.

Vapor Density: 9.0

Evaporation Rate: Not available

Viscosity: Not available

Boiling Point: Decomposes.

Freezing/Melting Point: 592 deg C ( 1,097.60°F)

Decomposition Temperature:

Solubility in water: moderate

Specific Gravity/Density: 3.24 @23C

Molecular Formula: Ba(NO<sub>3</sub>)<sub>2</sub>

Molecular Weight: 261.34

## Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Dust generation.

Incompatibilities with Other Materials: Reducing agents, acids, bases, aluminum, hydroxylamine, magnesium, phosphorus, zinc, esters (e.g. butyl acetate, ethyl acetate, propyl formate), combustible and flammable materials (e.g. alkyl resins, asphalt, gasoline, grease, methyl acetone, polystyrene, polyurethane), acid anhydrides, tin chloride.

Hazardous Decomposition Products: Nitrogen oxides, barium oxide.

Hazardous Polymerization: Has not been reported.

## Section 11 - Toxicological Information

RTECS#: CAS# 10022-31-8: CQ9625000

RTECS:

**CAS# 10022-31-8:** Draize test, rabbit, eye: 100 mg/24H Moderate;

Draize test, rabbit, skin: 500 mg/24H Mild;

LD50/LC50: Oral, mouse: LD50 = 266 mg/kg;

Oral, rat: LD50 = 355 mg/kg;

Oral, rat: LD50 = 390 mg/kg;

Carcinogenicity: Barium nitrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

## Section 12 - Ecological Information

Other: No information available.

## Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

#### Section 14 - Transport Information

US DOT

Shipping Name: BARIUM NITRATE

Hazard Class: 5.1

UN Number: UN1446

Packing Group: II

Canada TDG

Shipping Name: BARIUM NITRATE

Hazard Class: 5.161

UN Number: UN1446

Packing Group: II

#### Section 15 - Regulatory Information

##### European/International Regulations

###### European Labeling in Accordance with EC Directives

Hazard Symbols: XN O

Risk Phrases:

R 20/22 Harmful by inhalation and if swallowed.

R 8 Contact with combustible material may cause fire.

Safety Phrases:

S 28 After contact with skin, wash immediately with...

###### WGK (Water Danger/Protection)

CAS# 10022-31-8: 1

###### Canada

CAS# 10022-31-8 is listed on Canada's DSL List

Canadian WHMIS Classifications: C, D1B, D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 10022-31-8 is listed on Canada's Ingredient Disclosure List

##### US Federal

###### TSCA

CAS# 10022-31-8 is listed on the TSCA Inventory.

#### Section 16 - Other Information

MSDS Creation Date: 9/14/1998

Revision #7 Date 7/20/2009

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages howsoever arising, even if the company has been advised of the possibility of such damages.

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## SAFETY DATA SHEET

Revision Date 25-Dec-2021

Revision Number 6

### 1. Identification

**Product Name** Bismuth(III) nitrate pentahydrate

**Cat No. :** AC315150000; AC315150050; AC315150250; AC315151000

**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

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### Classification

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

Oxidizing solids	Category 2
Skin Corrosion/Irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system.	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs - Kidney.	

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

May intensify fire; oxidizer

Causes skin irritation  
 Causes serious eye irritation  
 May cause respiratory irritation  
 May cause damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 Wash face, hands and any exposed skin thoroughly after handling  
 Wear eye/face protection  
 Avoid breathing dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
 Keep/Store away from clothing/ other combustible materials  
 Take any precaution to avoid mixing with combustibles  
 Do not get in eyes, on skin, or on clothing

#### Response

IF exposed or concerned: Get medical attention/advice

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

#### Skin

IF ON SKIN: Wash with plenty of soap and water  
 If skin irritation occurs: Get medical advice/attention  
 Take off contaminated clothing and wash before reuse

#### 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 CO<sub>2</sub>, dry chemical, or foam for extinction

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

#### Other hazards

May cause pulmonary edema.

