

# **Emamectin Formulation**

Version Revision Date: SDS Number: Date of last issue: 05.10.2023 6.0 28.09.2024 24908-00027 Date of first issue: 23.10.2014

### **SECTION 1. IDENTIFICATION**

Product identifier : Emamectin Formulation

Manufacturer or supplier's details

Company : MSD

Address : Rua Coronel Bento Soares, 530

Cruzeiro - Sao Paulo - Brazil CEP 12730-340

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 in accordance with ABNT NBR 14725 Standard

Short-term (acute) aquatic : Category 1

hazard

Long-term (chronic) aquatic

Hazard pictograms

hazard

Category 1

GHS label elements in accordance with ABNT NBR 14725 Standard

... .

Signal Word : Warning

Hazard Statements : H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements : Prevention:

P273 Avoid release to the environment.

Response:

P391 Collect spillage.



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

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.	Classification	Concentration (% w/w)
Starch	9005-25-8		>= 30 -< 50
Emamectin	137512-74-4	Acute Tox. (Oral), 3 Acute Tox. (Inhalation), 3 Acute Tox. (Dermal), 5 Eye Dam., 1 STOT SE, (Oral)(Peripheral nervous system, Central nervous system), 1 STOT RE, (Peripheral nervous system, Central nervous system), 1 Aquatic Acute, 1 Aquatic Chronic, 1	>= 0,1 -< 0,25

### **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 if symptoms occur.

Wash with water and soap. In case of skin contact

Get medical attention if symptoms occur.

In case of eye contact If in eyes, rinse well with water.

Get medical attention if irritation develops and persists.

If swallowed If swallowed, DO NOT induce vomiting.

Get medical attention if symptoms occur. 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.

Protection of first-aiders No special precautions are necessary for first aid responders.

Treat symptomatically and supportively. Notes to physician

### **SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media : Water spray



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Alcohol-resistant foam Carbon dioxide (CO2)

Dry chemical

Unsuitable extinguishing

media

None known.

Specific hazards during fire

fighting

Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a

potential dust explosion hazard.

Exposure to combustion products may be a hazard to health.

Hazardous combustion prod-

ucts

Carbon 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.

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

SO.

Evacuate area.

Special protective equipment

for fire-fighters

Wear self-contained breathing apparatus for firefighting if

necessary.

Use personal protective equipment.

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

Personal precautions, protective equipment and emer-

gency procedures

Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.

Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water.

Local authorities should be advised if significant spillages

cannot be contained.

Methods and materials for containment and cleaning up

Sweep up or vacuum up spillage and collect in suitable

container for disposal.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces

with compressed air).

Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items

employed in the cleanup of releases. You will need to

determine which regulations are applicable.

Sections 13 and 15 of this SDS provide information regarding

certain local or national requirements.



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#### **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 : Use only with adequate ventilation.

Advice on safe handling : Do not breathe dust.

Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure

assessment

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.

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. 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.

Conditions for safe storage : Keep in properly labeled containers.

Store in accordance with the particular national regulations.

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

Strong oxidizing agents

## **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	TWA	10 mg/m <sup>3</sup>	ACGIH	
Emamectin	137512-74-4	TWA	15 μg/m3 (OEB 3)	Internal	
	Further information: Skin				
		Wipe limit	150 µg/100 cm2	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

containment devices).

Minimize open handling.

### Personal protective equipment



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If adequate local exhaust ventilation is not available or Respiratory protection

exposure assessment demonstrates exposures outside the

recommended 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.

Work uniform or laboratory coat. Skin and body protection

> Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets,

disposable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially

contaminated clothing.

### **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical state powder

Color white

Odor No data available

Odor Threshold No data available

No data available pΗ

No data available Melting point/freezing point

Initial boiling point and boiling

range

No data available

Flash point No data available

**Evaporation rate** No data available

May form explosive dust-air mixture during processing, Flammability (solid, gas)

handling or other means.

