SAFETY DATA SHEET

Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version 3.1  Revision Date: 04/04/2023  SDS Number: 7567906-00008  Date of last issue: 10/01/2022  Date of first issue: 11/20/2020

SECTION 1. IDENTIFICATION

Product name: Milbemycin Oxime / Lufenuron / Praziquantel Formulation
Other means of identification: No data available

Manufacturer or supplier’s details
Company name of supplier: Merck & Co., Inc
Address: 126 E. Lincoln Avenue
Rahway, New Jersey U.S.A. 07065
Telephone: 908-740-4000
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product
Restrictions on use: Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations
Skin sensitization: Category 1
Reproductive toxicity: Category 1B
Specific target organ toxicity - repeated exposure (Oral): Category 1 (Central nervous system, Lungs, Liver, Stomach)

GHS label elements
Hazard pictograms: 

Signal Word: Danger
Hazard Statements: H317 May cause an allergic skin reaction.
H360D May damage the unborn child.
H372 Causes damage to organs (Central nervous system, Lungs, Liver, Stomach) through prolonged or repeated exposure if swallowed.

Precautionary Statements: Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust, fume, gas, mist, vapors or spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P308 + P313 IF exposed or concerned: Get medical attention.
P333 + P313 If skin irritation or rash occurs: Get medical attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:
P405 Store locked up.

Disposal:
P501 Dispose of contents and container to an approved waste disposal plant.

Other hazards
Dust contact with the eyes can lead to mechanical irritation.
Contact with dust can cause mechanical irritation or drying of the skin.
May form explosive dust-air mixture during processing, handling or other means.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Common Name/Synonym</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starch</td>
<td>Sago starch</td>
<td>9005-25-8</td>
<td>31.94</td>
</tr>
<tr>
<td>Glycerine</td>
<td>1,2,3-Propanetriol</td>
<td>56-81-5</td>
<td>12</td>
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<tr>
<td>Lufenuron (ISO)</td>
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<td>7.67</td>
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<tr>
<td>Sucrose</td>
<td>.alpha.-D-Glucopyranoside,.beta.-D-fructofuranosyl</td>
<td>57-50-1</td>
<td>5</td>
</tr>
<tr>
<td>Savorysel Bacon Flavor</td>
<td>No data available</td>
<td>Not Assigned</td>
<td>5</td>
</tr>
<tr>
<td>Praziquantel</td>
<td>4H-pyrazino-[2,1-a]-isoquinolin-4-one, 2-(cyclohexylcarbonyl)-1,2,3,6,7,11b-hexahydro-</td>
<td>55268-74-1</td>
<td>3.8</td>
</tr>
<tr>
<td>Milbemycin Oxime</td>
<td>No data available</td>
<td>129496-10-2</td>
<td>0.39</td>
</tr>
</tbody>
</table>
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SECTION 4. FIRST AID MEASURES

General advice: In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

If inhaled: If inhaled, remove to fresh air.
Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with soap and plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.

In case of eye contact: If in eyes, rinse well with water.
Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed: Contact with dust can cause mechanical irritation or drying of the skin.
Dust contact with the eyes can lead to mechanical irritation.
May cause an allergic skin reaction.
May damage the unborn child.
Causes damage to organs through prolonged or repeated exposure if swallowed.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)

Unsuitable extinguishing media: None known.

Specific hazards during fire fighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
Nitrogen oxides (NOx)
Metal oxides
Chlorine compounds

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
so. Evacuate area.

Special protective equipment for fire-fighters:
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:
- Use personal protective equipment.
- Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions:
- Avoid release to the environment.
- Prevent further leakage or spillage if safe to do so.
- Retain and dispose of contaminated wash water.
- Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up:
- Sweep up or vacuum up spillage and collect in suitable container for disposal.
- Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
- 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.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
- Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures:
- Static electricity may accumulate and ignite suspended dust causing an explosion.
- Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.

Local/Total ventilation:
- If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling:
- Do not get on skin or clothing.
- Do not breathe dust, fume, gas, mist, vapors or spray.
- Do not swallow.
- Avoid contact with eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
- Keep container tightly closed.
- Minimize dust generation and accumulation.
- Keep container closed when not in use.
- Keep away from heat and sources of ignition.
- Take precautionary measures against static discharges.
- Do not eat, drink or smoke when using this product.
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Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage:
- Keep in properly labeled containers.
- Store locked up.
- Keep tightly closed.
- Store in accordance with the particular national regulations.

