



# SAFETY DATA SHEET

## Sentinel Spectrum® (milbemycin oxime/lufenuron/praziquantel)

### 1. IDENTIFICATION

<b>Product Name</b>	Sentinel Spectrum® (milbemycin oxime/lufenuron/praziquantel)
<b>Recommended use of the chemical and restrictions on use</b>	
<b>Identified uses</b>	Chewable Tablets for Worm and Flea Prevention and Control in Dogs and Puppies
<b>Restrictions on Use</b>	Not for human use.
<b>Company Identification</b>	Virbac AH, Inc. P.O. Box 162059 Fort Worth, Texas 76161
<b>Customer Information Number</b>	(800) 338-3659
<b>Emergency Telephone Number</b>	
<b>CHEMTREC Number</b>	(800) 424-9300
<b>Other Emergency Number:</b>	1-800-338-3659 for medical emergencies
<b>Issue Date</b>	April 10, 2015
<b>Supersedes Date</b>	This is the first issue.

*Safety Data Sheet prepared in accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200) and the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)*

### 2. HAZARDS IDENTIFICATION

**Hazard Classification**  
Acute Hazards to the Aquatic Environment – Category 1 (OSHA non-mandatory)

**Label Elements**  
Hazard Symbols



Signal Word: Warning

**Hazard Statements**  
Very toxic to aquatic life.

**Precautionary Statements**

**Prevention**  
Avoid release to the environment.

**Response**  
Collect spillage.

**Storage**  
None

**Disposal**  
Dispose of contents/container in accordance with local regulation.



---

## 2. HAZARD IDENTIFICATION

---

### Other Hazards

None

### Specific Concentration Limits

The values listed below represent the percentages of ingredients of unknown toxicity.

Acute oral toxicity	<10%
Acute dermal toxicity	<10%
Acute inhalation toxicity	20 - 30%
Acute aquatic toxicity	>90%

---

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

---

### Synonyms:

This product is a mixture.

Component Name	CAS Number	Concentration
Milbemycin oxime	122674-17-3	<1%
Lufenuron	103055-07-8	5 – 10%
Praziquantel	55268-74-1	1 – 5%
Starch	NA	25 – 35%

Each flavored chew contains:

2.3, 5.75, 11.5 or 23.0 mg of Milbemycin oxime

46, 115, 230, or 460 mg of Lufenuron

22.8, 57, 114, or 228 mg of Praziquantel

---

## 4. FIRST - AID MEASURES

---

### Description of necessary first-aid measures

#### Eyes

Not an expected route of entry. If tablet contacts eye, flush thoroughly with water. If pain or irritation persists contact a physician.

#### Skin

Wash skin with soap and water.

#### Ingestion

Contact a physician immediately if ingested. Physician may call a poison control center for advice concerning human ingestion.

#### Inhalation

Not applicable

### Most important symptoms/effects, acute and delayed

Aside from the information found under Description of necessary first aid measures (above) and Indication of immediate medical attention and special treatment needed, no additional symptoms and effects are anticipated.

### Indication of immediate medical attention and special treatment needed

#### Notes to Physicians

Treat symptomatically.



---

## 5. FIRE - FIGHTING MEASURES

---

### Extinguishing Media

Use extinguishing media appropriate for surrounding materials.

### Unusual Fire and Explosion Hazards

Can release hazardous vapors during a fire.

### Protective Equipment for Fire-Fighting

Wear full protective clothing and self-contained breathing apparatus.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

### Personal precautions, protective equipment and emergency procedures

Wear appropriate protective clothing.

### Environmental Precautions

Prevent the material from entering drains or watercourses.

### Methods and materials for containment and cleaning up

Sweep and dispose of small amounts in trash. Large amounts should be disposed of in a sanitary landfill.

---

## 7. HANDLING AND STORAGE

---

### Precautions for safe handling

Wear appropriate protective clothing.

