

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name : Deltamethrin (1.47%) Formulation

Product code : Butox pour-on aqueous

Other means of identification : Blaze (A008214)
COOPERS EASY-DOSE POUR-ON CATTLE LICE AND FLY
TREATMENT (54096)

Supplier's company name, address and phone number

Company name of supplier : MSD

Address : Kumagaya, Saitama Prefecture , Xicheng 810 MSD Co., Ltd.
Menuma factory

Telephone : 048-588-8411

E-mail address : EHSDATASTEWARD@msd.com

Emergency telephone number : +1-908-423-6000

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Restrictions on use : Not applicable

2. HAZARDS IDENTIFICATION**GHS classification of chemical product**

Skin sensitisation : Category 1

Carcinogenicity : Category 1B

Specific target organ toxicity - : Category 2 (Central nervous system, Immune system)
repeated exposure (Oral)

Specific target organ toxicity - : Category 2 (Central nervous system)
repeated exposure
(Inhalation)


Short-term (acute) aquatic : Category 1
hazard

Long-term (chronic) aquatic : Category 1
hazard

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H317 May cause an allergic skin reaction.
H350 May cause cancer.
H373 May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.
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 mist or vapours.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ 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.
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

Important symptoms and out- : Cutaneous sensations may occur, such as burning or stinging
lines of the emergency as- on the face and mucosae. However, these sensations cause no
sumed lesions and are of a transitory nature (max. 24 hours).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
Date of first issue: 2022/10/11

Substance / Mixture : Mixture

Components

| Chemical name | CAS-No. | Concentration (% w/w) | ENCS No. |
|--------------------------|------------|-----------------------|----------|
| deltamethrin (ISO) | 52918-63-5 | $\geq 1 - < 2.5$ | |
| Nonylphenol, ethoxylated | 9016-45-9 | $> 0 - < 10$ | 7-172 |
| Formaldehyde | 50-00-0 | 0.23 | 2-482 |
| Dipropylene glycol | 25265-71-8 | < 0.1 | 2-413 |
| Propylene glycol | 57-55-6 | < 0.1 | 2-234 |

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 : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.

If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention.
Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure if swallowed.
May cause damage to organs through prolonged or repeated exposure if inhaled.
This product contains a pyrethroid.
Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning.

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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

| | | |
|---|---|---|
| | | Carbon dioxide (CO ₂) 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 _x) Bromine 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 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 protective equipment recommendations (see section 8). |
| Environmental precautions | : | Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). 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 | : | Soak up with inert absorbent material. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. 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. |

7. HANDLING AND STORAGE

Handling

| | | |
|--------------------|---|---|
| Technical measures | : | See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section. |
|--------------------|---|---|

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

- 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 mist or vapours.
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.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.
- Avoidance of contact : Oxidizing agents
- 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 use of administrative controls.

Storage

- Conditions for safe storage : Keep in properly labelled containers.
Store locked up.
Keep tightly closed.
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents
- Packaging material : Unsuitable material: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold limit value and permissible exposure limits for each component in the work environment

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Reference concentration / Permissible concentration | Basis |
|---------------------------------|------------|----------------------------------|--|-------------|
| deltamethrin (ISO) | 52918-63-5 | TWA | 15 µg/m ³ (OEB 3) | Internal |
| Further information: DSEN, Skin | | | | |
| | | Wipe limit | 100 µg/100 cm ² | Internal |
| Formaldehyde | 50-00-0 | ACL | 0.1 ppm | JP OEL ISHL |
| | | OEL-M | 0.1 ppm | JP OEL |

