SAFETY DATA SHEET

Pirimiphos-Methyl Formulation

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Pirimiphos-Methyl Formulation

Manufacturer or supplier’s details
Company: MSD
Address: 91-105 Harpin Street
          Bendigo 3550, Victoria Australia
Telephone: 908-740-4000
Emergency telephone number: 1 800 033 461
E-mail address: EHSDATASTEWARD@msd.com
Telefax: 1 800 817 414

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

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Skin corrosion/irritation: Category 2
Specific target organ toxicity - single exposure: Category 1 (Central nervous system)

GHS label elements
Hazard pictograms: [image]
Signal word: Danger
Hazard statements: H315 Causes skin irritation.
H370 Causes damage to organs (Central nervous system).
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.
P280 Wear protective gloves.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P307 + P311 IF exposed: Call a POISON CENTER or doctor/physician.
P332 + P313 If skin irritation occurs: Get medical advice/atten-
Pirimiphos-Methyl Formulation

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>polyvinyl chloride</td>
<td>9002-86-2</td>
<td>&gt;= 60 - &lt;= 100</td>
</tr>
<tr>
<td></td>
<td>Pirimiphos-methyl (ISO)</td>
<td>29232-93-7</td>
<td>&gt;= 10 - &lt; 30</td>
</tr>
<tr>
<td></td>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>&lt; 1</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. In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

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

In case of skin contact : In case of contact, immediately flush skin with plenty of water 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 : Causes skin irritation. Causes damage to organs.
SAFETY DATA SHEET

Pirimiphos-Methyl 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>
</thead>
<tbody>
<tr>
<td>1.7</td>
<td>23.03.2020</td>
<td>1356595-00008</td>
<td>13.09.2019</td>
<td>24.02.2017</td>
</tr>
</tbody>
</table>

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. 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

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.

SECTION 6. ACCIDENTAL RELEASE MEASURES

<table>
<thead>
<tr>
<th>Personal precautions, protective equipment and emergency procedures</th>
<th>Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental precautions</td>
<td>Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spills cannot be contained.</td>
</tr>
</tbody>
</table>

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.

SECTION 7. HANDLING AND STORAGE

<table>
<thead>
<tr>
<th>Technical measures</th>
<th>See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local/Total ventilation</td>
<td>Use only with adequate ventilation.</td>
</tr>
<tr>
<td>Advice on safe handling</td>
<td>Do not get on skin or clothing.</td>
</tr>
</tbody>
</table>
Do not swallow.
Do not get in eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
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 contaminated clothing before re-use.
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

Conditions for safe storage:
Keep in properly 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

SECTION 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>
<tbody>
<tr>
<td>polyvinyl chloride</td>
<td>9002-86-2</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>Titanium dioxide</td>
<td>13463-67-7</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>AU OEL</td>
</tr>
</tbody>
</table>

Further information: Skin
Wipe limit: 600 µg/100 cm² Internal
Further information: This value is for inhalable dust containing no asbestos and < 1% crystalline silica

| TWA | 10 mg/m³ (Titanium dioxide) | ACGIH |

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 expo-
sure 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: solid

Colour: yellow

Odour: characteristic

Odour Threshold: No data available

pH: No data available

Melting point/freezing point: No data available

Initial boiling point and boiling range: No data available

Flash point: Not applicable

Evaporation rate: No data available

Flammability (solid, gas): Not classified as a flammability hazard

Flammability (liquids): No data available

Upper explosion limit / Upper flammability limit: No data available

Lower explosion limit / Lower flammability limit: No data available

Vapour pressure: No data available

Relative vapour density: No data available
Relative density : No data available
Density : No data available
Solubility(ies) : insoluble
Water solubility : insoluble
Partition coefficient: n-octanol/water : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity : No data available
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

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reac-
tions : Can react with strong oxidizing agents.
Conditions to avoid : None known.
Incompatible materials : Oxidizing agents
Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Exposure routes : Skin contact
Ingestion
Eye contact

Acute toxicity
Not classified based on available information.

