SAFETY DATA SHEET
according to the Hazardous Products Regulations

Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Version 5.0  Revision Date: 09/18/2023  SDS Number: 1204407-00018  Date of last issue: 04/04/2023  Date of first issue: 01/09/2017

SECTION 1. IDENTIFICATION

Product name: Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation
Other means of identification: No data available

Manufacturer or supplier's details
Company name of supplier: Merck & Co., Inc
Address: 126 E. Lincoln Avenue
Rahway, New Jersey U.S.A. 07065
Telephone: 908-740-4000
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATASTEWARD@merck.com

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product
Restrictions on use: Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations
Acute toxicity (Oral): Category 4
Acute toxicity (Inhalation): Category 3
Skin irritation: Category 2
Eye irritation: Category 2B
Carcinogenicity (Inhalation): Category 2
Specific target organ toxicity - single exposure: Category 1 (Central nervous system, Nervous system)

GHS label elements
Hazard pictograms:

Signal Word: Danger
Hazard Statements: H302 Harmful if swallowed.
H315 + H320 Causes skin and eye irritation.
H331 Toxic if inhaled.
H351 Suspected of causing cancer if inhaled.
H370 Causes damage to organs (Central nervous system, Nervous system).
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 dust, fume, gas, mist, vapors or spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

**Response:**
P301 + P312 + P330 IF SWALLOWED: Call a doctor if you feel unwell. Rinse mouth.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor.
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 + P311 IF exposed or concerned: Call a doctor.
P332 + P313 If skin irritation occurs: Get medical attention.
P337 + P313 If eye irritation persists: Get medical attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

**Storage:**
P405 Store locked up.

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

**Other hazards**
None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture: Mixture

**Components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common Name/Synonym</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyvinyl chloride</td>
<td>Ethene, chloro-, homopolymer</td>
<td>9002-86-2</td>
<td>&gt;= 60 - &lt; 80 *</td>
</tr>
<tr>
<td>Pirimiphos-methyl (ISO)</td>
<td>O-(2-diethylamino-6-methylpyrimidin-4-yl) O,O-dimethyl phosphorothioate</td>
<td>29232-93-7</td>
<td>&gt;= 10 - &lt; 30 *</td>
</tr>
<tr>
<td>Lambda-cyhalothrin</td>
<td>A mixture of: α-</td>
<td>91465-08-6</td>
<td>&gt;= 5 - &lt; 10 *</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.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.

In case of skin contact

: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing 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 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 skin and eye irritation.
Toxic if inhaled.
Suspected of causing cancer if inhaled.
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.

SECTION 5. FIRE-FIGHTING MEASURES
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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 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.
                          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: Surround spill with absorbents and place a damp covering over the area to minimize entry of the material into the air.
                                                     Add excess liquid to allow the material to enter into solution.
                                                     Soak up with inert absorbent material.
                                                     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 dust, fume, gas, mist, vapors or spray.
- 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.
- 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.

Conditions for safe storage:
- Keep in properly labeled containers.
- Store locked up.
- Keep tightly closed.
- Keep in a cool, well-ventilated place.
- Store in accordance with the particular national regulations.

Materials to avoid:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Self-reactive substances and mixtures
  - 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>Polyvinyl chloride</td>
<td>9002-86-2</td>
<td>TWA (Respirable)</td>
<td>1 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Respirable particulate matter)</td>
<td>1 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Pirimiphos-methyl (ISO)</td>
<td>29232-93-7</td>
<td>TWA</td>
<td>60 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>600 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>Lambda-cyhalothrin (ISO)</td>
<td>91465-08-6</td>
<td>TWA</td>
<td>5 µg/m³ (OEB 4)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>50 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Total dust)</td>
<td>10 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (respirable dust fraction)</td>
<td>3 mg/m³</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWAEV (to-)</td>
<td>10 mg/m³</td>
<td>CA QC OEL</td>
</tr>
</tbody>
</table>
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</thead>
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<td>1204407-00018</td>
<td>04/04/2023</td>
<td>01/09/2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Engineering measures</th>
<th>TWA (Respirable particulate matter)</th>
<th>2.5 mg/m³ (Titanium dioxide)</th>
<th>ACGIH</th>
</tr>
</thead>
</table>

**Engineering measures**

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

Minimize open handling.

**Personal protective equipment**

**Respiratory protection**

If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

- **Filter type**: Particulates 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.