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
 Date of first issue: 2022/10/11

| | | | | |
|--|--|-----------------------------------|------------------------|----------------|
| | | | 0.12 mg/m ³ | JSOH |
| | Further information: Airway sensitizing agent; Group 2 substances which probably induce allergic reactions in humans., Skin sensitizing agent; Group 1 substances which induce allergic reactions in humans, Group 2A: probably carcinogenic to humans | | | |
| | OEL-C | 0.2 ppm 0.24 mg/m ³ | | JP OEL JSOH |
| | Further information: Airway sensitizing agent; Group 2 substances which probably induce allergic reactions in humans., Skin sensitizing agent; Group 1 substances which induce allergic reactions in humans, Group 2A: probably carcinogenic to humans | | | |
| | TWA | 0.1 ppm | | ACGIH |
| | STEL | 0.3 ppm | | ACGIH |

Engineering measures : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).
 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

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 inorganic gas/vapour type

Hand protection

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, disposable suits) to avoid exposed skin surfaces.
 Use appropriate degowning techniques to remove potentially contaminated clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid, suspension

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

| | | |
|--|---|-------------------|
| Colour | : | white |
| Odour | : | No data available |
| Odour Threshold | : | No data available |
| Melting point/freezing point | : | No data available |
| Boiling point, initial boiling point and boiling range | : | No data available |
| Flammability (solid, gas) | : | Not applicable |
| Flammability (liquids) | : | No data available |
| Lower explosion limit and upper explosion limit / flammability limit | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Flash point | : | No data available |
| Decomposition temperature | : | No data available |
| pH | : | No data available |
| Evaporation rate | : | No data available |
| Auto-ignition temperature | : | No data available |
| Viscosity | : | No data available |
| Viscosity, kinematic | : | No data available |
| Solubility(ies) | : | No data available |
| Water solubility | : | No data available |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Vapour pressure | : | No data available |
| Density and / or relative density | : | No data available |
| Relative density | : | No data available |
| Density | : | No data available |
| Relative vapour density | : | No data available |
| Explosive properties | : | Not explosive |

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle characteristics
Particle size : Not applicable

10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Can react with strong oxidizing agents.

Conditions to avoid : None known.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

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: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:**deltamethrin (ISO):**

Acute oral toxicity : LD50 (Rat): 66.7 mg/kg
LD50 (Rat): 9 - 139 mg/kg
LD50 (Mouse): 19 - 34 mg/kg

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Acute inhalation toxicity : LC50 (Rat): 0.8 mg/l
Exposure time: 2 h
Test atmosphere: dust/mist

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

LD50 (Rat): > 800 mg/kg

Acute toxicity (other routes of administration) : LD50 (Rat): 2.5 mg/kg
Application Route: Intravenous

LD50 (Mouse): 10 mg/kg
Application Route: Intraperitoneal

Nonylphenol, ethoxylated:

Acute oral toxicity : LD50 (Rat): 500 - 2,000 mg/kg

Formaldehyde:

Acute oral toxicity : Acute toxicity estimate: 100 mg/kg
Method: Expert judgement

Acute inhalation toxicity : Acute toxicity estimate: 100 ppm
Exposure time: 4 h
Test atmosphere: gas
Method: Expert judgement

Acute dermal toxicity : LD50 (Rabbit): 270 mg/kg

Dipropylene glycol:

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

Acute inhalation toxicity : LC50 (Rat): > 2.34 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Propylene glycol:

Acute oral toxicity : LD50 (Rat): 22,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 44.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
Date of first issue: 2022/10/11

Skin corrosion/irritation

Not classified based on available information.

Components:**deltamethrin (ISO):**

Species : Rabbit
Result : No skin irritation

Nonylphenol, ethoxylated:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Formaldehyde:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Corrosive after 3 minutes to 1 hour of exposure

Dipropylene glycol:

Species : Rabbit
Result : No skin irritation

Propylene glycol:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Components:**deltamethrin (ISO):**

Species : Rabbit
Result : Moderate eye irritation

Nonylphenol, ethoxylated:

Species : Rabbit
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405

Formaldehyde:

Species : Rabbit
Result : Irreversible effects on the eye

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Dipropylene glycol:

| | | |
|---------|---|-------------------|
| Species | : | Rabbit |
| Result | : | No eye irritation |

