SAFETY DATA SHEET

Deltamethrin (1%) Formulation

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Deltamethrin (1%) Formulation

Manufacturer or supplier’s details
Company name of supplier : MSD
Address : 2000 Galloping Hill Road
Kenilworth - New Jersey - U.S.A. 07033
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

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Skin irritation : Category 3
Eye irritation : Category 2A
Skin sensitization : Category 1
Reproductive toxicity : Category 2
Specific target organ toxicity - repeated exposure (Oral) : Category 1 (Central nervous system, Immune system)
Specific target organ toxicity - repeated exposure (Inhalation) : Category 1 (Central nervous system)

GHS label elements
Hazard pictograms :

Signal Word : Danger

Hazard Statements : H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H372 Causes damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
H372 Causes damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

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 vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:
P405 Store locked up.

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

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
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<tbody>
<tr>
<td>Cyclohexanone</td>
<td>108-94-1</td>
<td>&gt;= 1 - &lt; 3</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

General advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

If inhaled: If inhaled, remove to fresh air. Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with 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: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.

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: Causes mild skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Suspected of damaging fertility. Suspected of damaging the unborn child. Causes damage to organs through prolonged or repeated exposure if swallowed. Causes damage to organs through prolonged or repeated exposure if inhaled.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (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 products: Carbon oxides
Nitrogen oxides (NOx)
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 fire-fighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions: Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
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 diking or other appropriate containment to keep material from spreading. If diked 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.

SECTION 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 mist or vapors.
- Do not swallow.
- Do not get in 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.
- Do not eat, drink or smoke when using this product.
- Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures:
If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
- When using do not eat, drink or smoke.
- Contaminated work clothing should not be allowed out of the workplace.
- Wash contaminated clothing before re-use.
- The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the 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.
Deltamethrin (1%) Formulation

Organic peroxides
Explosives
Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanon</td>
<td>108-94-1</td>
<td>VLE-PPT</td>
<td>20 ppm</td>
<td>NOM-010-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STPS-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VLE-CT</td>
<td>50 ppm</td>
<td>NOM-010-</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>STPS-2014</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>20 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>50 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>15 µg/m3 (OEB 3)</td>
<td>Internal</td>
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<td></td>
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<td></td>
<td>Wipe limit 150 µg/100 cm²</td>
<td>Internal</td>
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</table>

Biological occupational exposure limits

<table>
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<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
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<tr>
<td>Cyclohexanon</td>
<td>108-94-1</td>
<td>1,2-</td>
<td>Urine</td>
<td>End of shift</td>
<td>80 mg/l</td>
<td>MX BEI</td>
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<tr>
<td></td>
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<td>Cyclohexanediol</td>
<td></td>
<td>at end of work-week</td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

Engineering measures: Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless 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**
- **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.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
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<tr>
<th>Property</th>
<th>Value</th>
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<tr>
<td><strong>Appearance</strong></td>
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<td><strong>Odor Threshold</strong></td>
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<td><strong>pH</strong></td>
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<tr>
<td><strong>Melting point/freezing point</strong></td>
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<td><strong>Initial boiling point and boiling range</strong></td>
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<td><strong>Flash point</strong></td>
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<td><strong>Evaporation rate</strong></td>
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<td><strong>Flammability (solid, gas)</strong></td>
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<tr>
<td><strong>Flammability (liquids)</strong></td>
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<tr>
<td><strong>Upper explosion limit / Upper flammability limit</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>
Deltamethrin (1%) Formulation

Lower explosion limit / Lower flammability limit
: No data available

Vapor pressure
: No data available

Relative vapor density
: No data available

Relative density
: No data available

Density
: 0.85 - 0.95 g/cm³

Solubility(ies)
Water solubility
: No data available

Partition coefficient: n-octanol/water
: Not applicable

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 size
: Not applicable

SECTION 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.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity
Not classified based on available information.
SAFETY DATA SHEET

Deltamethrin (1%) Formulation

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

Acute inhalation toxicity : Acute toxicity estimate: > 40 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

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

Components:

Cyclohexanone:
Acute oral toxicity : LD50 (Rat): 1,620 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Expert judgment

Acute dermal toxicity : LD50 (Rabbit): > 1,000 - 2,000 mg/kg

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

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

Skin corrosion/irritation
Causes mild skin irritation.