**Hygiene measures**

- If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
- When using do not eat, drink or smoke.
- Wash contaminated clothing before re-use.

The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance**

- solid
### Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>characteristic</td>
</tr>
<tr>
<td><strong>Odor Threshold</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Initial boiling point and boiling range</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not classified as a flammability hazard</td>
</tr>
<tr>
<td><strong>Flammability (liquids)</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Upper explosion limit / Upper flammability limit</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Lower explosion limit / Lower flammability limit</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Relative vapor density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Density</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td>Water solubility: insoluble</td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Autoignition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>No data available</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>Viscosity, kinematic: No data available</td>
</tr>
<tr>
<td><strong>Explosive properties</strong></td>
<td>Not explosive</td>
</tr>
<tr>
<td><strong>Oxidizing properties</strong></td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
<tr>
<td><strong>Molecular weight</strong></td>
<td>No data available</td>
</tr>
</tbody>
</table>
Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

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
Skin contact
Ingestion
Eye contact

Acute toxicity
Harmful if swallowed.
Toxic if inhaled.

Product:

Acute oral toxicity : Acute toxicity estimate: 654.55 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 0.7505 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

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

Components:

Pirimiphos-methyl (ISO):

Acute oral toxicity : LD50 (Rat): 1,180 mg/kg
LD50 (Rat): 2,400 - 5,976 mg/kg
LD50 (Mouse): > 575 mg/kg
LD50 (Dog): > 1,500 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.04 mg/l
Exposure time: 4 h
## Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

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</tr>
</tbody>
</table>

### Acute dermal toxicity

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>irritating</td>
</tr>
</tbody>
</table>

### 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

Causes skin irritation.

### Components:

**Pirimiphos-methyl (ISO):**

- **Species**: Rabbit
- **Result**: irritating

**lambda-cyhalothrin (ISO):**

- **Species**: Rabbit
- **Result**: No skin irritation

**Titanium dioxide:**

- **Species**: Rabbit
- **Result**: No skin irritation

### Serious eye damage/eye irritation

Causes eye irritation.
## Components:

### Pirimiphos-methyl (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>Mild eye irritation</td>
</tr>
</tbody>
</table>

### Lambda-cyhalothrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>Mild eye irritation</td>
</tr>
</tbody>
</table>

### Titanium dioxide:

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>No eye irritation</td>
</tr>
</tbody>
</table>

### Respiratory or skin sensitization

#### Skin sensitization
Not classified based on available information.

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

### Components:

#### Pirimiphos-methyl (ISO):

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximization Test</td>
<td>Dermal</td>
<td>Guinea pig</td>
<td>Not a skin sensitizer.</td>
</tr>
</tbody>
</table>

#### Lambda-cyhalothrin (ISO):

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnusson-Kligman-Test</td>
<td>Dermal</td>
<td>Guinea pig</td>
<td>Not a skin sensitizer.</td>
</tr>
</tbody>
</table>

#### Titanium dioxide:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local lymph node assay (LLNA)</td>
<td>Skin contact</td>
<td>Mouse</td>
<td>negative</td>
</tr>
</tbody>
</table>

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

### Components:

#### Pirimiphos-methyl (ISO):

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bacterial reverse mutation assay (AMES)</td>
</tr>
</tbody>
</table>
Result: equivocal

Test Type: sister chromatid exchange assay
Result: positive

Genotoxicity in vivo

Test Type: Micronucleus test
Species: Mouse
Result: negative

Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
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**

Suspected of causing cancer if inhaled.

**Components:**

**Pirimiphos-methyl (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>Result</td>
</tr>
<tr>
<td>---------------</td>
<td>--------</td>
</tr>
<tr>
<td>2 Years</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>Oral</td>
<td>80 weeks</td>
<td>negative</td>
</tr>
</tbody>
</table>

Carcinogenicity - Assessment: Animal testing did not show any carcinogenic effects.

**lambda-cyhalothrin (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>oral (feed)</td>
<td>2 Years</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>oral (feed)</td>
<td>2 Years</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Titanium dioxide:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>inhalation (dust/mist/fume)</td>
<td>2 Years</td>
<td>OECD Test Guideline 453</td>
<td>positive</td>
<td>The mechanism or mode of action may not be relevant in humans.</td>
</tr>
</tbody>
</table>

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

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**Pirimiphos-methyl (ISO):**

<table>
<thead>
<tr>
<th>Effects on fertility</th>
<th>Test Type: Two-generation reproduction toxicity study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Rat</td>
<td>Application Route: Oral</td>
</tr>
<tr>
<td>Fertility: NOAEL: 15.4 mg/kg body weight</td>
<td>Result: No effects on fertility.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effects on fetal development</th>
<th>Test Type: Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Rat</td>
<td>Application Route: Oral</td>
</tr>
<tr>
<td>Developmental Toxicity: NOAEL: 150 mg/kg body weight</td>
<td></td>
</tr>
</tbody>
</table>
Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Result: No effects on early embryonic development.
Remarks: Maternal toxicity observed.

