SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name : Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture : Veterinary product

1.3 Details of the supplier of the safety data sheet
Company : MSD
20 Spartan Road
1619 Spartan, South Africa

Telephone : +27119239300
Telefax : 908-735-1496
E-mail address of person responsible for the SDS : EHSDATASTEWARD@msd.com

1.4 Emergency telephone number
1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification (REGULATION (EC) No 1272/2008)
Acute toxicity, Category 4 : H302: Harmful if swallowed.
Acute toxicity, Category 3 : H331: Toxic if inhaled.
Skin irritation, Category 2 : H315: Causes skin irritation.
Eye irritation, Category 2 : H319: Causes serious eye irritation.
Specific target organ toxicity - single exposure, Category 1 : H370: Causes damage to organs.
Short-term (acute) aquatic hazard, Category 1 : H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1 : H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms :

Signal word : Danger
Hazard statements:
- H302  Harmful if swallowed.
- H315  Causes skin irritation.
- H319  Causes serious eye irritation.
- H331  Toxic if inhaled.
- H370  Causes damage to organs.
- H410  Very toxic to aquatic life with long lasting effects.

Precautionary statements:
- Prevention:
  - P273  Avoid release to the environment.
  - P280  Wear protective gloves/ eye protection/ face protection.
- Response:
  - P304 + P340 + P311  IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
  - P308 + P311  IF exposed or concerned: Call a POISON CENTER/ doctor.
  - P337 + P313  If eye irritation persists: Get medical advice/ attention.
  - P391  Collect spillage.

Hazardous components which must be listed on the label:
- Pirimiphos-methyl (ISO)
- lambda-cyhalothrin (ISO)

2.3 Other hazards
None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirimiphos-methyl (ISO)</td>
<td>29232-93-7</td>
<td>Acute Tox. 4; H302 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 1; H370 (Central nervous system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1.000</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td></td>
<td>249-528-5, 015-134-00-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of 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.

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).

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.

For explanation of abbreviations see section 16.
Get medical attention.
Rinse mouth thoroughly with water.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

<table>
<thead>
<tr>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>Toxic if inhaled.</td>
</tr>
<tr>
<td>Causes damage to organs.</td>
</tr>
</tbody>
</table>

4.3 Indication of any immediate medical attention and special treatment needed

<table>
<thead>
<tr>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat symptomatically and supportively.</td>
</tr>
</tbody>
</table>

SECTION 5: Firefighting measures

5.1 Extinguishing media

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water spray</td>
</tr>
<tr>
<td>Alcohol-resistant foam</td>
</tr>
<tr>
<td>Carbon dioxide (CO2)</td>
</tr>
<tr>
<td>Dry chemical</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unsuitable extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>None known.</td>
</tr>
</tbody>
</table>

5.2 Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th>Specific hazards during firefighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to combustion products may be a hazard to health.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous combustion products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon oxides</td>
</tr>
<tr>
<td>Nitrogen oxides (NOx)</td>
</tr>
<tr>
<td>Chlorine compounds</td>
</tr>
<tr>
<td>Fluorine compounds</td>
</tr>
</tbody>
</table>

5.3 Advice for firefighters

<table>
<thead>
<tr>
<th>Special protective equipment for firefighters</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the event of fire, wear self-contained breathing apparatus.</td>
</tr>
<tr>
<td>Use personal protective equipment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific extinguishing methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.</td>
</tr>
<tr>
<td>Use water spray to cool unopened containers.</td>
</tr>
<tr>
<td>Remove undamaged containers from fire area if it is safe to do so.</td>
</tr>
<tr>
<td>Evacuate area.</td>
</tr>
</tbody>
</table>
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

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.

6.3 Methods and material for containment and cleaning up

Methods for 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.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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, vapours 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.

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 contami-
nated 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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations.