Materials to avoid:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Self-reactive substances and mixtures
  - Organic peroxides
  - Explosives
  - Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

<table>
<thead>
<tr>
<th>Ingredients with workplace control parameters</th>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starch</td>
<td>9005-25-8</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>CA AB OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Total dust)</td>
<td>10 mg/m³</td>
<td>CA BC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable dust fraction)</td>
<td>3 mg/m³</td>
<td>CA BC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWAEV (total dust)</td>
<td>10 mg/m³</td>
<td>CA QC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>Glycerine</td>
<td>56-81-5</td>
<td>TWA (Mist)</td>
<td>10 mg/m³</td>
<td>CA AB OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Mist)</td>
<td>10 mg/m³</td>
<td>CA BC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable mist)</td>
<td>3 mg/m³</td>
<td>CA BC OEL</td>
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<td></td>
<td></td>
<td>TWAEV (Mist)</td>
<td>10 mg/m³</td>
<td>CA QC OEL</td>
<td></td>
</tr>
<tr>
<td>Lufenuron (ISO)</td>
<td>103055-07-8</td>
<td>TWA</td>
<td>OEB 3 (&gt;= 10 &lt; 100 µg/m³)</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>Sucrose</td>
<td>57-50-1</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>CA AB OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Total dust)</td>
<td>10 mg/m³</td>
<td>CA BC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable dust fraction)</td>
<td>3 mg/m³</td>
<td>CA BC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWAEV</td>
<td>10 mg/m³</td>
<td>CA QC OEL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>ACGIH</td>
<td></td>
</tr>
<tr>
<td>Savorysel Bacon Flavor</td>
<td>Not Assigned</td>
<td>Wipe limit</td>
<td>OEB 2 (&gt;= 100 &lt; 1000 µg/m³)</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>Praziquantel</td>
<td>55268-74-1</td>
<td>TWA</td>
<td>0.5 mg/m³ (OEB 2)</td>
<td>Internal</td>
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</tr>
<tr>
<td>Milbemycin Oxime</td>
<td>129496-10-2</td>
<td>TWA</td>
<td>0.1 mg/m³ (OEB2)</td>
<td>Internal</td>
<td></td>
</tr>
</tbody>
</table>
Engineering measures: All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices). Minimize open handling.

Personal protective equipment
Respiratory protection: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Filter type Hand protection: Combined particulates and organic vapor type
Material: Chemical-resistant gloves
Remarks: Consider double gloving.
Eye protection: Wear safety glasses with side shields or goggles. If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.
Skin and body protection: Work uniform or laboratory coat. Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces. Use appropriate degowning techniques to remove potentially contaminated clothing.
Hygiene measures: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before re-use. The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES
Appearance: solid
Color: brown
Odor: characteristic
Odor Threshold: No data available
pH : No data available
Melting point/freezing point : No data available
Initial boiling point and boiling range : No data available
Flash point : Not applicable
Evaporation rate : Not applicable
Flammability (solid, gas) : May form explosive dust-air mixture during processing, handling or other means.
Flammability (liquids) : Not applicable
Upper explosion limit / Upper flammability limit : No data available
Lower explosion limit / Lower flammability limit : No data available
Vapor pressure : Not applicable
Relative vapor density : Not applicable
Relative density : No data available
Density : No data available
Solubility(ies)
   Water solubility : soluble
Partition coefficient: n-octanol/water : Not applicable
Autoignition temperature : No data available
Decomposition temperature : No data available
Viscosity
   Viscosity, kinematic : Not applicable
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : No data available
Particle size : No data available
**SECTION 11. TOXICOLOGICAL INFORMATION**

**Information on likely routes of exposure**

<table>
<thead>
<tr>
<th>Route</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td></td>
</tr>
<tr>
<td>Skin contact</td>
<td></td>
</tr>
<tr>
<td>Ingestion</td>
<td></td>
</tr>
<tr>
<td>Eye contact</td>
<td></td>
</tr>
</tbody>
</table>

**Acute toxicity**

Not classified based on available information.

