



Safety Data Sheet

In accordance with CFR 1910.1200 (OSHA HCS)

SDS No. 220

Date of review: April 25, 2017

1 Identification of substance and company

Product name: **Bismuth (III) nitrate, pentahydrate**
Product code: 18736
Relevant use and restrictions on use: Research and product development
Manufacturer/Supplier: Noah Technologies Corporation
1 Noah Park
San Antonio, Texas 78249-3419
Phone: 210-691-2000
Fax: 210-691-2600
Web site: www.noahtech.com
Emergency information: CHEMTREC
800-424-9300

2 Hazards identification

Emergency Overview:



Signal word(s): Danger
Pictogram(s): Flame over circle, exclamation mark
Hazard statements: H272 May intensify fire; oxidizer
H315 Causes skin irritation
H319 Causes serious eye irritation
H335 May cause respiratory irritation
Precautionary statements: P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P220 Keep/Store away from clothing/combustible materials
P221 Take any precaution to avoid mixing with combustibles
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P264 Wash skin thoroughly after handling
P271 Use only outdoors or in a well-ventilated area
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection
P302+352 IF ON SKIN: Wash with plenty of soap and water
P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 Call a POISON CENTER or doctor/ physician if you feel unwell
P332+313 If skin irritation occurs: Get medical advice/ attention
P337+313 If eye irritation persists: Get medical advice/ attention
P362 Take off contaminated clothing and wash before reuse
P370+378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction
P403+233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up
P501 Dispose of contents/ container in accordance with local/ regional/ national/ international regulations
Hazards not otherwise classified: No information known
GHS Classification: Oxidizing solids - 2
Skin irritation - 2
Eye irritation - 2A
Specific target organ toxicity - single exposure - 3, respiratory system
HMIS ratings (scale 0-4): Health hazard: 2
Flammability: 0
Physical hazard: 2

3 Composition/Information on ingredients

Chemical name: Bismuth (III) nitrate, pentahydrate
Designation:
CAS number: 10035-06-0
EC number: 233-791-8
Formula: Bi(NO₃)₃·6H₂O
Synonyms: Bismuth trinitrate

4 First aid measures

After inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical advice
After skin contact:	Instantly wash with water and soap and rinse thoroughly Seek immediate medical advice
After eye contact:	Rinse opened eye for at least 15 minutes under running water. Assure adequate flushing by separating the eyelids with fingers. Seek immediate medical advice
After ingestion:	If conscious, rinse mouth out with water and seek immediate medical advice. Never give anything by mouth to an unconscious individual.
Information for doctor:	Show this safety data sheet to the doctor in attendance
Symptoms/effects; acute and delayed:	Symptoms of chronic bismuth toxicity in humans consists of decreased appetite, weakness, rheumatic pain, diarrhea, fever, metal line on the gums, foul breath, gingivitis, and dermatitis. Jaundice and conjunctival hemorrhage are rare, but have been reported. Bismuth nephropathy with proteinuria may occur. The kidney is the site of highest concentration with the liver being considerable lower. Bismuth does pass into the amniotic fluid and into the fetus.
Immediate medical attention and special treatment needed:	See above

5 Fire-fighting measures

Suitable and unsuitable extinguishing agents:	Dry sand, dry chemical, water spray, carbon dioxide or alcohol-resistant foam
Special hazards caused by the material, its products of combustion or resulting gases:	In case of fire, the following can be released: Oxides of bismuth and nitrogen (NOx)
Special fire fighting procedures:	Wear SCBA Always wear fully protective fire fighting equipment/clothing in fire situations
Unusual fire and explosion hazard:	This substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition

6 Accidental release measures

Person-related safety precautions:	Wear personal protective equipment. Keep unprotected persons away. Ensure adequate ventilation
Measures for environmental protection:	Do not allow material to be released to the environment without proper governmental permits Dispose of contaminated material as waste according to item 13
Measures for cleaning/collecting:	Ventilate and wash spill site after material removal is complete
Additional information:	See Section 7 for information on safe handling See Section 8 for information on personal protective equipment See Section 13 for information on disposal See Section 15 for regulatory information

7 Handling and storage

Information for safe handling:	Keep containers tightly sealed Store in cool, dry place in tightly closed containers Ensure good ventilation/exhaustion at the workplace
Information about protection against explosions and fires:	Oxidizer. Contact with reducing agents, combustible material or flammables may cause fire.
Storage requirements to be met by storerooms and containers:	No special requirements
Incompatibility (avoid contact with):	Store away from strong reducing agents, organic material, flammables and powdered metals
Further information about storage conditions:	Keep container tightly sealed Store in cool, dry conditions in well sealed containers Keep from contact with clothing and other combustible materials

8 Exposure controls/personal protection

Ventilation requirements:	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute
Components with exposure limits that require monitoring:	Does not contain substances with occupational exposure limit values
Additional information:	No data
General protective and hygienic measures:	The usual precautionary measures for handling chemicals should be adhered to Keep away from foodstuffs, beverages and food Instantly remove any soiled and impregnated garments Wash hands during breaks and at the end of the work Avoid contact with the eyes and skin
Personal protective equipment:	
Respiratory protection:	Use suitable respirator when high concentrations are present
(Use only NIOSH or CEN approved Equipment)	Use only NIOSH/MESA or CEN approved respirators
Hand protection:	Impervious gloves. Check protective gloves prior to each use for their proper condition.
Eye protection:	Safety glasses
Skin protection:	Protective work clothing Sufficient to prevent contact
Additional protective equipment:	Emergency eyewash and safety shower