Propylene glycol:

| | | |
|---------|---|-------------------------|
| Species | : | Rabbit |
| Result | : | No eye irritation |
| Method | : | OECD Test Guideline 405 |

Respiratory or skin sensitisation**Skin sensitisation**

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:**deltamethrin (ISO):**

| | | |
|-----------------|---|-------------------|
| Test Type | : | Maximisation Test |
| Exposure routes | : | Dermal |
| Species | : | Guinea pig |
| Result | : | negative |

| | | |
|-----------------|---|--|
| Test Type | : | Human repeat insult patch test (HRIPT) |
| Exposure routes | : | Dermal |
| Species | : | Humans |
| Result | : | positive |

Nonylphenol, ethoxylated:

| | | |
|-----------------|---|--------------------------------------|
| Test Type | : | Maximisation Test |
| Exposure routes | : | Skin contact |
| Species | : | Guinea pig |
| Result | : | negative |
| Remarks | : | Based on data from similar materials |

Formaldehyde:

| | | |
|-----------------|---|-------------------------------|
| Test Type | : | Local lymph node assay (LLNA) |
| Exposure routes | : | Skin contact |
| Species | : | Mouse |
| Method | : | OECD Test Guideline 429 |
| Result | : | positive |

| | | |
|------------|---|---|
| Assessment | : | Probability or evidence of high skin sensitisation rate in humans |
|------------|---|---|

Dipropylene glycol:

| | | |
|-----------|---|--------------|
| Test Type | : | Buehler Test |
|-----------|---|--------------|

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

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

Propylene glycol:

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

Germ cell mutagenicity

Not classified based on available information.

Components:

deltamethrin (ISO):

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

Test Type: DNA Repair
 Test system: Escherichia coli
 Result: negative

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

Test Type: In vitro mammalian cell gene mutation test
 Test system: Chinese hamster lung cells
 Concentration: LOAEL: 20 mg/kg
 Result: positive

Genotoxicity in vivo : Test Type: Micronucleus test
 Species: Mouse
 Application Route: Oral
 Result: negative

Test Type: dominant lethal test
 Species: Mouse
 Application Route: Oral
 Result: negative

Test Type: sister chromatid exchange assay
 Species: Mouse
 Cell type: Bone marrow
 Application Route: Oral
 Result: negative

Nonylphenol, ethoxylated:

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

Deltamethrin (1.47%) Formulation

| | | | |
|----------------|------------------------------|-------------------------------|---|
| Version 5.3 | Revision Date: 2023/12/05 | SDS Number: 10863810-00007 | Date of last issue: 2023/11/20 Date of first issue: 2022/10/11 |
|----------------|------------------------------|-------------------------------|---|

Remarks: Based on data from similar materials

Formaldehyde:

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

Test Type: Chromosome aberration test in vitro
Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Rat
Application Route: Inhalation
Result: positive

Germ cell mutagenicity - Assessment : Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

Dipropylene glycol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
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
Method: OECD Test Guideline 474
Result: negative

Propylene glycol:

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

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Carcinogenicity

May cause cancer.

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
Date of first issue: 2022/10/11

Components:**deltamethrin (ISO):**

Species : Mouse, male and female
Application Route : oral (feed)
Exposure time : 104 weeks
NOAEL : 8 mg/kg body weight
LOAEL : 4 mg/kg body weight
Result : positive
Target Organs : Lymph nodes

Species : Rat, male and female
Application Route : oral (feed)
Exposure time : 2 Years
Result : negative

Species : Dog, male and female
Application Route : oral (feed)
Exposure time : 2 Years
NOAEL : 1 mg/kg body weight
Result : negative

Formaldehyde:

Species : Rat
Application Route : inhalation (gas)
Exposure time : 28 Months
Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

Dipropylene glycol:

Species : Mouse
Application Route : Ingestion
Exposure time : 104 weeks
Result : negative

Propylene glycol:

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

Reproductive toxicity

Not classified based on available information.