### 3. Composition/Information on Ingredients

Component	CAS No	Weight %
Bismuth nitrate pentahydrate	10035-06-0	>95
Nitric acid, bismuth(3+) salt	10361-44-1	-

### 4. First-aid measures

<b>Eye Contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.
<b>Inhalation</b>	Remove from exposure, lie down. Remove to fresh air. If not breathing, give artificial respiration. Get medical attention.
<b>Ingestion</b>	Do NOT induce vomiting. Get medical attention.
<b>Most important symptoms and effects</b>	. May cause methemoglobinemia
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

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

### 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

<b>Health</b> 2	<b>Flammability</b> 0	<b>Instability</b> 1	<b>Physical hazards</b> OX
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## 6. Accidental release measures

<b>Personal Precautions</b>	Use personal protective equipment as required. Ensure adequate ventilation. Avoid contact with skin and eyes.
<b>Environmental Precautions</b>	Should not be released into the environment.
<b>Methods for Containment and Clean Up</b>	Sweep up and shovel into suitable containers for disposal. Do not let this chemical enter the environment. Avoid dust formation.

## 7. Handling and storage

<b>Handling</b>	Avoid contact with skin and eyes. Do not breathe dust. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Keep away from
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clothing and other combustible materials.

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials. 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 limits 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.

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Solid
<b>Appearance</b>	White
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point/Range</b>	30 °C / 86 °F
<b>Boiling Point/Range</b>	80 °C / 176 °F
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	2.83
<b>Solubility</b>	No information available
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	Not applicable
<b>Molecular Formula</b>	Bi N3 O9 . 5 H2 O
<b>Molecular Weight</b>	485.07

## 10. Stability and reactivity

**Reactive Hazard** No



<b>Stability</b>	Hygroscopic. Oxidizer: Contact with combustible/organic material may cause fire.
<b>Conditions to Avoid</b>	Exposure to light. Incompatible products. Exposure to moist air or water. Combustible material. Excess heat.
<b>Incompatible Materials</b>	Strong acids, Reducing Agent, Finely powdered metals, Strong reducing agents, Combustible material
<b>Hazardous Decomposition Products</b>	Nitrogen oxides (NOx)
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Bismuth nitrate pentahydrate	LD50 = 4042 mg/kg ( Rat )	Not listed	Not listed

**Toxicologically Synergistic Products** No information available

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

**Irritation** Irritating to eyes, respiratory system and skin

**Sensitization** No information available

**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

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system

**STOT - repeated exposure** Kidney

**Aspiration hazard** No information available

**Symptoms / effects,both acute and delayed** May cause methemoglobinemia

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. .

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

### 13. Disposal considerations

<b>Waste Disposal Methods</b>	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.
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### 14. Transport information

#### DOT

<b>UN-No</b>	UN1477
<b>Proper Shipping Name</b>	NITRATES, INORGANIC, N.O.S.
<b>Hazard Class</b>	5.1
<b>Packing Group</b>	II

#### TDG

<b>UN-No</b>	UN1477
<b>Proper Shipping Name</b>	NITRATES, INORGANIC, N.O.S.
<b>Hazard Class</b>	5.1
<b>Packing Group</b>	II

#### IATA

<b>UN-No</b>	UN1477
<b>Proper Shipping Name</b>	NITRATES, INORGANIC, N.O.S.
<b>Hazard Class</b>	5.1
<b>Packing Group</b>	II

#### IMDG/IMO

<b>UN-No</b>	UN1477
<b>Proper Shipping Name</b>	NITRATES, INORGANIC, N.O.S.
<b>Hazard Class</b>	5.1
<b>Packing Group</b>	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 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**

<b>SARA 313</b>	Not applicable
<b>SARA 311/312 Hazard Categories</b>	See section 2 for more information
<b>CWA (Clean Water Act)</b>	Not applicable
<b>Clean Air Act</b>	Not applicable
<b>OSHA - Occupational Safety and Health Administration</b>	Not applicable
<b>CERCLA</b>	Not applicable

**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 pentahydrate	-	X	-	X	-
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****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

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

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## 16. Other information

<b>Prepared By</b>	Regulatory Affairs Thermo Fisher Scientific Email: EMSDS.RA@thermofisher.com
<b>Revision Date</b>	25-Dec-2021
<b>Print Date</b>	25-Dec-2021
<b>Revision Summary</b>	This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

### 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**