Advice on common storage: Do not store with the following product types:
- Strong oxidizing agents
- Organic peroxides
- Explosives
- Gases

7.3 Specific end use(s)

Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>polyvinyl chloride</td>
<td>9002-86-2</td>
<td>TWA OEL-RL (Respirable dust)</td>
<td>5 mg/m³</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA OEL-RL (inhalable dust)</td>
<td>10 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

Further information: Recommended Limit

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<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>
</tbody>
</table>

8.2 Exposure controls

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**

**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.

**Hand protection**

**Material**: Chemical-resistant gloves

**Remarks**: Consider double gloving.

**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.

**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 (P)

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>solid</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>characteristic</td>
</tr>
<tr>
<td>Odour 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>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not classified as a flammability hazard</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>
</tbody>
</table>
Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Vapour pressure : No data available
Relative vapour density : No data available
Relative density : No data available
Density : No data available
Solubility(ies)
  Water solubility : insoluble
  Partition coefficient: n-octanol/water : No data available
  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.

9.2 Other information
  Flammability (liquids) : No data available
  Molecular weight : No data available
  Particle size : No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
  Not classified as a reactivity hazard.

10.2 Chemical stability
  Stable under normal conditions.

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

10.4 Conditions to avoid
  Conditions to avoid : None known.

10.5 Incompatible materials
  Materials to avoid : Oxidizing agents
SAFETY DATA SHEET

Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Version 3.4 Revision Date: 10.10.2020 SDS Number: 1204433-00011 Date of last issue: 23.03.2020
Date of first issue: 09.01.2017

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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: 0.7676 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

Acute dermal toxicity:
- LD50 (Rabbit): 2.000 mg/kg
- LD50 (Rat): > 4.592 mg/kg

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

**Skin corrosion/irritation**: Causes skin irritation.

**Components:**

**Pirimiphos-methyl (ISO):**
Species: Rabbit  
Result: irritating

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

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

**Components:**

**Pirimiphos-methyl (ISO):**
Species: Rabbit  
Result: Mild eye irritation

**lambda-cyhalothrin (ISO):**
Species: Rabbit  
Result: Mild eye irritation

**Respiratory or skin sensitisation**

**Skin sensitisation**: Not classified based on available information.

**Respiratory sensitisation**: Not classified based on available information.

**Components:**

**Pirimiphos-methyl (ISO):**
Test Type: Maximisation Test  
Exposure routes: Dermal  
Species: Guinea pig  
Result: Not a skin sensitizer.

**lambda-cyhalothrin (ISO):**
Test Type: Magnusson-Kligman-Test  
Exposure routes: Dermal
SAFETY DATA SHEET

Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

Species : Guinea pig
Result : Not a skin sensitizer.

Germ cell mutagenicity
Not classified based on available information.

Components:

Pirimiphos-methyl (ISO):
Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
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

Carcinogenicity
Not classified based on available information.

Components:
Pirimiphos-methyl (ISO):
Species : Rat
Application Route: Oral
Exposure time: 2 Years
Result: negative

Species: Mouse
Application Route: Oral
Exposure time: 80 weeks
Result: negative

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

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

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

Reproductive toxicity
Not classified based on available information.

Components:

Pirimiphos-methyl (ISO):
Effects on fertility: Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Oral
Fertility: NOAEL: 15,4 mg/kg body weight
Result: No effects on fertility

Effects on foetal development: Test Type: Development
Species: Rat
Application Route: Oral
Developmental Toxicity: NOAEL: 150 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
SAFETY DATA SHEET

Pirimiphos-Methyl / Lambda-Cyhalothrin Formulation

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 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:

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):
<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>0.5 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>2.5 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>28 d</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>cholinesterase inhibition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL</td>
<td>2 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>13 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>cholinesterase inhibition</td>
</tr>
</tbody>
</table>

| Remarks | No significant adverse effects were reported |

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>25 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 d</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>cholinesterase inhibition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL</td>
<td>0.5 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 yr</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>cholinesterase inhibition</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>2,1 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 yr</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>cholinesterase inhibition</td>
</tr>
</tbody>
</table>

**lambda-cyhalothrin (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>2.5 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>12.5 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>oral (feed)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 d</td>
</tr>
<tr>
<td>Symptoms</td>
<td>reduced body weight gain, reduced food consumption</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>10 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>50 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Dermal</td>
</tr>
<tr>
<td>Exposure time</td>
<td>21 d</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Nervous system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
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<tr>
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<tr>
<td>3.4</td>
<td>10.10.2020</td>
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<td>09.01.2017</td>
</tr>
</tbody>
</table>

**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

**Aspiration toxicity**

Not classified based on available information.