9 Physical and chemical properties

Physical state:	Crystalline powder
Color:	White
Odor:	Odorless
Odor threshold:	No data available
Molecular Weight (Calculated):	485.07
pH	No data available
Melting point/freezing point/range:	30 C
Boiling point/range:	75 - 80 C
Sublimation temperature/start:	No data available
Decomposition temperature:	No data available
Flammability (solid, gas):	Non-flammable but contact with combustible material may cause fire
Flash point:	No data available
Autoignition temperature:	No data available
Danger of explosion:	No data available
Flammable limits:	
Lower:	No data available
Upper:	No data available
Evaporation Rate:	No data available
Vapor pressure (mm Hg):	No data available
Vapor density:	No data available
Specific gravity d ²⁰ :	2.83
Bulk density:	No data available
Solubility in/Miscibility with water:	Soluble
Partition coefficient n-octanol/water:	No data available
Viscosity:	No data available
Other information:	No additional data available

10 Stability and reactivity

Reactivity:	No decomposition if used and stored according to specifications See section 7 for information on proper handling and storage
Chemical stability:	Stable
Possibility of hazardous reactions:	The heat of reaction with reducing agents or combustibles may cause ignition
Conditions to be avoided:	Moisture
Materials to be avoided:	Strong acids Reducing agents Metal powders Organic materials Combustible materials Oxidizable substances
Dangerous reactions:	Mixing with acids, combustible materials, or readily oxidizable substances may explode when subjected to slight friction
Hazardous decomposition products: (thermal and other)	Oxides of bismuth and nitrogen (NO _x)

11 Toxicological information

LD/LC50 values that are relevant for classification:	oral-rat LD ₅₀ : 4,042 mg/kg oral-mouse LD ₅₀ : 3,710 mg/kg intraperitoneal-mouse LD ₅₀ : 71 mg/kg
Irritation or corrosion of skin:	No data available
Irritation or corrosion of eyes:	No data available
Sensitization:	Not applicable
Potential health effects:	
Inhalation:	May cause irritation to the upper respiratory tract and mucous membranes
Ingestion:	Harmful if ingested
Skin:	Causes moderate irritation
Eyes:	Causes moderate irritation
Signs and symptoms of exposure:	Symptoms of chronic bismuth toxicity in humans consists of decreased appetite, weakness, rheumatic pain, diarrhea, fever, metal line on the gums, foul breath, gingivitis, and dermatitis. Jaundice and conjunctival hemorrhage are rare, but have been reported. Bismuth nephropathy with proteinuria may occur. The kidney is the site of highest concentration with the liver being considerable lower. Bismuth does pass into the amniotic fluid and into the fetus. To the best of our knowledge the acute and chronic toxicity of this substance is not fully known
Carcinogenicity:	Not identified as a carcinogen with NTP, IARC, OSHA or ACGIH

12 Ecotoxicological information

Toxicity:	
Toxicity to fish:	No data available
Toxicity to daphnia and other aquatic invertebrates:	No data available
Toxicity to algae:	No data available

Persistence and degradability:
Biodegradability: No data available
Bioaccumulative potential:
Bioaccumulation: No data available
Mobility in soil: No data available
General: Do not allow material to be released to the environment without proper governmental permits
Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system

13 Disposal considerations

Recommendation: Consult state, local or national regulation for proper disposal
Allow professional disposal company to handle waste
Must be specially treated under adherence to official regulations
Unclean packagings recommendation: Disposal must be made according to official regulations

14 Transport information

Land transport DOT



Proper shipping name: Nitrates, inorganic, n.o.s.
DOT Hazard Class: 5.1
UN Identification number: UN1477
Label(s): Oxidizer
Packing group: II
North American Emergency Response Guidebook No.: 140

Air transport ICAO-TI and IATA-DGR:



Proper shipping name: Nitrates, inorganic, n.o.s.
DOT Hazard Class: 5.1
UN Identification number: UN1477
Label(s): Oxidizer
Packing group: II
North American Emergency Response Guidebook No.: 140

UPS Ground / FedEx Ground



Proper shipping name: Nitrates, inorganic, n.o.s.
DOT Hazard Class: 5.1
UN Identification number: UN1477
Label(s): Oxidizer
Packing group: II
North American Emergency Response Guidebook No.: 140

UPS Air FORBIDDEN

15 Regulatory information

SARA Section 302 Extremely Hazardous components and corresponding TPQs: Not subject
SARA Section 311 / 312 hazards: Reactivity Hazard, Acute Health Hazard
SARA Section 313 components: Not subject
California Proposition 65 components: Not subject
TSCA: This product is registered with TSCA Inventory

16 Other information

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulation are subject to change and the conditions of handling and use, or misuse are beyond our control. NOAH MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. User should satisfy himself that he has all current data relevant to his particular use.