Test Type: Development
Species: Rabbit
Application Route: Oral
Developmental Toxicity: NOAEL: 48 mg/kg body weight
Result: No effects on early embryonic development.
Remarks: Maternal toxicity observed.

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.
Remarks: Based on data from similar materials

Effects on fetal 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 fetal development., Reduced maternal body weight gain., Reduced fetal weight.
Remarks: Based on data from similar materials

STOT-single exposure
Causes damage to organs (Central nervous system, Nervous system).

Components:

Pirimiphos-methyl (ISO):
Target Organs: Central nervous system
Assessment: Causes damage to organs.

lambda-cyhalothrin (ISO):
Target Organs: Nervous system
Assessment: Causes damage to organs.
STOT-repeated exposure
Not classified based on available information.

**Components:**

**Pirimiphos-methyl (ISO):**

| Remarks | Not classified due to inconclusive data. |

**Repeated dose toxicity**

**Components:**

**Pirimiphos-methyl (ISO):**

| Species: Rat | NOAEL: 0.5 mg/kg | LOAEL: 2.5 mg/kg | Application Route: Oral | Exposure time: 28 d | Target Organs: Central nervous system | Symptoms: cholinesterase inhibition |

| Species: Dog | NOAEL: 2 mg/kg | LOAEL: 0.5 mg/kg | Application Route: Oral | Exposure time: 13 Weeks | Target Organs: Central nervous system | Symptoms: cholinesterase inhibition |

| Species: Rat | NOAEL: 25 mg/kg | LOAEL: 2.1 mg/kg | Application Route: Oral | Exposure time: 2 y | Target Organs: Central nervous system | Symptoms: cholinesterase inhibition |

lambda-cyhalothrin (ISO):

| Species: Dog | NOAEL: 0.5 mg/kg | LOAEL: 2.1 mg/kg | Application Route: Oral | Exposure time: 2 y | Target Organs: Central nervous system | Symptoms: cholinesterase inhibition |
### Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

<table>
<thead>
<tr>
<th>Component</th>
<th>Exposure Route</th>
<th>Application Route</th>
<th>Species</th>
<th>NOAEL</th>
<th>LOAEL</th>
<th>Target Organs</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirimiphos-methyl (ISO)</td>
<td>Ingestion</td>
<td></td>
<td>Rat</td>
<td>2.5 mg/kg</td>
<td>12.5 mg/kg</td>
<td>Nervous system</td>
<td>reduced body weight gain, reduced food consumption</td>
</tr>
<tr>
<td></td>
<td></td>
<td>oral (feed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>90 d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dermal</td>
<td>Rat</td>
<td>10 mg/kg</td>
<td>50 mg/kg</td>
<td>Nervous system</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>inhalation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Oral</td>
<td>Dog</td>
<td>0.08 mg/kg</td>
<td>0.9 mg/kg</td>
<td>Nervous system</td>
<td>Gastrointestinal disturbance, Vomiting, Convulsions, ataxia, Liver effects</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 y</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide:</td>
<td>Ingestion</td>
<td>ingestion</td>
<td>Rat</td>
<td>24,000 mg/kg</td>
<td></td>
<td>Nervous system</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>28 Days</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aspiration toxicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not classified based on available information.</td>
</tr>
</tbody>
</table>

### Experience with human exposure

**Components:**

**Pirimiphos-methyl (ISO):**

- **Ingestion:** Symptoms: Nausea, Vomiting, Dizziness, confusion, Headache, Weakness, stomach discomfort, Blurred vision, muscle twitching
**Pirimiphos-Methyl / Lambda-Cyhalothrin 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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<tbody>
<tr>
<td>5.0</td>
<td>09/18/2023</td>
<td>1204407-00018</td>
<td>04/04/2023</td>
<td>01/09/2017</td>
</tr>
</tbody>
</table>