Flammability (liquids) No data available

Upper explosion limit / Upper

flammability limit

No data available

Lower explosion limit / Lower

flammability limit

No data available

Vapor pressure No data available



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Relative vapor density : No data available

Relative density : No data available

Solubility(ies)

Water solubility : soluble

Partition coefficient: n-

octanol/water

No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic : No data available

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

### **SECTION 10. STABILITY AND REACTIVITY**

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

Possibility of hazardous reac-

tions

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.

Oxidizing agents

Incompatible materials

Hazardous decomposition

products

No hazardous decomposition products are known.

## **SECTION 11. TOXICOLOGICAL INFORMATION**

Information on likely routes of : In

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



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Acute inhalation toxicity : Acute toxicity estimate: > 10 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist Method: Calculation method

**Components:** 

Starch:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

**Emamectin:** 

Acute oral toxicity : LD50 (Rat): 76 - 78 mg/kg

Symptoms: Irritability, Salivation, Lachrymation, Tremors

LD50 (Mouse): 22 - 31 mg/kg

Symptoms: Tremors

TDLo (Rat): 0,5 - 25 mg/kg

Target Organs: Central nervous system, Peripheral nervous

system

Acute inhalation toxicity : LC50 (Rat, male and female): > 0,663 - 1,049 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg

LD0 (Rabbit): 500 - 1.000 mg/kg

Target Organs: Peripheral nervous system, Central nervous

system

Symptoms: Tremors, Dilatation of the pupil

Skin corrosion/irritation

Not classified based on available information.

Components:

Emamectin:

Species : Rabbit

Result : Mild skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

**Components:** 

Starch:

Species : Rabbit

Result : No eye irritation



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**Emamectin:** 

Species : Rabbit

Result : Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

**Components:** 

Starch:

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

**Emamectin:** 

Test Type : Local lymph node assay (LLNA)

Routes of exposure : Skin contact Species : Mouse

Assessment : Does not cause skin sensitization.

Result : negative

Germ cell mutagenicity

Not classified based on available information.

Components:

Starch:

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

Result: negative

**Emamectin:** 

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

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Result: negative

Test Type: Chromosomal aberration
Test system: Chinese hamster ovary cells

Result: negative

Test Type: Alkaline elution assay Test system: rat hepatocytes

Result: negative

Genotoxicity in vivo : Test Type: in vivo assay



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Species: Mouse Cell type: Bone marrow Result: negative

## Carcinogenicity

Not classified based on available information.

## Components:

#### **Emamectin:**

Species : Mouse
Application Route : Oral
Exposure time : 79 weeks

Dose : 0.5 - 7.5 mg/kg body weight

Result : negative

Species : Rat
Application Route : Oral
Exposure time : 105 weeks

Dose : 0.25 - 2.5 mg/kg body weight

Result : negative

### Reproductive toxicity

Not classified based on available information.

## Components:

## **Emamectin:**

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

Species: Rat, male and female Application Route: oral (feed)

General Toxicity Parent: NOAEL: 0,6 mg/kg body weight

Fertility: NOAEL Parent: 0,6 mg/kg body weight

Early Embryonic Development: LOAEL F1: 0,6 mg/kg body

weight

Symptoms: Effect on reproduction capacity., Effects on fertili-

ty., Effects on F1 offspring.

Result: positive

Effects on fetal development : Test Type: Development

Species: Rabbit Application Route: Oral

Duration of Single Treatment: 12 d

General Toxicity Maternal: NOAEL: 3 mg/kg body weight Developmental Toxicity: NOAEL F1: 6 mg/kg body weight Result: No teratogenic effects., Embryotoxic effects and adverse effects on the offspring were detected only at high ma-

ternally toxic doses

Test Type: Development

Species: Rat

Application Route: Oral

Duration of Single Treatment: 13 d

Developmental Toxicity: NOAEL F1: 4 mg/kg body weight



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> Result: No teratogenic effects., Embryotoxic effects and adverse effects on the offspring were detected only at high ma-

ternally toxic doses

### STOT-single exposure

Not classified based on available information.

