

# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Milbemycin Oxime / Lufenuron Formulation

Manufacturer or supplier's details

Company : MSD

Address : 126 E. Lincoln Avenue

Rahway, New Jersey U.S.A. 07065

Telephone : 908-740-4000

Emergency telephone number : 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

#### 2. HAZARDS IDENTIFICATION

**GHS Classification** 

Skin sensitisation : Category 1

Reproductive toxicity : Category 1B

Specific target organ toxicity - :

repeated exposure (Oral)

Category 1 (Central nervous system, Lungs, Liver, Stomach)

Specific target organ toxicity - :

repeated exposure

Category 2 (Central nervous system)

Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

hazard

Category 1

**GHS** label elements

Hazard pictograms



Signal word : Danger



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

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 expo-

sure if swallowed.

H373 May cause damage to organs (Central nervous system)

through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

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/ vapours/ 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.

nie workplace.

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protec-

tion/ 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 ad-

vice/ attention.

P362 + P364 Take off contaminated clothing and wash it before

reuse.

P391 Collect spillage.

### Storage:

P405 Store locked up.

### Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

#### Other hazards which do not result in classification

None known.

#### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

### Components

Chemical name	CAS-No.	Concentration (% w/w)
Lufenuron (ISO)	103055-07-8	>= 30 -< 60
Cellulose	9004-34-6	>= 10 -< 30
Starch	9005-25-8	< 10



# Milbemycin Oxime / Lufenuron Formulation

SDS Number: Date of last issue: 2023/09/30 Version Revision Date: 6365219-00009 3.2 2024/09/28 Date of first issue: 2020/09/21

Milbemycin Oxime 129496-10-2 >= 1 - < 2.5

4. FIRST AID MEASURES

General advice In the case of accident or if you feel unwell, seek medical ad-

vice 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. Flush eyes with water as a precaution. In case of eye contact

Get medical attention if irritation develops and persists.

If swallowed If swallowed, DO NOT induce vomiting.

Get medical attention.

Rinse mouth thoroughly with water. May cause an allergic skin reaction. Most important symptoms May damage the unborn child.

and effects, both acute and

delayed

Causes damage to organs through prolonged or repeated

exposure if swallowed.

May cause damage to organs through prolonged or repeated

exposure.

First Aid responders should pay attention to self-protection, Protection of first-aiders

> and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Treat symptomatically and supportively. Notes to physician

5. FIREFIGHTING MEASURES

Suitable extinguishing media Water spray

> Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire-

fighting

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod: :

ucts

Carbon oxides

Nitrogen oxides (NOx)

Metal oxides

Specific extinguishing meth-

ods

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment. Use water spray to cool unopened containers.



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Remove undamaged containers from fire area if it is safe to do

SO.

Evacuate area.

Special protective equipment :

for firefighters

In the event of fire, wear self-contained breathing apparatus.

Use personal protective equipment.

#### **6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment.

Follow safe handling advice (see section 7) and personal pro-

tective 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 con-

tainer for disposal.

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 deter-

mine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.

#### 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE

CONTROLS/PERSONAL PROTECTION section.

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, vapours 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 as-

sessment

Keep container tightly closed.

Do not eat, drink or smoke when using this product.

Take care to prevent spills, waste and minimize release to the

environment.

Conditions for safe storage : Keep in properly labelled containers.

Store locked up. Keep tightly closed.

Store in accordance with the particular national regulations.



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Materials to avoid : Do not store with the following product types:

Strong oxidizing agents

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis	
Lufenuron (ISO)	103055-07-8	TWA	60 μg/m3 (OEB 3)	Internal	
	Further information: DSEN				
		Wipe limit	100 μg/100 cm2	Internal	
Cellulose	9004-34-6	NAB	10 mg/m3	ID OEL	
		TWA	10 mg/m3	ACGIH	
Starch	9005-25-8	NAB	10 mg/m3	ID OEL	
	Further information: Not classified as carcinogenic to humans. Not enough data to classify these materials as carcinogenic to humans or animals				
		TWA	10 mg/m3	ACGIH	
Milbemycin Oxime	129496-10-2	TWA	0.1 mg/m3 (OEB2)	Internal	

**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 con-

tainment devices). Minimize open handling.