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

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

Pirimiphos-Methyl Formulation

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

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

Titanium dioxide:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Not classified based on available information.

Components:

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

Titanium dioxide:
Species: Rabbit
Result: No 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.

Titanium dioxide:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: negative

Chronic toxicity

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

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
Pirimiphos-Methyl Formulation

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.

**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:**

**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.

- **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.

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

**Components:**

Pirimiphos-methyl (ISO):

Target Organs : Central 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
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Central nervous system
Symptoms : cholinesterase inhibition

Species : Rat
NOAEL : 25 mg/kg
Application Route : Oral
Exposure time : 90 d
Target Organs : Central nervous system
Symptoms : cholinesterase inhibition
Remarks : No significant adverse effects were reported

Species : Dog
NOAEL : 0.5 mg/kg
Application Route : Oral
Exposure time : 2 yr
Target Organs : Central nervous system
Symptoms : cholinesterase inhibition
SAFETY DATA SHEET

Pirimiphos-Methyl Formulation

Version 1.7  Revision Date: 23.03.2020  SDS Number: 1356595-00008  Date of last issue: 13.09.2019
Date of first issue: 24.02.2017

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

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

Components:

Pirimiphos-methyl (ISO):
Ingestion: Symptoms: Nausea, Vomiting, Dizziness, confusion, Headache, Weakness, stomach discomfort, Blurred vision, muscle twitching

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

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

Toxicity to fish (Chronic toxicity): NOEC (Pimephales promelas (fathead minnow)): 0.13 mg/l
Exposure time: 35 d
Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):

**Pirimiphos-methyl (ISO):**

- NOEC (Daphnia magna (Water flea)): 0.00011 mg/l
- Exposure time: 21 d
- Method: OECD Test Guideline 211

**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:**

**Polyvinyl chloride:**

- Biodegradability: Result: Not readily biodegradable.

**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

**Mobility in soil**

No data available

**Other adverse effects**

No data available

### SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

- Waste from residues: Dispose of in accordance with local regulations.
- Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.
SECTION 14. TRANSPORT INFORMATION

International Regulations

**UNRTDG**
- UN number: UN 3077
- Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO))
- Class: 9
- Packing group: III
- Labels: 9

**IATA-DGR**
- UN/ID No.: UN 3077
- Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Pirimiphos-methyl (ISO))
- Class: 9
- Packing group: III
- Labels: Miscellaneous,
- Packing instruction (cargo aircraft): 956
- Environmentally hazardous: yes

**IMDG-Code**
- UN number: UN 3077
- Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO))
- Class: 9
- Subsidiary risk: ENVIRONM.
- Packing group: III
- Labels: 9 (ENVIRONM.)
- 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**

**ADG**
- UN number: UN 3077
- Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO))
- Class: 9
- Packing group: III
- Labels: 9
- Hazchem Code: 2Z

**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.
SAFETY DATA SHEET

Pirimiphos-Methyl Formulation

Version 1.7  Revision Date: 23.03.2020  SDS Number: 1356595-00008  Date of last issue: 13.09.2019
Date of first issue: 24.02.2017

Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Prohibition/Licensing Requirements: There is no applicable prohibition or notification/licensing requirements, including for carcinogens under Commonwealth, State or Territory legislation.

The components of this product are reported in the following inventories:

AICS: not determined
DSL: not determined
IECSC: not determined

SECTION 16. OTHER INFORMATION

Further information
Revision Date: 23.03.2020
Date format: dd.mm.yyyy

Full text of other abbreviations

ACGIH: USA. ACGIH Threshold Limit Values (TLV)
AU OEL: Australia. Workplace Exposure Standards for Airborne Contaminants.
ACGIH / TWA: 8-hour, time-weighted average
AU OEL / TWA: Exposure standard - time weighted average

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International
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.

AU / EN