### **Components:**

#### **Emamectin:**

Routes of exposure Target Organs : Ingestion, Skin contact

: Peripheral nervous system, Central nervous system

Assessment : Causes damage to organs.

# STOT-repeated exposure

Not classified based on available information.

### **Components:**

### **Emamectin:**

: Peripheral nervous system, Central nervous system Target Organs Assessment : Causes damage to organs through prolonged or repeated

exposure.

### Repeated dose toxicity

### **Components:**

### Starch:

Species

NOAEL >= 2.000 mg/kgApplication Route : Skin contact Exposure time : 28 Days

Method : OECD Test Guideline 410

## **Emamectin:**

Species Rat

NOAEL : 0,25 mg/kg LOAEL : 1 mg/kg Application Route : Oral Exposure time : 105 Weeks

: Central nervous system Target Organs

: Mouse Species NOAEL 2,5 mg/kg LOAEL : 12,5 mg/kg Application Route Oral Exposure time 79 Weeks

Target Organs Peripheral nervous system

Symptoms Tremors, Fatality

Species Dog

NOAEL 0,25 mg/kg



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LOAEL : 0,5 mg/kg
Application Route : Oral
Exposure time : 53 Weeks

Target Organs : Peripheral nervous system, Central nervous system

Symptoms : Tremors, Dilatation of the pupil

**Aspiration toxicity** 

Not classified based on available information.

**Experience with human exposure** 

**Components:** 

**Emamectin:** 

ngestion

Eye contact : Symptoms: Severe irritation

Remarks: Based on Animal Evidence
Target Organs: Gastro-intestinal system

Symptoms: Nausea, Vomiting, Abdominal pain, confusion

**SECTION 12. ECOLOGICAL INFORMATION** 

**Ecotoxicity** 

Components:

**Emamectin:** 

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,174 mg/l

Exposure time: 96 h

LC50 (Cyprinodon variegatus (sheepshead minnow)): 1,34

mg/l

Exposure time: 96 h

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0,18 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0,00099 mg/l

Exposure time: 48 h

EC50 (Americamysis): 0,000043 mg/l

Exposure time: 48 h

M-Factor (Acute aquatic tox- :

city)

10.000

M-Factor (Chronic aquatic

10.000

toxicity)

Persistence and degradability

No data available

Bioaccumulative potential

**Components:** 

**Emamectin:** 

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)



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Bioconcentration factor (BCF): 80

Partition coefficient: n-

octanol/water

log Pow: 5

Mobility in soil

No data available

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 3077 UN** number

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

N.O.S.

(Emamectin)

Class 9 Ш Packing group Labels 9 Environmentally hazardous yes

**IATA-DGR** 

**UN 3077** UN/ID No.

Environmentally hazardous substance, solid, n.o.s. Proper shipping name

(Emamectin)

9 Class Packing group Ш

Miscellaneous Labels

Packing instruction (cargo

aircraft)

956

Packing instruction (passen-

956

ger aircraft)

Environmentally hazardous yes

**IMDG-Code** 

**UN** number UN 3077

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, Proper shipping name

N.O.S.

(Emamectin)

Class 9 Packing group Ш Labels 9 F-A, S-F EmS Code



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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** 

**ANTT** 

UN number : UN 3077

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,

N.O.S.

(Emamectin)

Class : 9
Packing group : III
Labels : 9
Hazard Identification Number : 90

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

National List of Carcinogenic Agents for Humans - : Not applicable

(LINACH)

Brazil. List of chemicals controlled by the Federal : Not applicable

Police

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

AICS : not determined

DSL : not determined

IECSC : not determined

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

Revision Date : 28.09.2024 Date format : dd.mm.yyyy

**Further information** 

Sources of key data used to compile the Material Safety

Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agen-

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

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.



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### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / TWA : 8-hour, time-weighted average

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 Recommendations 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.

BR / Z8