**Product:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>Acute toxicity estimate: &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>Acute toxicity estimate: &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

**Components:**

**Starch:**

- Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
- Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

**Glycerine:**

- Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
- Acute dermal toxicity: LD50 (Guinea pig): > 5,000 mg/kg

**Lufenuron (ISO):**

- Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
- LD50 (Mouse): > 2,000 mg/kg
- Acute inhalation toxicity: LC50 (Rat): 2,350 mg/m³ Test atmosphere: dust/mist
- Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg
Sucrose:
Acute oral toxicity : LD50 (Rat): 29,700 mg/kg

Savorysel Bacon Flavor:
Acute oral toxicity : Remarks: Based on available data, the classification criteria are not met.
Acute inhalation toxicity : Remarks: Not classified due to lack of data.
Acute dermal toxicity : Remarks: Based on available data, the classification criteria are not met.

Praziquantel:
Acute oral toxicity : LD50 (Rat): 2,480 mg/kg
LD50 (Mouse): 2,454 mg/kg
LD50 (Dog): > 200 mg/kg
LD50 (Rabbit): 1,050 mg/kg

Milbemycin Oxime:
Acute oral toxicity : LD50 (Rat): 532 - 863 mg/kg
LD50 (Mouse): 722 - 946 mg/kg
Acute inhalation toxicity : LC50 (Rat): 1,200 mg/m³
Exposure time: 4 h
Test atmosphere: dust/mist
Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

Skin corrosion/irritation
Not classified based on available information.

Components:

Glycerine:
Species : Rabbit
Result : No skin irritation

Lufenuron (ISO):
Species : Rabbit
Method : Draize Test
Result : No skin irritation

Savorysel Bacon Flavor:
Remarks : Based on data from similar materials
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May irritate skin.

**Praziquantel:**
Species: Rabbit  
Method: Draize Test  
Remarks: slight irritation

**Milbemycin Oxime:**
Species: Rabbit  
Method: OECD Test Guideline 404  
Result: No skin irritation

Serious eye damage/eye irritation
Not classified based on available information.

**Components:**

**Starch:**
Species: Rabbit  
Result: No eye irritation

**Glycerine:**
Species: Rabbit  
Result: No eye irritation

**Lufenuron (ISO):**
Species: Rabbit  
Result: No eye irritation  
Method: Draize Test

**Savorysel Bacon Flavor:**
Remarks: Based on data from similar materials  
May irritate eyes.

**Praziquantel:**
Species: Rabbit  
Result: Mild eye irritation  
Method: Draize Test

**Milbemycin Oxime:**
Species: Rabbit  
Result: No eye irritation

Respiratory or skin sensitization

Skin sensitization
May cause an allergic skin reaction.
Respiratory sensitization
Not classified based on available information.

Components:

Starch:
Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Lufenuron (ISO):
Test Type: Maximization Test
Species: Guinea pig
Assessment: May cause sensitization by skin contact.
Result: Sensitizer

Savorysel Bacon Flavor:
Remarks: Not classified due to lack of data.

Praziquantel:
Test Type: Maximization Test
Routes of exposure: Dermal
Species: Guinea pig
Result: Not a skin sensitizer.

Milbemycin Oxime:
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Germ cell mutagenicity
Not classified based on available information.

Components:

Starch:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Glycerine:
Genotoxicity in vitro: Test Type: In vitro mammalian cell gene mutation test
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative
<table>
<thead>
<tr>
<th>Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)</th>
<th>Result: negative</th>
</tr>
</thead>
</table>

**Lufenuron (ISO):**

- **Genotoxicity in vitro**
  - Test Type: Ames test
    - Result: negative
  - Test Type: Mouse Lymphoma
    - Test system: Chinese hamster cells
    - Result: negative
  - Test Type: Cytogenetic assay
    - Test system: Chinese hamster ovary cells
    - Result: negative
  - Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
    - Test system: rat hepatocytes
    - Result: negative
  - Test system: Human lymphocytes
    - Result: negative

- **Genotoxicity in vivo**
  - Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
    - Species: Mouse
    - Result: negative
  - Test Type: Unscheduled DNA synthesis test (UDS) in testicular cells
    - Species: Rat
    - Result: negative

**Germ cell mutagenicity - Assessment**
- Weight of evidence does not support classification as a germ cell mutagen.

**Sucrose:**

- **Genotoxicity in vitro**
  - Test Type: In vitro mammalian cell gene mutation test
    - Result: negative

**Savorysel Bacon Flavor:**

- **Genotoxicity in vitro**
  - Remarks: Not classified due to lack of data.
- **Genotoxicity in vivo**
  - Remarks: Not classified due to lack of data.

