Safety Data Sheet
In accordance with CFR 1910.1200 (OSHA HCS)

SDS No. 1437
Date of review: January 13, 2017

1 Identification of substance and company

Product name: Arsenic (III) selenide
Product code: 90880
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): Skull and crossbones
Health hazard
Environment
Hazard statements:
H331 Toxic if inhaled
H350 May cause cancer
H410 Very toxic to aquatic life with long lasting effects
Precautionary statements:
P261 Avoid breathing dust/fume/gas/mist/vapors/spray
P264 Wash skin thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P271 Use only outdoors or in a well-ventilated area
P273 Avoid release to the environment
P280 Wear protective gloves/protective clothing/eye protection/face protection
P304+340+310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician.
P403 Store in a well-ventilated place
P405 Store locked up
P501 Dispose of contents/container in accordance with local/regional/national/international regulations

Hazards not otherwise classified: None
GHS Classification:
Acute toxicity, Inhalation - 3
Carcinogenicity - 1A
Acute aquatic toxicity - 1
Chronic aquatic toxicity - 1

HMIS ratings (scale 0-4): Health hazard: 2*
Flammability: 0
Physical hazard: 0

3 Composition/Information on ingredients

Chemical name: Arsenic (III) selenide
Designation:
CAS number: 1303-36-2
EC number: 215-119-5
Formula: As$_2$Se$_3$
Synonyms: Arsenic triselenide, diarsenic triselenide, arsenic sesquiselenide

4 First aid measures

After inhalation: Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water.
Consult a physician.
After eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes.
After ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water.
Consult a physician.
Information for doctor: 

Show this safety data sheet to the doctor in attendance

Symptoms/effects; acute and delayed: 

Ingestion may result in marked irritation of the stomach and intestines with nausea, vomiting, and diarrhea. In severe cases, the vomitus and stools are bloody and the patient goes into collapse and shock with weak, rapid pulse, cold sweats, coma and death. Chronic poisoning may manifest itself in different ways. There may be disturbances of the digestive system such as cramps, nausea, constipation, or diarrhea. Liver damage may occur. Disturbances of the blood, kidneys and nervous system may occur.

Immediate medical attention and special treatment needed: 

See above

5 Fire-fighting measures

Suitable and unsuitable extinguishing agents: 

Water spray, alcohol-resistant foam, dry chemical or carbon dioxide

Special hazards caused by the material, its products of combustion or resulting gases: 

Oxides of arsenic and selenium

Special fire fighting procedures: 

Wear self-contained breathing apparatus and fully protective fire fighting equipment/clothing

Unusual fire and explosion hazard: 

No available data

6 Accidental release measures

Person-related safety precautions: 

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation.

Measures for environmental protection: 

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Measures for cleaning/collecting: 

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for proper disposal.

Additional information: 

See Section 7 for information on safety handling
See Section 7 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: 

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Provide adequate ventilation. Avoid prolonged exposure. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Information about protection against explosions and fires: 

No data available

Storage requirements to be met by storerooms and containers: 

Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store away from incompatible materials.

Incompatibility (avoid contact with): 

Strong acids and oxidizers, halogens, halogenated solvents, potassium nitrate, potassium permanganate, peroxides

Further information about storage conditions: 

Store in cool, dry conditions in well sealed containers

8 Exposure controls/personal protection

Ventilation requirements: 

Local exhaust, chemical fume hood

Components with exposure limits that require monitoring: 

OSHA PEL: TWA 0.01 mg(As)/m3
ACGIH TLV: TWA 0.01 mg(As)/m3; Target organs; liver, kidneys, skin, CNS, respiratory system, lungs
OSHA PEL: TWA 0.2 mg(Se)/m3
ACGIH TLV: TWA 0.2 mg(Se)/m3

Additional information: 

No additional data available

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: 

Filter dust, fume, mist; respirator equipped with HEPA
Refer to 29CFR1910.1018 for regulations on respiratory protection required during exposure to inorganic arsenic

(Use only NIOSH or CEN approved Equipment)

Hand protection: 

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique.

Eye protection: 

Safety glasses, goggles

Skin protection: 

Completely covering work attire with full length apron

Additional protective equipment: 

Sufficient to prevent contact. Emergency eyewash and safety shower

Precautionary labeling: 

Wash thoroughly after handling
Do not get in eyes, on skin or on clothing
Do not breathe dust, vapor, mist, gas
Keep away from heat, sparks, and open flames
Empty container may contain hazardous residues

9 Physical and chemical properties

Physical state: 

Powder or prills

Color: 

Brown-black to reflective

Odor: 

