Lambda-Cyhalothrin / Piperonyl Butoxide Ear Tag

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Lambda-Cyhalothrin / Piperonyl Butoxide Ear Tag

Manufacturer or supplier's details

Company: MSD
Address: No. 485 Jing Tai Road, Pu Tuo District - Shanghai - China 200331
Telephone: +1-908-740-4000
Emergency telephone number: 86-571-87268110
E-mail address: EHSDATASETWARD@msd.com

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: solid
Colour: violet
Odour: No data available
Harmful if swallowed. Causes damage to organs. Very toxic to aquatic life with long lasting effects.

GHS Classification

Acute toxicity (Oral): Category 4
Specific target organ toxicity - single exposure: Category 1
Short-term (acute) aquatic hazard: Category 1
Long-term (chronic) aquatic hazard: Category 1

GHS label elements

Hazard pictograms: [Images]
Signal word: Danger
Lambda-Cyhalothrin / Piperonyl Butoxide Ear Tag

Hazard statements:
- H302 Harmful if swallowed.
- H370 Causes damage to organs.
- H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:
- Prevention:
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
- Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P391 Collect spillage.

Storage:
P405 Store locked up.

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

Physical and chemical hazards
Not classified based on available information.

Health hazards
Harmful if swallowed. Causes damage to organs.

Environmental hazards
Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Other hazards which do not result in classification
None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl chloride</td>
<td>9002-86-2</td>
<td>&gt;= 50 - &lt; 70</td>
</tr>
<tr>
<td>2-(2-butoxyethoxy)ethyl 6-propyl/piperonyl ether</td>
<td>51-03-6</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>lambda-cyhalothrin (ISO)</td>
<td>91465-08-6</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

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...
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</thead>
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<tr>
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<td>2021/04/09</td>
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<td>2020/10/10</td>
<td>2016/12/06</td>
</tr>
</tbody>
</table>

**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 unless directed to do so by medical personnel.
- Get medical attention.
- Rinse mouth thoroughly with water.
- Never give anything by mouth to an unconscious person.

**Most important symptoms and effects, both acute and delayed**
- Harmful if swallowed.
- Causes damage to organs.

**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
- Carbon dioxide (CO2)
- Dry chemical

**Unsuitable extinguishing media**
- None known.

**Specific hazards during firefighting**
- Exposure to combustion products may be a hazard to health.

**Hazardous combustion products**
- Carbon oxides
- Nitrogen oxides (NOx)
- Chlorine compounds
- Fluorine 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 pro-
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

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Emergency procedures: See engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Environmental precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Sweep up or vacuum up spillage and collect in suitable container for disposal. 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.
Local/Total ventilation: Use only with adequate ventilation.
Advice on safe handling: Do not breathe dust, fume, gas, mist, vapours or spray. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. 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.
Avoidance of contact: Oxidizing agents

Storage
Conditions for safe storage: Keep in properly labelled containers. Store locked up. 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

Components 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>
</table>

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Engineering measures:

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., vacuum conveying from a closed system, packout head with inflatable seal from stationary container, ventilated enclosure, etc.). All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Essentially no open handling permitted. Use closed processing systems or containment technologies.

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 vapour type

Eye/face 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.

Hand protection:
Material:
Chemical-resistant gloves

Remarks:
Consider double gloving.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>solid</td>
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<tr>
<td>Colour</td>
<td>violet</td>
</tr>
<tr>
<td>Odour</td>
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</tr>
<tr>
<td>Odour Threshold</td>
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</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
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<td>Initial boiling point and boiling range</td>
<td>No data available</td>
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<tr>
<td>Flash point</td>
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<tr>
<td>Evaporation rate</td>
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<tr>
<td>Flammability (solid, gas)</td>
<td>Not classified as a flammability hazard</td>
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<tr>
<td>Flammability (liquids)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
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</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
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</tr>
<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
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</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
</tbody>
</table>
1. IDENTIFICATION

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2. HAZARDS IDENTIFICATION

Auto-ignition 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: No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components:
2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:
- Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 423

4. PRECAUTIONARY INFORMATION

5. FIRST-AID MEASURES

6. FIRE-FIGHTING MEASURES

7. ACCIDENTAL RELEASE MEASURES

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

9. PHYSICAL AND CHEMICAL PROPERTIES

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

Exposure routes: Skin contact, Ingestion, Eye contact

Acute toxicity
Harmful if swallowed.