Components:**deltamethrin (ISO):**

Effects on fertility : Test Type: Three-generation reproduction toxicity study
Species: Rat

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Application Route: oral (feed)
 Early Embryonic Development: NOAEL: 50 mg/kg body weight
 Symptoms: No effects on fertility, Embryo-foetal toxicity
 Remarks: Significant toxicity observed in testing

Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Oral
 Early Embryonic Development: LOAEL: 84 - 149 mg/kg body weight
 Symptoms: No effects on fertility, Embryo-foetal toxicity

Test Type: Fertility
 Species: Rat, male
 Application Route: Oral
 Fertility: LOAEL: 1 mg/kg body weight
 Symptoms: Effects on fertility
 Target Organs: Testes

Effects on foetal development : Test Type: Development
 Species: Mouse
 Application Route: oral (gavage)
 Developmental Toxicity: LOAEL: 1 mg/kg body weight
 Result: Skeletal malformations
 Remarks: Maternal toxicity observed.

Test Type: Development
 Species: Rat, female
 Developmental Toxicity: NOAEL: 10 mg/kg body weight
 Symptoms: No effects on foetal development

Test Type: Development
 Species: Rabbit, female
 Application Route: oral (gavage)
 Developmental Toxicity: NOAEL: 16 mg/kg body weight
 Symptoms: No effects on foetal development

Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

Formaldehyde:

Effects on foetal development : Test Type: Embryo-foetal development
 Species: Rat
 Application Route: inhalation (gas)
 Result: negative

Dipropylene glycol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Mouse
 Application Route: Ingestion

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rabbit
Application Route: Ingestion
Result: negative

Propylene glycol:

Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Mouse
Application Route: Ingestion
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Mouse
Application Route: Ingestion
Result: negative

STOT - single exposure

Not classified based on available information.

Components:

deltamethrin (ISO):

Assessment : May cause respiratory irritation.

Formaldehyde:

Assessment : May cause respiratory irritation.

STOT - repeated exposure

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

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

Components:

deltamethrin (ISO):

Exposure routes : Ingestion
Target Organs : Central nervous system, Immune system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Central nervous system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
Date of first issue: 2022/10/11

Formaldehyde:

Exposure routes : inhalation (gas)
Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity**Components:****deltamethrin (ISO):**

Species : Rat, male and female
NOAEL : 1 mg/kg
LOAEL : 2.5 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Nervous system
Symptoms : hyperexcitability

Species : Rat
LOAEL : 3 mg/m³
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 wk / 5 d/wk / 6 h/d
Symptoms : Local irritation, respiratory tract irritation

Species : Dog
NOAEL : 0.1 mg/kg
LOAEL : 1 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Nervous system
Symptoms : Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Salivation

Species : Rat
NOAEL : 14 mg/kg
LOAEL : 54 mg/kg
Application Route : Oral
Exposure time : 91 d
Target Organs : Nervous system

Species : Mouse
LOAEL : 6 mg/kg
Application Route : Oral
Exposure time : 12 Weeks
Target Organs : Immune system
Symptoms : immune system effects

Formaldehyde:

Species : Rat
NOAEL : 6 ppm
LOAEL : 10 ppm

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Application Route : inhalation (gas)
Exposure time : 28 Days

Dipropylene glycol:

Species : Rat
NOAEL : 470 mg/kg
Application Route : Ingestion
Exposure time : 105 Weeks

Propylene glycol:

Species : Rat, male
NOAEL : >= 1,700 mg/kg
Application Route : Ingestion
Exposure time : 2 yr

Aspiration toxicity

Not classified based on available information.