**Praziquantel:**

- **Genotoxicity in vitro**
  - Test Type: Bacterial reverse mutation assay (AMES)
    - Result: negative
  - Test Type: Chromosomal aberration
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Genotoxicity in vivo :
Test system: Chinese hamster cells
Result: negative

Genotoxicity in vivo :
Test Type: Micronucleus test
Species: Rat
Result: negative

Genotoxicity in vitro :
Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Genotoxicity in vivo :
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Result: negative

Carcinogenicity
Not classified based on available information.

Components:

Glycerine:
Species : Rat
Application Route : Ingestion
Exposure time : 2 Years
Result : negative

Lufenuron (ISO):
Species : Rat
Application Route : Ingestion
Exposure time : 18 month(s)
Result : negative

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

Praziquantel:
Species : Hamster
Application Route : Oral
Exposure time : 80 weeks
NOAEL : 100 mg/kg body weight
Result : negative
Remarks : No significant adverse effects were reported

Species : Rat
Application Route : Oral
Exposure time : 104 weeks
NOAEL : 250 mg/kg body weight
### Reproductive toxicity

May damage the unborn child.

### Components:

#### Glycerine:

**Effects on fertility**
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Application Route: Ingestion
- Result: negative

**Effects on fetal development**
- Test Type: Embryo-fetal development
- Species: Rat
- Application Route: Ingestion
- Result: negative

#### Lufenuron (ISO):

**Effects on fertility**
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Application Route: Oral
- General Toxicity Parent: NOAEL: 8.3 mg/kg wet weight
- Early Embryonic Development: NOAEL: 20.9 mg/kg body weight
- Result: Animal testing did not show any effects on fertility.

**Effects on fetal development**
- Test Type: Development
- Species: Rat
- Application Route: Oral
- General Toxicity Maternal: NOAEL: 500 mg/kg body weight
- Developmental Toxicity: NOAEL: 1,000 mg/kg body weight
- Symptoms: No adverse effects.
- Remarks: No significant adverse effects were reported

**Test Type:** Fertility/early embryonic development
- Species: Rat
- Application Route: Ingestion
- General Toxicity Maternal: NOAEL: 20.9 mg/kg body weight
- Embryo-fetal toxicity: 8.3 mg/kg body weight
- Result: Fetal abnormalities.

**Reproductive toxicity - Assessment**
- Clear evidence of adverse effects on development, based on animal experiments.

#### Savorysel Bacon Flavor:

**Effects on fertility**
- Remarks: No data available

**Effects on fetal development**
- Remarks: No data available
Praziquantel:
Effects on fertility: Test Type: Fertility
Species: Rat
Remarks: No significant adverse effects were reported
Test Type: Fertility
Species: Mouse
Remarks: No significant adverse effects were reported

Effects on fetal development: Test Type: Development
Species: Rat
Remarks: No significant adverse effects were reported
Test Type: Development
Species: Mouse
Remarks: No significant adverse effects were reported

Milbemycin Oxime:
Effects on fertility: Test Type: One-generation reproduction toxicity study
Species: Dog
Application Route: Ingestion
Result: negative

Effects on fetal development: Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Result: negative
Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Ingestion
Result: negative
Test Type: Embryo-fetal development
Species: Dog
Application Route: Ingestion
Result: negative

STOT-single exposure
Not classified based on available information.

