

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Product Name:** AS-50 Agricultural Streptomycin**EPA Reg. No.:** 55146-98**Product Type:** Agricultural Antibiotic**Company Name:** Nufarm Americas Inc., AGT Division
11901 S. Austin Avenue
Alsip, IL 60803
1-800-345-3330**Telephone Numbers:** For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION**PHYSICAL HAZARDS:**

Combustible dust

HEALTH HAZARDS:

| | |
|--|-------------|
| Serious eye damage/eye irritation | Category 2A |
| Skin Sensitization | Category 1 |
| Reproductive Toxicity | Category 1A |
| Carcinogen | Category 1A |
| Specific Target Organ Toxicity – Repeat Exposure | Category 1 |

ENVIRONMENTAL HAZARDS:

| | |
|---|------------|
| Hazardous to aquatic environment, acute | Category 1 |
| Hazardous to aquatic environment, chronic | Category 1 |

SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

May form combustible dust concentrations in air during processing. Causes serious eye irritation. May cause an allergic skin reaction. May cause cancer by inhalation. Causes damage to lungs through prolonged or repeated inhalation. May damage fertility or the unborn child. May cause damage to hearing and kidneys through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

**PRECAUTIONARY STATEMENTS**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. Wash thoroughly after handling. Contaminated clothing should not be allowed out of the workplace. Wear protective gloves, protective clothing and eye protection.

Avoid release to the environment.

IF exposed or concerned: Get medical advice.

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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 attention.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing and wash it before reuse. If exposed or concerned: Get medical advice.

Collect spillage.

Store locked up.

Dispose of contents in accordance with local, state, and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

| COMPONENT | CAS NO. | % BY WEIGHT |
|-----------------------------|--------------|--------------|
| Streptomycin Sulfate | 3810-74-0 | 64 – 68 |
| Crystalline silica (quartz) | 14808-60-7 | 15 – 19 |
| Pyrophyllite | 12269-78-2 | <13 |
| Mica | 12001-26-2 | 6 – 8 |
| Kaolin | 1332-58-7 | 0.5 – 1.5 |
| Other Ingredients | Trade Secret | Trade Secret |

Synonyms: Streptomycin Sulfate; O-2-deoxy-2-methylamino-alpha-L-glucopyranosyl-(1->2)-O-5-deoxy-3-C-formyl-alpha-L-lyxofuranosyl-(1->4)-N3, N3-diamidino-D-streptamine-sulfate (2:3)

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If on Skin or Clothing: Take off contaminated clothing. Rinse skin with plenty of water. If irritation occurs, get medical advice.

If in Eyes: Hold eye open and rinse slowly and gently with water. Remove contact lenses, if present, then continue rinsing eye. Get medical attention if irritation occurs.

If Swallowed: Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. If symptoms develop, get medical advice.

If Inhaled: Move person to fresh air. If breathing is difficult, administer oxygen. If symptoms develop, get medical advice.

Most important symptoms/effects, acute and delayed: Causes eye irritation. May cause cancer and lung damage by inhalation. Suspected of damaging the unborn child.

Indication of immediate medical attention and special treatment needed, if necessary: Immediate medical attention should not be required.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry chemical, foam or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): Irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

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Methods for Clean-Up and Disposal: Avoid creation of dusty conditions. If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Non-sparking tools should be used.

Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

HANDLING:

Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

May cause allergic skin reactions. Do not breathe dust. Do not get in eyes. Avoid contact with skin, eyes or clothing. Handle and open container in a manner as to prevent spillage. If the container is leaking or material is spilled for any reason or cause, carefully dispose of as directed for pesticides in Section 13.

Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling.

STORAGE:

Keep tightly closed. Storage should be at a cool temperature when possible, and with a minimum exposure to the atmosphere. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment).

Use only appropriately classified electrical equipment and powered industrial trucks.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear chemical goggles. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, socks, shoes and chemical-resistant gloves. Washing facilities should be readily accessible to the work area.

Respiratory Protection: Wear dust mask while handling, mixing or loading. If dusts or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored; 2) wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

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Exposure Guidelines:

| Component | OSHA | | ACGIH | | Unit |
|-----------------------------|---------------------------|------|---------------|------|-------------------|
| | TWA | STEL | TWA | STEL | |
| Streptomycin Sulfate | NE | NE | NE | NE | |
| Crystalline silica (quartz) | 10* (R) 30* (T) | NE | 0.25(R) | NE | mg/m ³ |
| Pyrophyllite** | 5(R) 15(T) 30 mppcf | NE | 3(R) 10(I) | NE | mg/m ³ |
| Mica | 20 mppcf*** | NE | 3(R) | NE | mg/m ³ |
| Kaolin | 5(R) 15 (T) | NE | 2 (R) | NE | mg/m ³ |
| Other Ingredients | NE | NE | NE | NE | |

* mg/m³ / % SiO₂+2

NE = Not Established

** Regulated as PNOR (Particulates Not Otherwise Regulated)

***<1% crystalline silica

R = Respirable Fraction

T = Total Dust

I = Inhalable particles

9. PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|------------------------------------|
| Appearance: | Off-white Powder |
| Odor: | Odorless |
| Odor threshold: | No data available |
| pH: | 5.28 (1% w/w dispersion in DIW) |
| Melting point/freezing point: | No data available |
| Initial boiling point and boiling range | No data available |
| Flash point: | Not applicable due to product form |
| Evaporation rate: | No data available |
| Flammability (solid, gas): | No data available |
| Upper/lower flammability or explosive limits: | No data available |
| Vapor pressure: | No data available |
| Vapor density: | No data available |
| Relative density: | 0.80 g/ml |
| Solubility(ies): | No data available |
| Partition coefficient: n-octanol/water: | No data available |
| Autoignition temperature: | No data available |
| Decomposition temperature: | No data available |
| Viscosity: | Not applicable due to product form |

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: This material is stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Will not occur

Conditions to Avoid: Keep away from heat, sparks and open flame. Minimize dust generate and accumulation.