Experience with human exposure

Components:

deltamethrin (ISO):

Inhalation : Symptoms: respiratory tract irritation, Dizziness, Sweating, Headache, Nausea, Vomiting, anorexia, Fatigue, tingling, Palpitation, Blurred vision, muscle twitching

Skin contact : Symptoms: Skin irritation, Erythema, pruritis, Headache, Nausea, Vomiting, Dizziness, tingling, Sweating, muscle twitching, Blurred vision, Fatigue, anorexia, Allergic reactions

Ingestion : Symptoms: muscle pain, Small pupils

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

deltamethrin (ISO):

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.00048 mg/l
Exposure time: 96 h

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Mysidopsis bahia (opossum shrimp)): 0.0037 µg/l
Exposure time: 48 h

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

EC50 (*Daphnia magna* (Water flea)): 0.0035 mg/l
Exposure time: 48 h

LC50 (*Gammarus fasciatus* (freshwater shrimp)): 0.0003 µg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (*Pseudokirchneriella subcapitata* (green algae)): > 9.1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility

M-Factor (Acute aquatic toxicity) : 1,000,000

Toxicity to fish (Chronic toxicity) : NOEC (*Pimephales promelas* (fathead minnow)): 0.000022 mg/l
Exposure time: 36 d

NOEC (*Pimephales promelas* (fathead minnow)): 0.000017 mg/l
Exposure time: 260 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 0.0041 µg/l
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity) : 1,000,000

Nonylphenol, ethoxylated:

Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): > 0.1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Ceriodaphnia dubia* (water flea)): > 0.1 - 1 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (*Selenastrum capricornutum* (green algae)): > 1 - 10 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (*Selenastrum capricornutum* (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (*Oryzias latipes* (Japanese medaka)): > 0.1 - 1 mg/l
Exposure time: 100 d
Remarks: Based on data from similar materials

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Mysidopsis bahia (opossum shrimp)): > 0.001 - 0.01 mg/l
Exposure time: 28 d
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 10

Formaldehyde:

Toxicity to fish : LC50 : 6.7 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia pulex (Water flea)): 5.8 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Desmodesmus subspicatus (green algae)): 4.89 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Orange-red killifish)): >= 48 mg/l
Exposure time: 28 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): >= 6.4 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Toxicity to microorganisms : EC50: 34.1 mg/l
Exposure time: 120 h

Dipropylene glycol:

Toxicity to fish : LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC10 (Pseudomonas putida): >= 1,000 mg/l
Exposure time: 18 h

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
Date of first issue: 2022/10/11

Propylene glycol:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 18,340 mg/l
Exposure time: 48 h
- Toxicity to algae/aquatic plants : ErC50 (Skeletonema costatum (marine diatom)): 19,300 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Ceriodaphnia dubia (water flea)): 13,020 mg/l
Exposure time: 7 d
- Toxicity to microorganisms : NOEC (Pseudomonas putida): > 20,000 mg/l
Exposure time: 18 h

Persistence and degradability**Components:****deltamethrin (ISO):**

- Stability in water : Hydrolysis: 0 %(30 d)

Nonylphenol, ethoxylated:

- Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

Formaldehyde:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 91 %
Exposure time: 14 d
Method: OECD Test Guideline 301C
Remarks: Based on data from similar materials

Dipropylene glycol:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 84.4 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Propylene glycol:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 98.3 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
Date of first issue: 2022/10/11

Bioaccumulative potential**Components:****deltamethrin (ISO):**

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)
Bioconcentration factor (BCF): 1,800

Partition coefficient: n-octanol/water : log Pow: 4.6

Nonylphenol, ethoxylated:

Partition coefficient: n-octanol/water : log Pow: 4.48

Formaldehyde:

Partition coefficient: n-octanol/water : log Pow: 0.35
Remarks: Calculation

Dipropylene glycol:

Partition coefficient: n-octanol/water : log Pow: -0.462

Propylene glycol:

Partition coefficient: n-octanol/water : log Pow: -1.07
Method: Regulation (EC) No. 440/2008, Annex, A.8

Mobility in soil**Components:****deltamethrin (ISO):**

Distribution among environmental compartments : log Koc: 7.2

Hazardous to the ozone layer

Not applicable

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.
Do not dispose of waste into sewer.