Components:

Cyclohexanone:
Species : Rabbit
Method : OECD Test Guideline 404
Deltamethrin (1%) Formulation

Result : Skin irritation

**Deltamethrin (ISO):**
Species : Rabbit
Result : No skin irritation

**Serious eye damage/eye irritation**
Causes serious eye irritation.

**Components:**

**Cyclohexanone:**
Species : Rabbit
Result : Irreversible effects on the eye

**Deltamethrin (ISO):**
Species : Rabbit
Result : Moderate eye irritation

**Respiratory or skin sensitization**

**Skin sensitization**
May cause an allergic skin reaction.

**Respiratory sensitization**
Not classified based on available information.

**Components:**

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

**Deltamethrin (ISO):**
Test Type : Maximization Test
Routes of exposure : Dermal
Species : Guinea pig
Result : negative

Test Type : Human repeat insult patch test (HRIPT)
Routes of exposure : Dermal
Species : Humans
Result : positive

**Germ cell mutagenicity**
Not classified based on available information.

**Components:**

**Cyclohexanone:**
GENOTOXICITY IN VITRO

- **Test Type:** Bacterial reverse mutation assay (AMES)
- **Method:** OECD Test Guideline 471
  - **Result:** negative

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

- **Test Type:** In vitro mammalian cell gene mutation test
  - **Method:** OECD Test Guideline 476
  - **Result:** negative

GENOTOXICITY IN VIVO

- **Test Type:** Rodent dominant lethal test (germ cell) (in vivo)
  - **Species:** Rat
  - **Application Route:** inhalation (vapor)
  - **Result:** negative

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

CARCINOGENICITY

Not classified based on available information.
Components:

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

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

Reproductive toxicity
Suspected of damaging fertility. Suspected of damaging the unborn child.

Components:

Cyclohexanone:
Effects on fertility: Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapor)
Result: negative

Effects on fetal development: Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Ingestion
Method: OECD Test Guideline 414
Result: negative

Deltamethrin (ISO):
Effects on fertility: Test Type: Three-generation reproduction toxicity study
Species: Rat
Application Route: oral (feed)
Early Embryonic Development: NOAEL: 50 mg/kg body weight
Symptoms: No effects on fertility, Embryo-fetal 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-fetal 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 fetal 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 fetal development.

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

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

**STOT-single exposure**
Not classified based on available information.

**Components:**

**Deltamethrin (ISO):**
Assessment  
May cause respiratory irritation.

**STOT-repeated exposure**
Causes damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.  
Causes damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

**Components:**

**Deltamethrin (ISO):**
Routes of exposure  
Ingestion
Revised: 27.08.2021  
SDS Number: 6328812-00002

**Target Organs**  
Central nervous system, Immune system

**Assessment**  
Causes damage to organs through prolonged or repeated exposure.

**Routes of exposure**  
inhalation (dust/mist/fume)

**Target Organs**  
Central nervous system

**Assessment**  
Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity**

**Components:**

**Cyclohexanone:**
- **Species:** Rat
- **NOAEL:** 143 mg/kg
- **Application Route:** Ingestion
- **Exposure time:** 90 Days
- **Method:** OECD Test Guideline 408

**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, Diarrhea, 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
**SAFETY DATA SHEET**

**Deltamethrin (1%) Formulation**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
<th>Date of first issue:</th>
</tr>
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<tr>
<td>1.1</td>
<td>27.08.2021</td>
<td>6328812-00002</td>
<td>11.09.2020</td>
<td>11.09.2020</td>
</tr>
</tbody>
</table>