Personal protective equipment

Respiratory protection : If adequate local exhaust ventilation is not available or expo-

sure assessment demonstrates exposures outside the rec-

ommended guidelines, use respiratory protection.

Filter type

Hand protection

Particulates 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, dis-



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

posable 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 work-

ing 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.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : solid

Colour : brown

Odour : odourless

Odour 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) : No data available

Flammability (liquids) : Not applicable

Upper explosion limit / Upper

flammability limit

No data available

Lower explosion limit / Lower

flammability limit

No data available

Vapour pressure : Not applicable

Relative vapour density : Not applicable

Relative density : No data available



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Density : No data available

Solubility(ies)

Water solubility : soluble

Partition coefficient: n-

octanol/water

: Not applicable

Auto-ignition 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 characteristics

Particle size : No data available

### 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard. Chemical stability : Stable under normal conditions.

Possibility of hazardous reac-

tions

dous reac- : Can react with strong oxidizing agents.

Conditions to avoid : None known. Incompatible materials : Oxidizing agents

Hazardous decomposition : Oxidizing age

products

: No hazardous decomposition products are known.

#### 11. TOXICOLOGICAL INFORMATION

Information on likely routes of : Skin contact exposure Ingestion

Eye contact

**Acute toxicity** 

Not classified based on available information.

**Product:** 

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg

Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: Calculation method



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

**Components:** 

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

Cellulose:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.8 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

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

Starch:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

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

Lufenuron (ISO):

Species : Rabbit
Method : Draize Test
Result : No skin irritation

Milbemycin Oxime:



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

### Serious eye damage/eye irritation

Not classified based on available information.

#### **Components:**

### Lufenuron (ISO):

Species : Rabbit

Result : No eye irritation Method : Draize Test

Starch:

Species : Rabbit

Result : No eye irritation

Milbemycin Oxime:

Species : Rabbit

Result : No eye irritation

### Respiratory or skin sensitisation

#### Skin sensitisation

May cause an allergic skin reaction.

### Respiratory sensitisation

Not classified based on available information.

## **Components:**

## Lufenuron (ISO):

Test Type : Maximisation Test

Species : Guinea pig

Assessment : May cause sensitisation by skin contact.

Result : Sensitiser

Starch:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

Milbemycin Oxime:

Exposure routes : Skin contact
Species : Guinea pig
Result : negative



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

### Germ cell mutagenicity

Not classified based on available information.

### **Components:**

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 syn-

thesis 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 testicu-

lar cells Species: Rat Result: negative

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

Cellulose:

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

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo

cytogenetic assay) Species: Mouse

Application Route: Ingestion

Result: negative



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Starch:

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

Result: negative

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:** 

Lufenuron (ISO):

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

Carcinogenicity - Assess-

ment

Weight of evidence does not support classification as a car-

cinogen

Cellulose:

Species : Rat
Application Route : Ingestion
Exposure time : 72 weeks
Result : negative

Reproductive toxicity

May damage the unborn child.

**Components:** 

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.



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Effects on foetal develop-

ment

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-foetal toxicity: 8.3 mg/kg body weight

Result: foetal abnormalities

Reproductive toxicity - As-

sessment

Clear evidence of adverse effects on development, based on

animal experiments.

Cellulose:

Effects on fertility : Test Type: One-generation reproduction toxicity study

Species: Rat

Application Route: Ingestion

Result: negative

Effects on foetal develop-

ment

Test Type: Fertility/early embryonic development

Species: Rat

Application Route: Ingestion

Result: negative

Milbemycin Oxime:

Effects on fertility : Test Type: One-generation reproduction toxicity study

Species: Dog

Application Route: Ingestion

Result: negative

Effects on foetal develop-

ment

Test Type: Embryo-foetal development

Species: Rat

Application Route: Ingestion

Result: negative

Test Type: Embryo-foetal development

Species: Rabbit

Application Route: Ingestion

Result: negative

Test Type: Embryo-foetal development

Species: Dog

Application Route: Ingestion

Result: negative



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

### 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.

May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

### **Components:**

### Lufenuron (ISO):

Exposure routes : Ora

Target Organs : Central nervous system, Lungs, Liver, Stomach

Assessment : Shown to produce significant health effects in animals at con-

centrations of 10 mg/kg bw or less.

