

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Milbemycin Oxime / Lufenuron / Praziquantel Formulation

**Manufacturer or supplier's details**

Company name of supplier : MSD  
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@msd.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**

Skin sensitization : Category 1  
Reproductive toxicity : Category 1B  
Specific target organ toxicity : Category 1 (Central nervous system, Lungs, Liver, Stomach)  
- repeated exposure (Oral)

**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.  
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.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves/ protective clothing/ eye protection/

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version 4.1	Revision Date: 09.05.2025	SDS Number: 7567913-00012	Date of last issue: 14.04.2025 Date of first issue: 20.11.2020
----------------	------------------------------	------------------------------	---

face protection.

**Response:**

P302 + P352 IF ON SKIN: Wash with plenty of water.

P308 + P313 IF exposed or concerned: Get medical advice/attention.

P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.

P362 + P364 Take off contaminated clothing and wash it before reuse.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ 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**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Concentration (% w/w)
Starch	9005-25-8	>= 30 -< 50
Glycerine	56-81-5	>= 10 -< 20
Lufenuron (ISO)	103055-07-8	>= 5 -< 10
Sucrose	57-50-1	>= 5 -< 10
Praziquantel	55268-74-1	>= 1 -< 5
Sodium chloride	7647-14-5	>= 1 -< 5
Milbemycin Oxime	129496-10-2	>= 0.1 -< 1

**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.

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

If swallowed	: Get medical attention if irritation develops and persists. 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 (CO <sub>2</sub> ) Dry chemical
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 (NO <sub>x</sub> ) 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. 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.

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version 4.1	Revision Date: 09.05.2025	SDS Number: 7567913-00012	Date of last issue: 14.04.2025 Date of first issue: 20.11.2020
----------------	------------------------------	------------------------------	---

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.  
Avoid breathing 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.  
Take care to prevent spills, waste and minimize release to the environment.

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

# Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version 4.1      Revision Date: 09.05.2025      SDS Number: 7567913-00012      Date of last issue: 14.04.2025  
Date of first issue: 20.11.2020

- Conditions for safe storage : use of administrative controls.  
Keep in properly labeled containers.  
Store locked up.  
Keep tightly closed.
- Materials to avoid : Store in accordance with the particular national regulations.  
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

### Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Starch	9005-25-8	VLE-PPT	10 mg/m <sup>3</sup>	NOM-010-STPS-2014
		TWA	10 mg/m <sup>3</sup>	ACGIH
Glycerine	56-81-5	VLE-PPT (Mist)	10 mg/m <sup>3</sup>	NOM-010-STPS-2014
Lufenuron (ISO)	103055-07-8	TWA	200 µg/m <sup>3</sup> (OEB 2)	Internal
Further information: DSEN				
		Wipe limit	100 µg/100 cm <sup>2</sup>	Internal
Sucrose	57-50-1	VLE-PPT	10 mg/m <sup>3</sup>	NOM-010-STPS-2014
		TWA	10 mg/m <sup>3</sup>	ACGIH
Praziquantel	55268-74-1	TWA	0.5 mg/m <sup>3</sup> (OEB 2)	Internal
Milbemycin Oxime	129496-10-2	TWA	0.1 mg/m <sup>3</sup> (OEB2)	Internal

- Engineering measures** : Use feasible engineering controls to minimize exposure to compound.  
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

### 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 : Combined particulates and organic vapor type
- Hand protection : Chemical-resistant gloves
- Material
- Eye protection : Wear safety glasses with side shields or goggles.  
If the work environment or activity involves dusty conditions,

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

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.

**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

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

---

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 characteristics		
Particle size	:	No data available

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	May form explosive dust-air mixture during processing, handling or other means. Can react with strong oxidizing agents.
Conditions to avoid	:	Heat, flames and sparks. Avoid dust formation.
Incompatible materials	:	Oxidizing agents
Hazardous decomposition products	:	No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation  
Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method

**Components:****Starch:**

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg
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**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version 4.1	Revision Date: 09.05.2025	SDS Number: 7567913-00012	Date of last issue: 14.04.2025 Date of first issue: 20.11.2020
----------------	------------------------------	------------------------------	---

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/m<sup>3</sup>  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

**Sucrose:**

Acute oral toxicity : LD50 (Rat): 29,700 mg/kg

**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

**Sodium chloride:**

Acute oral toxicity : LD50 (Rat): 3,550 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 42 mg/l  
Exposure time: 1 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 5,000 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/m<sup>3</sup>  
Exposure time: 4 h  
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg



**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

---

**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

**Praziquantel:**

Species	:	Rabbit
Method	:	Draize Test
Remarks	:	slight irritation

**Sodium chloride:**

Species	:	Rabbit
Result	:	No skin 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

**Praziquantel:**

Species	:	Rabbit
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**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

Result : Mild eye irritation  
Method : Draize Test

**Sodium chloride:**

Species : Rabbit  
Result : No eye irritation

**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

**Praziquantel:**

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

**Sodium chloride:**

Test Type : Local lymph node assay (LLNA)  
Routes of exposure : Skin contact  
Species : Mouse  
Result : negative

**Milbemycin Oxime:**

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

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version 4.1	Revision Date: 09.05.2025	SDS Number: 7567913-00012	Date of last issue: 14.04.2025 Date of first issue: 20.11.2020
----------------	------------------------------	------------------------------	---

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**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