**Target Organs**
- Immune system

**Symptoms**
- immune system effects

**Aspiration toxicity**
Not classified based on available information.

**Components:**
- **Cyclohexanone:**
  - The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

**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

**SECTION 12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Components:**
- **Cyclohexanone:**
  - **Toxicity to fish**
    - LC50 (Pimephales promelas (fathead minnow)): 527 - 732 mg/l
    - Exposure time: 96 h
    - Method: OECD Test Guideline 203
  - **Toxicity to daphnia and other aquatic invertebrates**
    - EC50 (Daphnia magna (Water flea)): 800 mg/l
    - Exposure time: 24 h
  - **Toxicity to algae/aquatic plants**
    - EC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
    - Exposure time: 72 h
    - Method: OECD Test Guideline 201
    - Remarks: Based on data from similar materials
    - NOEC (Desmodesmus subspicatus (green algae)): > 1 mg/l
    - Exposure time: 72 h
    - Method: OECD Test Guideline 201
    - Remarks: Based on data from similar materials
  - **Toxicity to microorganisms**
    - EC50: > 1,000 mg/l
    - Exposure time: 30 min
    - Method: OECD Test Guideline 209
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
- EC50 (Daphnia magna (Water flea)): 0.0035 mg/l
  Exposure time: 48 h
- LC50 (Gammarus fasciatus (freshwater shrimp)): 0.0030 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.

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

Persistence and degradability

Components:

Cyclohexanone:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 90 - 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Deltamethrin (ISO):
Stability in water: Hydrolysis: 0 %(30 d)

Bioaccumulative potential

Components:

Cyclohexanone:
Partition coefficient: n-log Pow: 0.86
Deltamethrin (ISO):

- **Bioaccumulation**: Species: Lepomis macrochirus (Bluegill sunfish)  
  Bioconcentration factor (BCF): 1,800
- **Partition coefficient: n-octanol/water**: log Pow: 4.6
- **Mobility in soil**

**Components:**

- **Deltamethrin (ISO):**
  - Distribution among environmental compartments: log Koc: 7.2

**Other adverse effects**

No data available

### SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

- **Waste from residues**: Dispose of in accordance with local regulations.
- **Contaminated packaging**: Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

### SECTION 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**

- **UN number**: UN 3082
- **Proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (deltamethrin (ISO))
- **Class**: 9
- **Packing group**: III
- **Labels**: 9

**IATA-DGR**

- **UN/ID No.**: UN 3082
- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s. (Deltamethrin (ISO))
- **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
SAFETY DATA SHEET

Deltamethrin (1%) Formulation

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Deltamethrin (ISO))

Class: 9
Packing group: III
Labels: 9
EmS Code: F-A, S-F
Marine pollutant: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

NOM-002-SCT
UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Deltamethrin (ISO))

Class: 9
Packing group: III
Labels: 9

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
Federal Law for the control of chemical precursors, essential chemical products and machinery for producing capsules, tablets and pills: Not applicable

The ingredients of this product are reported in the following inventories:
AICS: not determined
DSL: not determined
IECSC: not determined

SECTION 16. OTHER INFORMATION

Full text of other abbreviations
ACGIH: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
MX BEI: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for workers occupationally exposed to chemical agents
## SAFETY DATA SHEET

**Deltamethrin (1%) Formulation**

<table>
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<th>Revision Date</th>
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NOM-010-STPS-2014 : Mexico. Norm NOM-010-STPS-2014 on Chemicals Polluting the Work Environment - Identification, Assessment and Control - Appendix 1 Occupational Exposure Limits

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

ACGIH / STEL : Short-term exposure limit

NOM-010-STPS-2014 / VLE-PPT : Time weighted average limit value

NOM-010-STPS-2014 / VLE-CT : Short term exposure limit value

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 Standardisation; 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 - Philippine 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; SDT - 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


Revision Date : 27.08.2021

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

MX / Z8