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.

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(deltamethrin (ISO), Nonylphenol, ethoxylated)
Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : yes

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(deltamethrin (ISO), Nonylphenol, ethoxylated)
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Environmentally hazardous : yes

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(deltamethrin (ISO), Nonylphenol, ethoxylated)
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.

National Regulations

Refer to section 15 for specific national regulation.

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.

ERG Code : 171

Deltamethrin (1.47%) Formulation

Version 5.3 Revision Date: 2023/12/05 SDS Number: 10863810-00007 Date of last issue: 2023/11/20
 Date of first issue: 2022/10/11

15. REGULATORY INFORMATION

Related Regulations

Fire Service Law

Not applicable to dangerous materials / designated flammables.

Chemical Substance Control Law

Priority Assessment Chemical Substance

| Chemical name | Number |
|--|--------|
| alpha-(Nonylphenyl)-omega-hydroxypoly(oxyethylene) | 86 |
| Formaldehyde | 25 |
| 1,1'-Oxydi(propan-2-ol) | 240 |
| Propane-1,2-diol | 106 |

Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacture

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Substances Prevented From Impairment of Health

Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity

Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity

Not applicable

Substances Subject to be Notified Names

Article 57-2 (Enforcement Order Table 9)

| Chemical name | Concentration (%) | Remarks |
|--------------------------|-------------------|----------------------|
| Nonylphenol, ethoxylated | >0 - <10 | From April 1st, 2026 |
| Formaldehyde | >0 - <10 | - |

Substances Subject to be Indicated Names

Article 57 (Enforcement Order Article 18)

| Chemical name | Remarks |
|---------------|---------|
| formaldehyde | - |

Carcinogenic Substances (Article 577-2 of the Occupational Health and Safety Regulations)

Not applicable

Ordinance on Prevention of Hazards Due to Specified Chemical Substances

Not applicable

Ordinance on Prevention of Lead Poisoning

Not applicable

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

Ordinance on Prevention of Organic Solvent Poisoning

Not applicable

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)

Not applicable

Poisonous and Deleterious Substances Control Law

Not applicable

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Specified Class I Designated Chemical Substances

| Chemical name | Administration number | Concentration (%) |
|---------------|-----------------------|-------------------|
| Formaldehyde | 411 | 0.23 |

High Pressure Gas Safety Act

Not applicable

Explosive Control Law

Not applicable

Vessel Safety Law

Miscellaneous dangerous substances and articles (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

Aviation Law

Miscellaneous dangerous substances and articles (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation : Not classified as noxious liquid substance

Pack transportation : Classified as marine pollutant

Narcotics and Psychotropics Control Act

Narcotic or Psychotropic Raw Material (Export / Import Permission)

Not applicable

Specific Narcotic or Psychotropic Raw Material (Export / Import permission)

Not applicable

Waste Disposal and Public Cleansing Law

Industrial waste

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

AICS : not determined

DSL : not determined

IECSC : not determined

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

16. OTHER INFORMATION

Further information

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

Date format : yyyy/mm/dd

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
 JP OEL ISHL : Japan. Administrative Control Levels
 JP OEL JSOH : Japan. The Japan Society for Occupational Health. Recommendation of Occupational Exposure Limits

ACGIH / TWA : 8-hour, time-weighted average
 ACGIH / STEL : Short-term exposure limit
 JP OEL ISHL / ACL : Administrative Control level
 JP OEL JSOH / OEL-M : Occupational Exposure Limit-Mean
 JP OEL JSOH / OEL-C : Occupational Exposure Limit-Ceiling

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-

Deltamethrin (1.47%) Formulation

| | | | |
|---------|----------------|----------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 2023/11/20 |
| 5.3 | 2023/12/05 | 10863810-00007 | Date of first issue: 2022/10/11 |

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.

JP / EN