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
Result: negative

**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

# Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

	Result: negative
Germ cell mutagenicity - Assessment	: Weight of evidence does not support classification as a germ cell mutagen.
<b>Sucrose:</b>	
Genotoxicity in vitro	: Test Type: In vitro mammalian cell gene mutation test Result: negative
<b>Praziquantel:</b>	
Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Result: negative
	Test Type: Chromosomal aberration Test system: Chinese hamster cells Result: negative
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Rat Result: negative
<b>Sodium chloride:</b>	
Genotoxicity in vitro	: Test Type: In vitro mammalian cell gene mutation test Result: positive
	Test Type: Bacterial reverse mutation assay (AMES) Result: negative
	Test Type: Saccharomyces cerevisiae, gene mutation assay (in vitro) Result: positive
	Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro) Result: positive
	Test Type: Chromosome aberration test in vitro Result: positive
	Test Type: Chromosome aberration test in vitro Result: negative
Genotoxicity in vivo	: Test Type: In vivo micronucleus test Species: Mouse Application Route: Intraperitoneal injection Result: negative
	Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) Species: Rat Application Route: Intraperitoneal injection

# Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version 4.1	Revision Date: 09.05.2025	SDS Number: 7567913-00012	Date of last issue: 14.04.2025 Date of first issue: 20.11.2020
----------------	------------------------------	------------------------------	---

Result: positive

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

## Milbemycin Oxime:

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  
Result : negative  
Remarks : No significant adverse effects were reported

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

---

**Sodium chloride:**

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

**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
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Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Ingestion Result: negative
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**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.
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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
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	:	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.
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Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on development, based on animal experiments.
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**Praziquantel:**

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

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.

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

**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	: $\geq 2,000$ 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

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

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

Species : Mouse  
 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  
 NOAEL : 7.02 mg/kg  
 Application Route : oral (feed)  
 Exposure time : 1 y  
 Target Organs : Central nervous system, Liver, Lungs  
 Symptoms : Convulsions, Fatality, Irregularities

## 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

## Sodium chloride:

Species : Rat  
 LOAEL : 2,533 mg/kg  
 Application Route : Ingestion  
 Exposure time : 2 y

## 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

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version 4.1	Revision Date: 09.05.2025	SDS Number: 7567913-00012	Date of last issue: 14.04.2025 Date of first issue: 20.11.2020
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**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.

**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

**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 : EC50 (Daphnia magna (Water flea)): 1,955 mg/l  
aquatic invertebrates 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 daphnia and other : EC50 (Americamysis): 0.042 µg/l  
aquatic invertebrates Exposure time: 96 h

# Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

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- Method: US-EPA OPPTS 850.1035
- EC50 (*Daphnia magna* (Water flea)): 0.41 µg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- 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 / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

**Sodium chloride:**

- |  |   |  |
|--|---|--|
| Toxicity to fish   | : | LC50 (Lepomis macrochirus (Bluegill sunfish)): 5,840 mg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Daphnia magna (Water flea)): 4,136 mg/l<br>Exposure time: 48 h             |
| Toxicity to algae/aquatic plants                                       | : | EC50: > 2,000 mg/l<br>Exposure time: 96 h  |
| Toxicity to fish (Chronic toxicity)                                    | : | NOEC (Pimephales promelas (fathead minnow)): 252 mg/l<br>Exposure time: 33 d     |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia pulex (Water flea)): 314 mg/l<br>Exposure time: 21 d               |
| Toxicity to microorganisms   | : | EC10: > 1,000 mg/l   |

**Milbemycin Oxime:**

- |  |   |  |
|--|---|--|
| Toxicity to fish   | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.16 µg/l<br>Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Daphnia magna (Water flea)): 0.03 µg/l<br>Exposure time: 48 h          |
| Toxicity to algae/aquatic plants                                       | : | EC50: > 87 µg/l<br>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.<br>Biodegradation: 92 %<br>Exposure time: 30 d<br>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)<br>Bioconcentration factor (BCF): 28 |
|-----------------|---|--|

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

Method: OECD Test Guideline 305

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

**Sucrose:**

Partition coefficient: n-octanol/water : Pow: &lt; 1

**Praziquantel:**Partition coefficient: n-octanol/water : log Pow: 2.012  
pH: 7**Milbemycin Oxime:**

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	: Do not dispose of waste into sewer. Dispose of in accordance with local regulations.
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
Environmentally hazardous	: yes

**Milbemycin Oxime / Lufenuron / Praziquantel  
Formulation**

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

**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, 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****NOM-002-SCT**

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

**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****Safety, health and environmental regulations/legislation specific for the substance or mixture**

Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills.	: Not applicable
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**The ingredients of this product are reported in the following inventories:**

## Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

### SECTION 16. OTHER INFORMATION

Revision Date	:	09.05.2025
Date format	:	dd.mm.yyyy

#### Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NOM-010-STPS-2014	:	Mexico. Norm NOM-010-STPS-2014 on Chemicals Polluting the Work Environment - Identification, Assessment and Control - Appendix 1 Occupational Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
NOM-010-STPS-2014 / VLE-	:	Time weighted average limit value
PPT	:	

AIIIC - 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; NZIoC - 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; PICCS - 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; TECl - 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

# SAFETY DATA SHEET



## Milbemycin Oxime / Lufenuron / Praziquantel Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 14.04.2025
4.1	09.05.2025	7567913-00012	Date of first issue: 20.11.2020

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Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

The information is considered as correct, but not exhaustive, and will be used only as a guide, which is based in the current knowledge of the substance or mixture, and is applicable to proper safety precautions for the product.

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