Components:
Lufenuron (ISO):
Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure
Causes damage to organs (Central nervous system, Lungs, Liver, Stomach) through prolonged or repeated exposure if swallowed.
Components:

**Lufenuron (ISO):**
- Routes of exposure: Oral
- Target Organs: Central nervous system, Lungs, Liver, Stomach
- Assessment: Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

**Milbemycin Oxime:**
- Routes of exposure: Ingestion
- Target Organs: Central nervous system
- Assessment: Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

Repeated dose toxicity

**Components:**

**Starch:**
- Species: Rat
- NOAEL: >= 2,000 mg/kg
- Application Route: Skin contact
- Exposure time: 28 Days
- Method: OECD Test Guideline 410

**Glycerine:**
- Species: Rat
- NOAEL: 0.167 mg/l
- LOAEL: 0.622 mg/l
- Application Route: inhalation (dust/mist/fume)
- Exposure time: 13 Weeks
- Species: Rat
- NOAEL: 8,000 - 10,000 mg/kg
- Application Route: Ingestion
- Exposure time: 2 y
- Species: Rabbit
- NOAEL: 5,040 mg/kg
- Application Route: Skin contact
- Exposure time: 45 Weeks

**Lufenuron (ISO):**
- Species: Rat
- NOAEL: 5.34 mg/kg
- Application Route: oral (feed)
- Exposure time: 4 Months
- Target Organs: Central nervous system, digestive system
- Symptoms: central nervous system effects
- Species: Rat
# Milbemycin Oxime / Lufenuron / Praziquantel Formulation

| NOAEL     | 1.93 mg/kg |
| Application Route | oral (feed) |
| Exposure time      | 2 y |
| Symptoms            | central nervous system effects, Convulsions |

**Species**: Mouse  
**Target Organs**: Central nervous system, Liver, Prostate  
**Symptoms**: central nervous system effects, Convulsions

| NOAEL     | 2.12 mg/kg |
| Application Route | oral (feed) |
| Exposure time      | 18 Months |
| Target Organs      | Central nervous system, Liver, Prostate |
| Symptoms            | central nervous system effects, Convulsions |

**Species**: Dog  
**Target Organs**: Central nervous system, Liver, Lungs  
**Symptoms**: Convulsions, Fatality, Irregularities

### Savorysel Bacon Flavor:

**Remarks**: Not classified due to lack of data.

### Praziquantel:

| Species  | Rat |
| NOAEL     | 1,000 mg/kg |
| Application Route | Oral |
| Remarks    | No significant adverse effects were reported |

| Species  | Dog |
| NOAEL     | 60 mg/kg |
| LOAEL     | 180 mg/kg |
| Application Route | Oral |
| Target Organs      | Gastrointestinal tract |
| Remarks            | No significant adverse effects were reported |

### Milbemycin Oxime:

| Species  | Rat |
| NOAEL     | 3 mg/kg |
| LOAEL     | 15 mg/kg |
| Application Route | Ingestion |
| Exposure time      | 90 Days |
| Symptoms            | Liver disorders, Blood disorders |

| Species  | Dog |
| LOAEL     | 8.6 mg/kg |
| Application Route | Ingestion |
| Exposure time      | 3 Days |
| Symptoms            | Tremors |

### Aspiration toxicity

Not classified based on available information.
Experience with human exposure

Components:

Lufenuron (ISO):
General Information
Remarks: May be harmful if swallowed. May cause neurotoxic effects.

Savorysel Bacon Flavor:
General Information
Remarks: Based on data from similar materials May irritate skin. May irritate eyes.

Praziquantel:
Inhalation
Symptoms: Headache, Tiredness, Dizziness, Gastrointestinal discomfort, decrease body temperature, Allergic reactions

Milbemycin Oxime:
Ingestion
Symptoms: Salivation, Convulsions, Diarrhea, Weakness, Vomiting, Tremors, Coma
Remarks: Based on Animal Evidence

Further information
Components:

Savorysel Bacon Flavor:
Remarks: No toxicology information is available.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
Components:

Glycerine:
Toxicity to fish
LC50 (Oncorhynchus mykiss (rainbow trout)): 54,000 mg/l Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates
EC50 (Daphnia magna (Water flea)): 1,955 mg/l Exposure time: 48 h

Toxicity to microorganisms
NOEC (Pseudomonas putida): > 10,000 mg/l Exposure time: 16 h Method: DIN 38 412 Part 8

Lufenuron (ISO):
Toxicity to fish
LC50 (Oncorhynchus mykiss (rainbow trout)): > 73,100 µg/l Exposure time: 96 h Method: OECD Test Guideline 203
LC50 (Oncorhynchus mykiss (rainbow trout)): > 29,000 µg/l Exposure time: 96 h
Method: OECD Test Guideline 203

LC50 (Oncorhynchus mykiss (rainbow trout)): 370 μg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to algae/aquatic plants:

EC50 (Raphidocelis subcapitata (freshwater green alga)): 209 μg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

EC50 (Scenedesmus subspicatus): 17 μg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity):

NOEC (Oncorhynchus mykiss (rainbow trout)): 80 μg/l
Exposure time: 33 d
Method: OECD Test Guideline 210

NOEC (Oncorhynchus mykiss (rainbow trout)): 20 μg/l
Exposure time: 359 d
Method: OECD Test Guideline 229

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):

NOEC (Daphnia magna (Water flea)): 8.38 μg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

NOEC (Daphnia magna (Water flea)): 90 μg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

NOEC (Chironomus riparius (harlequin fly)): 2 μg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Praziquantel:

Toxicity to fish:

LC50 (Carassius auratus (goldfish)): 29.2 mg/l
Exposure time: 96 hrs
Method: OECD Test Guideline 203

LC50 (Danio rerio (zebra fish)): 31.6 mg/l
Exposure time: 96 hrs
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:

EC50 (Daphnia magna (Water flea)): 35 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to microorganisms:

EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h  
Test Type: Respiration inhibition of activated sludge  
Method: OECD Test Guideline 209

**Milbemycin Oxime:**

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 0.16 µg/l  
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.03 µg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants: EC50: > 87 µg/l  
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (Daphnia magna (Water flea)): 0.01 µg/l

**Persistence and degradability**

**Components:**

**Glycerine:**

Biodegradability: Result: Readily biodegradable.  
Biodegradation: 92 %  
Exposure time: 30 d  
Method: OECD Test Guideline 301D

**Bioaccumulative potential**

**Components:**

**Glycerine:**

Partition coefficient: n-octanol/water: log Pow: -1.75

**Lufenuron (ISO):**

Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)  
Bioconcentration factor (BCF): 28  
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water: log Pow: 5.12

**Sucrose:**

Partition coefficient: n-octanol/water: Pow: < 1

**Praziquantel:**

Partition coefficient: n-octanol/water: log Pow: 2.012  
pH: 7

**Milbemycin Oxime:**
SAFETY DATA SHEET

Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version 3.1  Revision Date: 04/04/2023  SDS Number: 7567906-00008  Date of last issue: 10/01/2022  Date of first issue: 11/20/2020

Bioaccumulation:
Bioconcentration factor (BCF): 440

Partition coefficient: n-octanol/water
log Pow: 7

Mobility in soil

Components:

Lufenuron (ISO):
Distribution among environmental compartments:
log Koc: 5.38  Method: OECD Test Guideline 106

Other adverse effects:
No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods:
Waste from residues:
Dispose of in accordance with local regulations.
Do not dispose of waste into sewer.
Contaminated packaging:
Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Milbemycin Oxime, Lufenuron (ISO))
Class: 9
Packing group: III
Labels: 9

IATA-DGR
UN/ID No.: UN 3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Milbemycin Oxime, Lufenuron (ISO))
Class: 9
Packing group: III
Labels: Miscellaneous
Packing instruction (cargo aircraft): 956
Packing instruction (passenger aircraft): 956
Environmentally hazardous: yes

IMDG-Code
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
SAFETY DATA SHEET

Milbemycin Oxime / Lufenuron / Praziquantel
Formulation

Version 3.1  Revision Date: 04/04/2023  SDS Number: 7567906-00008  Date of last issue: 10/01/2022
Date of first issue: 11/20/2020

N.O.S. (Milbemycin Oxime, Lufenuron (ISO))

Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

TDG
UN number : UN 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Milbemycin Oxime, Lufenuron (ISO))

Class : 9
Packing group : III
Labels : 9
ERG Code : 171
Marine pollutant : yes (Milbemycin Oxime, Lufenuron (ISO))

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

The ingredients of this product are reported in the following inventories:
AICS : not determined
DSL : not determined
IECSC : not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
CA BC OEL : Canada. British Columbia OEL
CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA : 8-hour, time-weighted average
CA AB OEL / TWA : 8-hour Occupational exposure limit
CA BC OEL / TWA : 8-hour time weighted average
CA QC OEL / TWAEV : Time-weighted average exposure value

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICGS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System


Revision Date : 04/04/2023
Date format : mm/dd/yyyy

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 is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user’s end product, if applicable.

CA / ZB