Product:
- Acute oral toxicity: Acute toxicity estimate: 560 mg/kg
  Method: Calculation method
- Acute inhalation toxicity: Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity: Acute toxicity estimate: > 5,000 mg/kg
  Method: Calculation method

12. ECOLOGICAL INFORMATION

13. DISPOSAL CONSIDERATIONS

14. TRANSPORT INFORMATION

15. STORAGE

16. DISPOSAL

17. REGULATORY INFORMATION

18. OTHER INFORMATION

19. ATTACHMENTS
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Acute inhalation toxicity: LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402

**lambda-cyhalothrin (ISO):**

Acute oral toxicity: LD50 (Rat): 56 - 79 mg/kg
LD50 (Mouse): 20 mg/kg

Acute inhalation toxicity: LC50 (Rat): 0.06 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity: LD50 (Rat): 632 - 696 mg/kg

Acute toxicity (other routes of administration): LD50 (Rat): 250 - 750 mg/kg
Application Route: Intraperitoneal

**Titanium dioxide:**

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

Acute inhalation toxicity: LC50 (Rat): > 6.82 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Skin corrosion/irritation
Not classified based on available information.

**Components:**

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

**lambda-cyhalothrin (ISO):**
Species: Rabbit
Result: No skin irritation

**Titanium dioxide:**
Species: Rabbit
Result: No skin irritation
**SAFETY DATA SHEET**

according to GB/T 16483 and GB/T 17519

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**Serious eye damage/eye irritation**

Not classified based on available information.

**Product:**

Result: No eye irritation

**Components:**

**2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:**

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

**lambda-cyhalothrin (ISO):**

Species: Rabbit  
Result: Mild eye irritation

**Titanium dioxide:**

Species: Rabbit  
Result: No eye irritation

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**Respiratory or skin sensitisation**

**Skin sensitisation**

Not classified based on available information.

**Respiratory sensitisation**

Not classified based on available information.

**Components:**

**2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Test Type: Maximisation Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: negative

**lambda-cyhalothrin (ISO):**

Test Type: Magnusson-Kligman-Test  
Exposure routes: Dermal  
Species: Guinea pig  
Result: Not a skin sensitizer.

**Titanium dioxide:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Result: negative
Germ cell mutagenicity
Not classified based on available information.

Components:

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

lambda-cyhalothrin (ISO):
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosomal aberration
Test system: Human lymphocytes
Result: negative

Test Type: unscheduled DNA synthesis assay
Test system: rat hepatocytes
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative

Genotoxicity in vivo: Test Type: Micronucleus test
Species: Mouse
Cell type: Bone marrow
Application Route: Intraperitoneal
Result: negative

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

Genotoxicity in vivo: Test Type: In vivo micronucleus test
Species: Mouse
Result: negative

Carcinogenicity
Not classified based on available information.

Components:

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:
Species: Rat
Application Route: Ingestion
Exposure time: 107 weeks
Method: OECD Test Guideline 451
Result: negative
**Lambda-cyhalothrin (ISO):**

- **Species**: Mouse
- **Application Route**: oral (feed)
- **Exposure time**: 2 Years
- **Result**: negative
- **Remarks**: Based on data from similar materials

**Titanium dioxide:**

- **Species**: Rat
- **Application Route**: inhalation (dust/mist/fume)
- **Exposure time**: 2 Years
- **Method**: OECD Test Guideline 453
- **Result**: positive
- **Remarks**: The mechanism or mode of action may not be relevant in humans.