### Milbemycin Oxime:

Exposure routes : Ingestion

Target Organs : Central nervous system

Assessment : Shown to produce significant health effects in animals at con-

centrations of 10 mg/kg bw or less.

## Repeated dose toxicity

### **Components:**

# 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

NOAEL : 1.93 mg/kg Application Route : oral (feed) Exposure time : 2 yr

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



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Symptoms : central nervous system effects, Convulsions

Species : Dog

NOAEL : 7.02 mg/kg
Application Route : oral (feed)
Exposure time : 1 yr

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

Cellulose:

Species : Rat

NOAEL : >= 9,000 mg/kg

Application Route : Ingestion Exposure time : 90 Days

Starch:

Species : Rat

NOAEL : >= 2,000 mg/kg
Application Route : Skin contact
Exposure time : 28 Days

Method : OECD Test Guideline 410

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.

Milbemycin Oxime:

Ingestion : Symptoms: Salivation, Convulsions, Diarrhoea, Weakness,

Vomiting, Tremors, Coma



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Remarks: Based on Animal Evidence

#### 12. ECOLOGICAL INFORMATION

**Ecotoxicity** 

**Components:** 

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 :

aquatic invertebrates

EC50 (Americamysis): 0.042 µg/l

Exposure time: 96 h

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

M-Factor (Acute aquatic tox- :

icity)

10,000

Toxicity to fish (Chronic tox-

icity)

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 (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 8.38 μg/l

Exposure time: 21 d

Method: OECD Test Guideline 211



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

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

10

Method: OECD Test Guideline 211

M-Factor (Chronic aquatic

toxicity)

city)

Cellulose:

Toxicity to fish : LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l

Exposure time: 48 h

Remarks: Based on data from similar materials

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

M-Factor (Acute aquatic tox- :

icity)

10,000

10,000

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

M-Factor (Chronic aquatic

toxicity)

NOEC (Daphnia magna (Water flea)): 0.01 µg/l

Persistence and degradability

**Components:** 

Cellulose:

Biodegradability : Result: Readily biodegradable.

**Bioaccumulative potential** 

**Components:** 

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



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

Milbemycin Oxime:

Bioaccumulation : Bioconcentration factor (BCF): 440

Partition coefficient: n-

octanol/water

log Pow: 7

Mobility in soil

**Components:** 

Lufenuron (ISO):

Distribution among environ-

mental compartments

: log Koc: 5.38

Method: OECD Test Guideline 106

Other adverse effects

No data available

### 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 han-

dling site for recycling or disposal.

If not otherwise specified: Dispose of as unused product.

#### 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

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)

Packing instruction (passen-

956

956

ger aircraft)

Environmentally hazardous : yes



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

**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,

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.

## 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.

### 15. REGULATORY INFORMATION

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

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

# Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances Hazardous to Health

Hazardous substances that must be registered : Not applicable

# Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances

Hazardous substances approved for use : Not applicable

Prohibited substances : Not applicable

Restricted substances : Not applicable

# Regulation of the Ministry of Trade No. 7 of 2022 on Distribution and Control of Hazardous Materials

Type of hazardous materials subject to distribution and : Not applicable

control, Annex I

Type of hazardous materials subject to distribution and : Not applicable

control, Annex II

The components of this product are reported in the following inventories:



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

AICS : not determined

DSL : not determined

IECSC : not determined

#### **16. OTHER INFORMATION**

Revision Date : 2024/09/28

**Further information** 

Sources of key data used to compile the Safety Data

compile the Safety Data
Sheet

Sheet cy, http://echa.europa.eu/

Date format : yyyy/mm/dd

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ID OEL : Indonesia. Occupational Exposure Limits

ACGIH / TWA : 8-hour, time-weighted average ID OEL / NAB : Long term exposure limit

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; 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; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recom-

Internal technical data, data from raw material SDSs, OECD

eChem Portal search results and European Chemicals Agen-



# Milbemycin Oxime / Lufenuron Formulation

Version Revision Date: SDS Number: Date of last issue: 2023/09/30 3.2 2024/09/28 6365219-00009 Date of first issue: 2020/09/21

mendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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.

ID / EN