



**SAFETY DATA SHEET**  
**SENTINEL® SPECTRUM®**  
**(milbemycin oxime/lufenuron/praziquantel)**

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**1. IDENTIFICATION**

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<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>	Federal law restricts this drug to use by or on the order of a licensed veterinarian.
<b>Company Identification</b>	Virbac AH, Inc. P.O. Box 162059 Fort Worth, Texas 76161 (800) 338-3659
<b>Customer Information Number</b>	
<b>Emergency Telephone Number</b>	
<b>CHEMTREC Number</b>	(800) 424-9300
<b>Other Emergency Number:</b>	Poison Control Center: 1-800-222-1222 (human) HOT LINE NUMBER: 1-800-345-4735 (human and pet)
<b>Issue Date</b>	April 27, 2017
<b>Supersedes Date</b>	April 10, 2015

*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)*

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**2. HAZARD IDENTIFICATION**

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**Hazard Classification**

Acute Hazards to the Aquatic Environment - Category 1 (OSHA non-mandatory)  
Chronic Hazards to the Aquatic Environment - Category 1 (OSHA non-mandatory)

**Label Elements**

Hazard Symbols



Signal Word: Warning

**Hazard Statements**

Very toxic to aquatic life.  
Very toxic to aquatic life with long lasting effects.

**Precautionary Statements**

**Prevention**

Avoid release to the environment.

**Response**

Collect spillage.

**Storage**

None



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**2. HAZARD IDENTIFICATION**

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**Disposal**

Dispose of contents/container in accordance with local regulation.

**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%

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Synonyms:**

This product is a mixture.

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

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

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**4. FIRST - AID MEASURES**

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**Description of necessary first-aid measures**

**Eyes**

Not an expected route of entry. If chew 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.



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**5. FIRE - FIGHTING MEASURES**

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**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.

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**6. ACCIDENTAL RELEASE MEASURES**

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**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.

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**7. HANDLING AND STORAGE**

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**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.

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**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.



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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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**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.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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**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

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**10. STABILITY AND REACTIVITY**

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**Reactivity**

Data is not available.

**Chemical Stability**

Stable under normal conditions.

**Possibility of hazardous reactions**

Hazardous polymerization will not occur.



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**10. STABILITY AND REACTIVITY**

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**Conditions to Avoid**

Heat - high temperatures

**Incompatible Materials**

None known.

**Hazardous Decomposition Products**

None known.

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**11. TOXICOLOGICAL INFORMATION**

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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.



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**11. TOXICOLOGICAL INFORMATION**

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**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.

**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.

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**12. ECOLOGICAL INFORMATION**

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**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

Aquatic Chronic - Category 1, Very toxic to aquatic life with long lasting effects.

Milbemycin Oxime

LC50 (Common carp) 0.059 mg/l 48hr

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

Aquatic Chronic - Category 1, Very toxic to aquatic life with long lasting effects.

**Mobility in soil**

No relevant studies identified.

**Persistence/Degradability**

Lufenuron: Not readily biodegradable.

**Bioaccumulative Potential**

No relevant studies identified.

**Other adverse effects**

No relevant studies identified.

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**13. DISPOSAL CONSIDERATIONS**

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



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**14. TRANSPORT INFORMATION**

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Contact supplier for transport information.

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**15. REGULATORY INFORMATION**

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**United States TSCA Inventory**

This product is excluded from the US EPA Toxic Substance Control Act and is regulated under the Food, Drug and Cosmetic Act.

**California Proposition 65**

This product does not contain any Proposition 65 chemicals at levels which would require warning labels as known to the State of California to cause cancer, birth defects or other reproductive harm.

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

None

**SARA Title III Sect. 313**

The following chemicals are listed in Section 313 at or above de minimis concentrations: None.

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**16. OTHER INFORMATION**

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**Legend**

ACGIH: American Conference of Governmental Industrial Hygienists

BOD: Biological Oxygen Demand

CAS#: Chemical Abstracts Service Number

FIFRA: Federal Insecticide, Fungicide and Rodenticide Act

IARC: International Agency for Research on Cancer

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

N/A: Denotes no applicable 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

TSCA: Toxic Substance Control Act

Revision Date: April 27, 2017

Replaces: April 10, 2015

Changes made: Changes to sections 2 and 15.

**Information Source and References**

This SDS is prepared by Hazard Communication Specialists based on information provided by internal company references.

**Prepared By:** EnviroNet LLC.

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**16. OTHER INFORMATION**

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