**Carcinogenicity - Assessment**: Limited evidence of carcinogenicity in inhalation studies with animals.

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

**Components:**

**2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:**

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

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

**Lambda-cyhalothrin (ISO):**

- **Effects on fertility**: Test Type: Three-generation study
  - **Species**: Rat
  - **Application Route**: oral (feed)
  - **General Toxicity - Parent**: NOAEL: 2 mg/kg body weight
  - **General Toxicity F1**: LOAEL: 6.7 mg/kg body weight
  - **Symptoms**: Reduced offspring weight gain
  - **Result**: No effects on fertility
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**Effects on foetal development**

Test Type: Development  
Species: Rat  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 10 mg/kg body weight  
Developmental Toxicity: LOAEL: 15 mg/kg body weight  
Result: No effects on foetal development, Reduced maternal body weight gain, Reduced foetal weight  
Remarks: Based on data from similar materials

Test Type: Development  
Species: Rabbit  
Application Route: Oral  
General Toxicity Maternal: NOAEL: 10 mg/kg body weight  
Developmental Toxicity: NOAEL: 30 mg/kg body weight  
Result: No effects on foetal development, Reduced maternal body weight gain, Reduced foetal weight  
Remarks: Based on data from similar materials

**STOT - single exposure**

Causes damage to organs.

**Components:**

**lambda-cyhalothrin (ISO):**

- Target Organs: Nervous system
- Assessment: Causes damage to organs.

**STOT - repeated exposure**

Not classified based on available information.

**Repeated dose toxicity**

**Components:**

**2-(2-butoxyethoxy)ethyl 6-propyipiperonyl ether:**

- Species: Rat  
- NOAEL: 1,323 mg/kg  
- Application Route: Ingestion  
- Exposure time: 7 Weeks

**lambda-cyhalothrin (ISO):**

- Species: Dog  
- NOAEL: 2.5 mg/kg  
- LOAEL: 12.5 mg/kg  
- Application Route: oral (feed)  
- Exposure time: 90 d  
- Symptoms: reduced body weight gain, reduced food consumption

- Species: Rat  
- NOAEL: 10 mg/kg
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</tbody>
</table>

- **LOAEL**: 50 mg/kg  
  - **Application Route**: Dermal  
  - **Exposure time**: 21 d  
  - **Target Organs**: Nervous system  

- **Species**: Rat  
  - **NOAEL**: 0.08 mg/kg  
  - **LOAEL**: 0.9 mg/kg  
  - **Application Route**: Inhalation  
  - **Exposure time**: 21 d  
  - **Target Organs**: Nervous system

- **Species**: Dog  
  - **NOAEL**: 0.1 mg/kg  
  - **LOAEL**: 0.5 mg/kg  
  - **Application Route**: Oral  
  - **Exposure time**: 1 yr  
  - **Target Organs**: Nervous system  
  - **Symptoms**: Gastrointestinal disturbance, Vomiting, Convulsions, ataxia, Liver effects

**Titanium dioxide:**

- **Species**: Rat  
  - **NOAEL**: 24,000 mg/kg  
  - **Application Route**: Ingestion  
  - **Exposure time**: 28 Days

- **Species**: Rat  
  - **NOAEL**: 10 mg/m3  
  - **Application Route**: Inhalation (dust/mist/fume)  
  - **Exposure time**: 2 yr

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure**

**Product:**

- **Skin contact**: Symptoms: Skin irritation, tingling, superficial burning sensation, Local irritation  
  - Remarks: Can be absorbed through skin.

- **Eye contact**: Remarks: May irritate eyes.

**Components:**

**lambda-cyhalothrin (ISO):**

- **Inhalation**: Symptoms: Cough, Local irritation, sneezing

- **Skin contact**: Symptoms: Skin irritation, tingling, superficial burning sensation, Local irritation  
  - Remarks: Can be absorbed through skin.

