SAFETY DATA SHEET

Deltamethrin (1%) Formulation

SECTION 1. IDENTIFICATION

Product name : Deltamethrin (1%) Formulation

Manufacturer or supplier's details
Company : MSD
Address : Talcahuano 750, 6th floor, Ciudad Autonoma
Buenos Aires, Argentina C1013AAP
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
Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Central nervous system, Immune system)
Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Central nervous system)
Short-term (acute) aquatic hazard : Category 1
Long-term (chronic) aquatic hazard : Category 1

GHS label elements
Hazard pictograms : 

Signal Word : Warning
Hazard Statements : H316 Causes mild skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
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:
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ 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.
P314 Get medical advice/ attention if you feel unwell.
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.
P391 Collect spillage.

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

Other hazards which do not result in classification
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<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; 2.5</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. May cause damage to organs through prolonged or repeated exposure if swallowed. May cause 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.

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 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</th>
<th>Control parameters / Permissible</th>
<th>Basis</th>
</tr>
</thead>
</table>

4 / 18
Deltamethrin (1%) Formulation

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone</td>
<td>108-94-1</td>
<td>1,2-Cyclohexanediol</td>
<td>Urine</td>
<td>End of shift at end of work-week</td>
<td>80 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>8 mg/l</td>
<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**
Combined particulates and organic vapor type

**Hand protection**
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...
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.

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>yellow</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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 reac-tions : 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.

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
Deltamethrin (1%) Formulation

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute dermal toxicity</th>
<th>Method</th>
<th>LD50 (Rabbit): &gt; 5.000 - 2.000 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute oral toxicity</td>
<td></td>
<td></td>
<td>LD50 (Rat): 1.620 mg/kg</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td></td>
<td></td>
<td>Acute toxicity estimate: 11 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exposure time: 4 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test atmosphere: vapor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Method: Expert judgment</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td></td>
<td></td>
<td>LD50 (Rabbit): &gt; 1.000 - 2.000 mg/kg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Acute dermal toxicity</th>
<th>Method</th>
<th>LD50 (Rabbit): &gt; 800 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deltamethrin (ISO):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute oral toxicity</td>
<td></td>
<td></td>
<td>LD50 (Rat): 66.7 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LD50 (Rat): 9 - 139 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LD50 (Mouse): 19 - 34 mg/kg</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td></td>
<td></td>
<td>LC50 (Rat): 0.8 mg/l</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exposure time: 2 h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Test atmosphere: dust/mist</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td></td>
<td></td>
<td>LD50 (Rabbit): 2.000 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LD50 (Rat): &gt; 800 mg/kg</td>
</tr>
<tr>
<td>Acute toxicity (other routes of administration)</td>
<td></td>
<td></td>
<td>LD50 (Rat): 2.5 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Application Route: Intravenous</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LD50 (Mouse): 10 mg/kg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Application Route: Intraperitoneal</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Causes mild skin irritation.

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyclohexanone:</td>
<td>Rabbit</td>
<td>OECD Test Guideline 404</td>
<td>Skin irritation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deltamethrin (ISO):</td>
<td>Rabbit</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

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

- Human repeat insult patch test (HRIPT)
  - Dermal
  - Humans
  - 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
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
SAFETY DATA SHEET

Deltamethrin (1%) Formulation

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
Not classified based on available information.

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:
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 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
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):
Routes of exposure: Ingestion
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

<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>LOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Target Organs</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>3 mg/m3</td>
<td></td>
<td>inhalation (dust/mist/fume)</td>
<td>2 wk / 5 d/wk / 6 h/d</td>
<td>Nervous system</td>
<td>Local irritation, respiratory tract irritation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>LOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Target Organs</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>0,1 mg/kg</td>
<td>1 mg/kg</td>
<td>Oral</td>
<td>13 Weeks</td>
<td>Nervous system</td>
<td>Dilatation of the pupil, Vomiting, Tremors, Diarrhea, Salivation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>LOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Target Organs</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>14 mg/kg</td>
<td>54 mg/kg</td>
<td>Oral</td>
<td>91 d</td>
<td>Nervous system</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>LOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Target Organs</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>6 mg/kg</td>
<td></td>
<td>Oral</td>
<td>12 Weeks</td>
<td>Immune system</td>
<td>immune system effects</td>
</tr>
</tbody>
</table>

**Aspiration toxicity**

Not classified based on available information.
SAFETY DATA SHEET

Deltamethrin (1%) Formulation

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)): 0.0003 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

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-octanol/water:
- 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  
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.

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
Argentina. Carcinogenic Substances and Agents Registry. : Not applicable
Control of precursors and essential chemicals for the preparation of drugs. : Cyclohexanone
2-Methyl-1-propanol

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

SECTION 16. OTHER INFORMATION

Further information

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
AR OEL : Argentina. Occupational Exposure Limits
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
AR OEL / CMP : TLV (Threshold Limit Value)

AIC - 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
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.