**Experience with human exposure**

**Components:**

**Pirimiphos-methyl (ISO):**

**Ingestion** : Symptoms: Nausea, Vomiting, Dizziness, confusion, Headache, Weakness, stomach discomfort, Blurred vision, muscle twitching

**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

**SECTION 12: Ecological information**

**12.1 Toxicity**

**Components:**

**Pirimiphos-methyl (ISO):**

**Toxicity to fish** : LC50 (Oncorhynchus mykiss (rainbow trout)): 0,2 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates** : EC50 (Daphnia magna (Water flea)): 0,00021 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

**Toxicity to algae/aquatic plants** : EC50 (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
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M-Factor (Acute aquatic toxicity) : 1.000

Toxicity to fish (Chronic toxicity) : NOEC: 0,13 mg/l
Exposure time: 35 d
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,00011 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : 100

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

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: 0,000062 mg/l
Exposure time: 32 d
Species: Pimephales promelas (fathead minnow)
Method: OECD Test Guideline 210
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0,0035 µg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 10.000
12.2 Persistence and degradability

**Components:**

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

12.3 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)

12.4 Mobility in soil

**Components:**

**lambda-cyhalothrin (ISO):**
Distribution among environmental compartments: log Koc: 5,5

12.5 Results of PBT and vPvB assessment
Not relevant

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Product:** Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

**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

14.1 UN number

**ADN:** UN 2811
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### 14.2 UN proper shipping name

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### 14.3 Transport hazard class(es)

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### 14.4 Packing group

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IATA (Cargo)
Packing instruction (cargo aircraft): 677
Packing instruction (LQ): Y645
Packing group: III
Labels: Toxic

IATA (Passenger)
Packing instruction (passenger aircraft): 670
Packing instruction (LQ): Y645
Packing group: III
Labels: Toxic

14.5 Environmental hazards
ADN
Environmentally hazardous: yes

ADR
Environmentally hazardous: yes

RID
Environmentally hazardous: yes

IMDG
Marine pollutant: yes

14.6 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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Remarks: Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
The components of this product are reported in the following inventories:
AICS: not determined
DSL: not determined
IECSC: not determined

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information
Other information: Items where changes have been made to the previous version
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Full text of H-statements:

H301: Toxic if swallowed.
H302: Harmful if swallowed.
H311: Toxic in contact with skin.
H312: Harmful in contact with skin.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H330: Fatal if inhaled.
H370: Causes damage to organs.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations:

Acute Tox.: Acute toxicity
Aquatic Acute: Short-term (acute) aquatic hazard
Aquatic Chronic: Long-term (chronic) aquatic hazard
Eye Irrit.: Eye irritation
Skin Irrit.: Skin irritation
STOT SE: Specific target organ toxicity - single exposure
ZA OEL: South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
ZA OEL / TWA OEL-RL: Long term occupational exposure limits - recommended limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet;
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SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance 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 Bio-accumulative

Further information


Classification of the mixture:

| Acute Tox. 4 | H302 | Calculation method |
| Acute Tox. 3 | H331 | Calculation method |
| Skin Irrit. 2 | H315 | Calculation method |
| Eye Irrit. 2 | H319 | Calculation method |
| STOT SE 1 | H370 | Calculation method |
| Aquatic Acute 1 | H400 | Calculation method |
| Aquatic Chronic 1 | H410 | Calculation method |

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.

ZA / EN