- **Eye contact**: Symptoms: Eye irritation

- **Ingestion**: Symptoms: Gastrointestinal disturbance
12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:

Toxicity to fish:  
LC50 (Cyprinodon variegatus (sheepshead minnow)): 3.94 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:

EC50 (Daphnia magna (Water flea)): 0.51 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:

ErC50 (Pseudokirchneriella subcapitata (green algae)): 3.89 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
NOEC (Pseudokirchneriella subcapitata (green algae)): 0.824 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity):

: 1

Toxicity to fish (Chronic toxicity):

NOEC (Pimephales promelas (fathead minnow)): 0.18 mg/l  
Exposure time: 35 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):

NOEC (Daphnia magna (Water flea)): 0.03 mg/l  
Exposure time: 21 d

M-Factor (Chronic aquatic toxicity):

: 1

Toxicity to microorganisms:

EC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

lambda-cyhalothrin (ISO):

Toxicity to fish:

LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00019 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
Remarks: Based on data from similar materials

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00021 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
Remarks: Based on data from similar materials
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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
</table>
| Toxicity to daphnia and other aquatic invertebrates | EC50 (Daphnia magna (Water flea)): 0.00004 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials |
| M-Factor (Acute aquatic toxicity) | 10,000                                                                                           |
| Toxicity to fish (Chronic toxicity) | NOEC (Pimephales promelas (fathead minnow)): 0.000062 mg/l  
Exposure time: 32 d  
Method: OECD Test Guideline 210  
Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | NOEC (Daphnia magna (Water flea)): 0.0035 µg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211  
Remarks: Based on data from similar materials |
| M-Factor (Chronic aquatic toxicity) | 10,000                                                                                           |
| **Titanium dioxide:** |                                                                                                   |
| Toxicity to fish | LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | EC50 (Daphnia magna (Water flea)): > 100 mg/l  
Exposure time: 48 h |
| Toxicity to algae/aquatic plants | EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l  
Exposure time: 72 h |
| Toxicity to microorganisms | EC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209 |

**Persistence and degradability**

**Components:**

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:  
Biodegradability: Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

**Bioaccumulative potential**

**Components:**

2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether:  
Partition coefficient: n- log Pow: 5
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Octanol/water
Lambda-cyhalothrin (ISO):
- Bioaccumulation: Bioconcentration factor (BCF): 2,240
  Method: OECD Test Guideline 305
- Partition coefficient: n-octanol/water: log Pow: 7.0 (20 °C)
- Mobility in soil

Components:
Lambda-cyhalothrin (ISO):
- Distribution among environmental compartments: log Koc: 5.5

Other adverse effects
No data available

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.

14. TRANSPORT INFORMATION

International Regulations

<table>
<thead>
<tr>
<th>UNRTDG</th>
<th>UN/DGR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UN number</strong></td>
<td><strong>UN/DGR</strong></td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>ENVIROMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (2-(2-butoxyethoxy)ethyl 6-propyipiperonyl ether, lambda-cyhalothrin (ISO))</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
</tr>
<tr>
<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Labels</td>
<td>9</td>
</tr>
<tr>
<td><strong>UN/ID No.</strong></td>
<td><strong>UN/DGR</strong></td>
</tr>
<tr>
<td>Proper shipping name</td>
<td>Environmentally hazardous substance, solid, n.o.s. (2-(2-butoxyethoxy)ethyl 6-propyipiperonyl ether, lambda-cyhalothrin (ISO))</td>
</tr>
<tr>
<td>Class</td>
<td>9</td>
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<td>Packing group</td>
<td>III</td>
</tr>
<tr>
<td>Labels</td>
<td>Miscellaneous</td>
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<td>Packing instruction (cargo aircraft)</td>
<td>956</td>
</tr>
<tr>
<td>Packing instruction (passenger aircraft)</td>
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</tbody>
</table>
Lambda-Cyhalothrin / Piperonyl Butoxide Ear Tag

Environmentally hazardous: yes

IMDG-Code
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether, lambda-cyhalothrin (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.

National Regulations
GB 6944/12268
UN number: UN 3077
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether, lambda-cyhalothrin (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.

15. REGULATORY INFORMATION

National regulatory information
Law on the Prevention and Control of Occupational Diseases

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

16. OTHER INFORMATION

Further information
Lambda-Cyhalothrin / Piperonyl Butoxide Ear
Tag

Sources of key data used to compile the Safety Data Sheet

Date format
yyyy/mm/dd

Full text of other abbreviations
ACGIH / TWA: USA. ACGIH Threshold Limit Values (TLV)
CN OEL / PC-TWA: Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

Disclaimer
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.

CN / EN