### Conditions for safe storage

Store in original container at controlled room temperatures between 59°F and 77°F (15°C - 25° C). Keep out of sunlight. Keep away from children. Wash hands after dispensing to dog and before eating, drinking or smoking.

---

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

---

### Control parameters

Exposure limits are listed below, if they exist.

### Milbemycin Oxime

Manufacturer's recommended limit: 0.12 mg/m<sup>3</sup> 8h TWA

### Lufenuron

Manufacturer's recommended limit: 0.15mg/m<sup>3</sup> 8h TWA

### Praziquantel

None established

### Starch

ACGIH: TLV 10mg/m<sup>3</sup> 8h TWA

OSHA: PEL 15 mg/m<sup>3</sup> total dust, 5 mg/m<sup>3</sup> respirable fraction

### Appropriate engineering controls

No specific measures necessary. Good general room ventilation is expected to be adequate to control airborne levels.



---

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

---

**Individual protection measures**

**Respiratory Protection**

Not required under normal conditions of use.

**Skin Protection**

Not required under normal conditions of use. Workers should wash hands before eating, drinking or smoking.

**Eye/Face Protection**

Not required under normal conditions of use.

**Body Protection**

Normal work wear.

---

**9. PHYSICAL AND CHEMICAL PROPERTIES**

---

**Appearance**

<b>Physical State</b>	Solid
<b>Color</b>	Brown
<b>Odor</b>	Characteristic beef- bacon flavor
<b>Odor Threshold</b>	No data available
<b>pH</b>	Not applicable
<b>Density</b>	No data available
<b>Boiling Range/Point (°C/F)</b>	Not applicable
<b>Melting Point (°C/F)</b>	Not applicable
<b>Flash Point (°C/F)</b>	Not applicable
<b>Vapor Pressure</b>	Not applicable
<b>Evaporation Rate (BuAc=1)</b>	Not applicable
<b>Solubility in Water</b>	Soluble
<b>Vapor Density (Air = 1)</b>	Not applicable
<b>VOC</b>	Not applicable
<b>Partition coefficient (n-octanol/water)</b>	Not applicable
<b>Viscosity</b>	Not applicable
<b>Auto-ignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Upper explosive limit</b>	No data available
<b>Lower explosive limit</b>	No data available
<b>Flammability (solid, gas)</b>	No data available

---

**10. STABILITY AND REACTIVITY**

---

**Reactivity**

Data is not available

**Chemical Stability**

Stable under normal conditions.

**Possibility of hazardous reactions**

Hazardous polymerization will not occur.

**Conditions to Avoid**

Heat - high temperatures



---

## 10. STABILITY AND REACTIVITY

---

### Incompatible Materials

None known.

### Hazardous Decomposition Products

None known.

---

## 11. TOXICOLOGICAL INFORMATION

---

See product insert and/or packaging for additional information.

### Acute Toxicity

#### Milbemycin oxime

Oral LD50 (rat) >2000 mg/kg

Dermal LD50 (rat) >2000 mg/kg

Inhalation LD50 (rat) 1220 mg/m<sup>3</sup> 4h

#### Lufenuron

Oral LD50 (rat) >2000 mg/kg

Dermal LD50 (rat) >2000 mg/kg

Inhalation LD50 (rat) >2350 mg/m<sup>3</sup> 4h

#### Praziquantel

Oral LD50 (rat) 2840 mg/kg

Dermal LD50 (rat) >2000 mg/kg

### Specific Target Organ Toxicity (STOT) – single exposure

Praziquantel: Acute overexposure (ingestion) may cause dizziness, headache, drowsiness, malaise, abdominal pain.

### Specific Target Organ Toxicity (STOT) – repeat exposure

Praziquantel: Chronic overexposure may cause nausea, lethargy, diarrhea, itching, fever and rash.

### Serious Eye damage/Irritation

Milbemycin oxime: Not irritating to eyes in rabbit studies.

Lufenuron: Not irritating to eyes in rabbit studies.

Praziquantel: Not irritating to eyes in rabbit studies.

### Skin Corrosion/Irritation

Milbemycin oxime: Not irritating to skin in rabbit studies.