Incompatible Materials: Not known.

Hazardous Decomposition Products: Under fire conditions may produce oxides of carbon and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, eye and skin contact.

Eye: May cause moderate eye irritation.

Skin: Minimally toxic and non-irritating based on toxicity studies. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Inhalation: Low inhalation toxicity. May cause respiratory tract irritation if inhaled. Allergic reactions, possibly serious, may develop in individuals who are sensitive to tetracyclines.

Ingestion: Low toxicity if ingested. May cause irritation of the digestive tract if ingested. Streptomycin may cause severe allergic reactions (anaphylactic) in sensitive individuals.

Delayed, immediate and chronic effects of exposure: Repeated skin exposure may cause allergic reactions in some individuals.

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat & Mouse LD₅₀ : >9,000 mg/kg

Dermal: Rat LD50: > 2,000 mg/kg

Inhalation: Rat LC50: > 2.72 mg/L (no mortalities at highest dose tested)

Eye Irritation: Rabbits: Moderate irritation

Skin Irritation: Rabbits: No Irritation

Skin Sensitization: Streptomycin is considered a potential skin sensitizer.

Other Acute Effects: Streptomycin may cause severe allergic reactions (anaphylactic) in sensitive individuals.

Subchronic (Target Organ) Effects: Clinical studies reported kidney damage and ear damage manifested by nausea, vomiting, dizziness, numbness/tingling of face. Inhalation of excessive amounts of kaolin dust may produce coughing, sneezing and nasal irritation. Chronic exposure to mica may cause persistent cough, possible difficulty in breathing.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to streptomycin may cause effects to kidneys, ears and skin. Streptomycin did not cause cancer in laboratory animals. Long-term over-exposure to kaolin dust may affect the lungs. The diluent as a whole is not listed as a carcinogen. However, it does contain crystalline silica (e.g. quartz), a naturally occurring component. Inhalation of crystalline silica may cause pulmonary fibrosis (silicosis). Crystalline silica has been classified by IARC as carcinogenic to humans (Group 1), by the U.S. National Toxicology Program as a known human carcinogen and by ACGIH as a suspected human carcinogen (A2).

Reproductive Toxicity: Streptomycin may cause auditory nerve damage in the developing fetus.

Developmental Toxicity: None observed.

Genotoxicity: None observed.

Assessment Carcinogenicity:

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

| Component | Regulatory Agency Listing As Carcinogen | | | |
|----------------------------|---|------|-------|------|
| | ACGIH | IARC | NTP | OSHA |
| Streptomycin Sulfate | No | No | No | No |
| Crystalline Silica, Quartz | A2 | 1 | Known | No |
| Pyrophyllite | No | No | No | No |
| Mica | No | No | No | No |
| Kaolin | A4 | No | No | No |
| Other Ingredients | No | No | No | No |

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Streptomycin:

96-hour LC₅₀ Bluegill: > 180 ppm

96-hour LC₅₀ Rainbow Trout: >180 ppm

96-hour EC50 FW Alga: 6.9 ppb

Bobwhite Quail Acute Oral LC₅₀: >2,000 mg/kg

Bobwhite Quail 8-day Dietary LC₅₀: >5,620 ppm

Mallard Duck 8-day Dietary LC₅₀: 4,640 ppm

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Environmental Fate:

Streptomycin degradation in soil and water is mediated by bacterial decomposition with degradation typically occurring in 2-3 weeks. Streptomycin does not leach but binds tightly to soil and particulates. The major degradate in water and soil is methylamine.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling and Disposal:

Nonrefillable Containers 50 lb or Less:

Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable Containers larger than 50 lb:

Nonrefillable container. Do not reuse or refill this container.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container $\frac{1}{4}$ full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Bags:

Nonrefillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

Drums with Liners:

Nonrefillable container. Do not reuse or refill this container. Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then offer for recycling, if available, or dispose of in a sanitary landfill or by incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner.

14. TRANSPORTATION INFORMATION

DOT:

Non Regulated

IMDG:

UN3077, Environmentally Hazardous Substance, Solid, n.o.s. (Streptomycin Sulfate), 9, III, Marine Pollutant

IATA:

UN3077, Environmentally Hazardous Substance, Solid, n.o.s. (Streptomycin Sulfate), 9, III

15. REGULATORY INFORMATION

EPA FIFRA INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of

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non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Causes moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes, or clothing. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Wash thoroughly with soap and water after handling.

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370.66):

Acute Health, Chronic Health

Section 313 Toxic Chemical(s):

None

Reportable Quantity (RQ) under U.S. CERCLA:

None

RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 1 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

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