### lambda-cyhalothrin (ISO):

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Symptoms:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Cough, Local irritation, sneezing</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Skin irritation, tingling, superficial burning sensation, Local irritation</td>
</tr>
<tr>
<td>Remarks:</td>
<td>Can be absorbed through skin.</td>
</tr>
<tr>
<td>Eye contact</td>
<td>Symptoms: Eye irritation</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Symptoms: Gastrointestinal disturbance</td>
</tr>
</tbody>
</table>

### SECTION 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

**Components:**

**Pirimiphos-methyl (ISO):**

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>LC50 (Oncorhynchus mykiss (rainbow trout)): 0.2 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>Exposure time: 96 h</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 203</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>EC50 (Daphnia magna (Water flea)): 0.00021 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>Exposure time: 48 h</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 202</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>EC50 (Pseudokirchneriella subcapitata (green algae)): &gt; 1 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>Exposure time: 72 h</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 201</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>NOEC (Pimephales promelas (fathead minnow)): 0.13 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish (Chronic toxicity)</td>
<td>Exposure time: 35 d</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 210</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>NOEC (Daphnia magna (Water flea)): 0.00011 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</td>
<td>Exposure time: 21 d</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 211</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Lambda-cyhalothrin (ISO):**

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00019 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>Exposure time: 96 h</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 203</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00021 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>Exposure time: 96 h</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 203</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ecotoxicity</th>
<th>Component</th>
<th>EC50 (Daphnia magna (Water flea)): 0.00004 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>Exposure time: 48 h</td>
<td></td>
</tr>
<tr>
<td>Method: OECD Test Guideline 202</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remarks: Based on data from similar materials</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
generated in accordance with the Hazardous Products Regulations

Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Version: 5.0  Revision Date: 09/18/2023  SDS Number: 1204407-00018  Date of last issue: 04/04/2023  Date of first issue: 01/09/2017

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

Titanium dioxide:
  LC50 (Oncorhynchus mykiss (rainbow trout)):
    > 100 mg/l
    Exposure time: 96 h
    Method: OECD Test Guideline 203
  EC50 (Daphnia magna (Water flea)):
    > 100 mg/l
    Exposure time: 48 h
  EC50 (Skeletonema costatum (marine diatom)):
    > 10,000 mg/l
    Exposure time: 72 h
  EC50: > 1,000 mg/l
    Exposure time: 3 h
    Method: OECD Test Guideline 209

Persistence and degradability

Components:

Pirimiphos-methyl (ISO):
  Stability in water:
    Hydrolysis: 50 % (117 d)

Bioaccumulative potential

Components:

Pirimiphos-methyl (ISO):
  Partition coefficient: n-octanol/water:
    log Pow: 4.2

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

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

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

| UN number | TOXIC SOLID, ORGANIC, N.O.S. (lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO)) |
| Class | 6.1 |
| Packing group | III |
| Labels | 6.1 |
| Environmentally hazardous | yes |

IATA-DGR

| UN/ID No. | Toxic solid, organic, n.o.s. (lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO)) |
| Class | 6.1 |
| Packing group | III |
| Labels | Toxic |
| Packing instruction (cargo aircraft) | 677 |
| Packing instruction (passenger aircraft) | 670 |

IMDG-Code

| UN number | TOXIC SOLID, ORGANIC, N.O.S. (lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO)) |
| Class | 6.1 |
| Packing group | III |
| Labels | 6.1 |
| EmS Code | F-A, S-A |
SAFETY DATA SHEET
according to the Hazardous Products Regulations

Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

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<thead>
<tr>
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</tr>
</tbody>
</table>

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

TDG
UN number : UN 2811
Proper shipping name : TOXIC SOLID, ORGANIC, N.O.S.
(lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))
Class : 6.1
Packing group : III
Labels : 6.1
ERG Code : 154
Marine pollutant : yes(lambda-cyhalothrin (ISO), Pirimiphos-methyl (ISO))
Remarks : Display “inhalation hazard” mark on package in accordance with TDG 4.23.

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

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)
CA BC OEL : Canada. British Columbia OEL
CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
ACGIH / TWA : 8-hour, time-weighted average
CA AB OEL / TWA : 8-hour Occupational exposure limit
CA BC OEL / TWA : 8-hour time weighted average
CA QC OEL / TWA EV : Time-weighted average exposure value
Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

AllC - 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% growth rate 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; ICSO - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECS - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System


Revision Date: 09/18/2023
Date format: mm/dd/yyyy

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

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.