Lufenuron: Not irritating to skin in rabbit studies.

Praziquantel: Not irritating to skin in rabbit studies.

### Respiratory or Skin Sensitization

Milbemycin oxime: Not sensitizing in guinea pig study.

Lufenuron: Sensitizing in guinea pig in Maximisation Test.

Praziquantel: Not sensitizing in guinea pig study.

### Carcinogenicity

Product: Not considered carcinogenic by NTP, IARC, and OSHA.

Praziquantel: Long term studies in rats and golden hamsters did not reveal any carcinogenic effect.

Lufenuron: Not carcinogenic in rat and mouse studies.



---

**11. TOXICOLOGICAL INFORMATION**

---

**Germ Cell Mutagenicity**

Milbemycin oxime: Negative results for in vivo and in vitro animal studies.

Lufenuron: Negative results for in vivo and in vitro animal studies.

Praziquantel: Negative results for in vivo and in vitro animal studies.

**Reproductive Toxicity**

Praziquantel: Studies in rats and rabbits have shown no evidence of impaired fertility or harm to the fetus. An increase of the abortion rate was found in rats at three times the single human therapeutic dose.

Lufenuron: Did not show teratogenic effects in animal experiments.

Milbemycin oxime: Not teratogenic in rat and rabbit studies.

**Aspiration Hazard**

Not an aspiration hazard.

---

**12. ECOLOGICAL INFORMATION**

---

**Ecotoxicity**

Lufenuron

LC50 (Rainbow Trout) >73 mg/l 96hr

LC50 (Daphnia magna) 0.0011 – 0.0013 mg/l 48hr

EC50 (green algae) 10 mg/l 72hr

Milbemycin Oxime

LC50 (Common carp) 0.059 mg/l 48hr

LC50 (Daphnia pulex) >300 mg/l 3hr

**Mobility in soil**

Ivermectin: Ivermectin is metabolized in the soil. Water solubility is limited and it binds to soil very tightly. It does not bioconcentrate in fish and is not taken up from soil into plants.

**Persistence/Degradability**

Lufenuron: Not readily biodegradable.

**Bioaccumulative Potential**

No relevant studies identified.

**Other adverse effects**

No relevant studies identified.

---

**13. DISPOSAL CONSIDERATIONS**

---

Dispose of in accordance with all applicable local and national regulations.

---

**14. TRANSPORT INFORMATION**

---

Contact supplier for transport information.



---

**15. REGULATORY INFORMATION**

---

**United States TSCA Inventory**

This product is a drug and therefore is not regulated under the US EPA Toxic Substance Control Act.

**Canada DSL Inventory**

This product contains ingredients that are not listed on the Domestic Substance List (DSL).

**California Proposition 65**

This product contains the following materials which the State of California has found to cause cancer, birth defects or other reproductive harm: Butylated Hydroxyanisole (BHA) (<0.05%)

**SARA Title III Sect. 311/312 Categorization**

None

**SARA Title III Sect. 313**

This product contains a chemical that is listed in Section 313 at or above de minimis concentrations. The following listed chemicals are present: None

---

**16. OTHER INFORMATION**

---

**Legend**

ACGIH: American Conference of Governmental Industrial Hygienists

CAS#: Chemical Abstracts Service Number

IARC: International Agency for Research on Cancer

LD50: Lethal Dose 50%

NA: Denotes no information found or available

NTP: National Toxicology Program

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit

TLV: Threshold Limit Value

VOC: Volatile Organic Compounds

Revision Date: April 10, 2015

Replaces: This is the first issue.

Changes made: Not applicable

**Prepared By:** EnviroNet LLC.

The information and recommendations presented in this SDS are based on sources believed to be accurate. Virbac AH, Inc. assumes no liability for the accuracy or completeness of this information. It is the user's responsibility to determine the suitability of the material for their particular purposes. In particular, 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 ensure that any use or disposal of the material is in accordance with applicable Federal, State, and local laws and regulations.