Odorless
Odor threshold: Not determined
Molecular Weight (Calculated): 386.72
pH: No data available
Melting point/freezing point/range: 360 °C
Boiling point/range: No data available
Sublimation temperature/start: No data available
Decomposition temperature: No data available
Flammability (solid, gas): Not flammable
Flash point: No data available
Autoignition temperature: No data available
Danger of explosion: No data available
Flammable limits: No data available
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: 4.75
Bulk density: No data available
Solubility in/dissociation with water: Insoluble
Partition coefficient n-octanol/water: No data available
Viscosity: No data available
Other information: No additional data available

10 Stability and reactivity
Reactivity: This product is stable and non-reactive under normal conditions of use, storage and transport
Chemical stability: Stable under recommended storage conditions
Possibility of hazardous reactions: Not determined
Conditions to be avoided: Sunlight, contact with incompatibles, moisture
Materials to be avoided: See section 7 for information on proper handling and storage
Dangerous reactions: None known
Hazardous decomposition products: Oxides of arsenic and selenium

11 Toxicological information
LD/LC50 values that are relevant for classification:
oral-rat LD50 > 5,000 mg/kg
oral-mouse LD50: 7,700 mg/kg
oral-guinea pig LD50: 12,650 mg/kg
Irritation or corrosion of skin: No data available
Irritation or corrosion of eyes: No data available
Primary irritant or corrosive effect:
on the skin: May cause skin irritation
on the eye: Direct contact with eyes may cause temporary irritation
Sensitization: No data available
Potential health effects:
Inhalation: Prolonged inhalation may be harmful
Ingestion: May be toxic if swallowed
Skin: May be harmful if absorbed through the skin
Eyes: May cause eye irritation
Signs and symptoms of exposure:
Coughing, chest pains, difficulty in breathing. Lung irritation. Dermatitis. Anemia. Acute selenium poisoning produces central nervous system effects, which include nervousness, convulsions, and drowsiness. Other signs of intoxication can include skin eruptions, lassitude, gastrointestinal distress, teeth that are discolored or decayed, odorous ("garlic") breath, and partial loss of hair and nails. Chronic exposure by inhalation can produce symptoms that include pallor, coating of the tongue, anemia, irritation of the mucosa, lumbar pain, liver and spleen damage, as well as any of the other previously mentioned symptoms. Stomach pains, vomiting, diarrhea. Exposure can cause: Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.
Exposure to arsenic compounds can cause burning and dryness of the oral and nasal cavities, muscle spasms, irritation of the gastrointestinal tract, nausea, vomiting and diarrhea which can progress to shock and death. In severe cases, the vomitus and stools are bloody and the patient goes into collapse and shock with weak, rapid pulse, cold sweats, coma and death.
Carcinogenicity:
EPA-A: Human carcinogen: sufficient evidence from epidemiologic studies
IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity
NTP-K: Known to be carcinogenic: sufficient evidence from human studies
Carcinogen as defined by OSHA
ACGIH-A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies
Additional information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known

12 Ecotoxicological information
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: No data available
Biodegradability: No data available
Bioaccumulative potential: No data available
Bioaccumulation: No data available
Mobility in soil: No data available
Other adverse effects: Very toxic to aquatic life with long lasting effects
General notes:
- Do not allow material to be released to the environment without proper governmental permits
- Do not allow product to reach ground water, water course or sewage system, even in small quantities
- Danger to drinking water if even extremely small quantities leak into the ground
- Also poisonous for fish and plankton in water bodies
- May cause lingering harmful effects to aquatic life
- Avoid transfer into the environment
- Very toxic for aquatic organisms

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: Arsenic compound, solid, n.o.s.
Technical name: Arsenic (III) selenide
DOT Hazard Class: 6.1
UN Identification number: UN1557
Label(s): Toxic
Packing group: II
North American Emergency Response Guidebook No.: 154

Air transport ICAO-TI and IATA-DGR:

Proper shipping name: Arsenic compound, solid, n.o.s.
Technical name: Arsenic (III) selenide
DOT Hazard Class: 6.1
UN Identification number: UN1557
Label(s): Toxic
Packing group: II
North American Emergency Response Guidebook No.: 154

UPS Ground / FedEx Ground

Proper shipping name: Arsenic compound, solid, n.o.s.
Technical name: Arsenic (III) selenide
DOT Hazard Class: 6.1
UN Identification number: UN1557
Label(s): Toxic
Packing group: II
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Proper shipping name: Arsenic compound, solid, n.o.s.
Technical name: Arsenic (III) selenide
DOT Hazard Class: 6.1
UN Identification number: UN1557
Label(s): Toxic
Packing group: II
North American Emergency Response Guidebook No.: 154

15 Regulatory information
SARA Section 302 Extremely Hazardous components and corresponding TPQs: Not listed
SARA Section 311 / 312 hazards: Chronic Health Hazard
SARA Section 313 components: This product contains chemical(s) subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-to-know Act of 1986 and 40CFR372
California Proposition 65 components: WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm
TSCA: Product is listed on 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.