SAFETY DATA SHEET

Pirimiphos-Methyl Formulation

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

1.1 Product identifier
   Trade name : Pirimiphos-Methyl 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)
   - 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 : H315 Causes skin irritation.
                      H319 Causes serious eye irritation.
                      H370 Causes damage to organs.
SAFETY DATA SHEET

Pirimiphos-Methyl Formulation

Precautionary statements:

**Prevention:**
P264  Wash skin thoroughly after handling.
P273  Avoid release to the environment.
P280  Wear protective gloves/ eye protection/ face protection.

**Response:**
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)

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>EC-No.</th>
<th>Index-No.</th>
<th>Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pirimiphos-methyl (ISO)</td>
<td>29232-93-7</td>
<td>249-528-5</td>
<td>015-134-00-5</td>
<td></td>
<td>Acute Tox.4; H302 Acute Tox.4; H312 Skin Irrit.2; H315 Eye Irrit.2; H319 STOT SE1; H370 Aquatic Acute1; H400 Aquatic Chronic1; H410 M-Factor (Acute aquatic toxicity): 1.000 M-Factor (Chronic aquatic toxicity): 100</td>
<td>&gt;= 20 - &lt; 25</td>
</tr>
</tbody>
</table>

For explanation of abbreviations see section 16.

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.
In the case of accident or if you feel unwell, seek medical ad-
vice 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.
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.

4.2 Most important symptoms and effects, both acute and delayed
Risks:
Causes skin irritation.
Causes serious eye irritation.
Causes damage to organs.

4.3 Indication of any immediate medical attention and special treatment needed
Treatment:
Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media
Suitable extinguishing media:
Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media:
None known.
5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.
Hazardous combustion products: Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions

Environmental precautions: 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.

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: Use only with adequate ventilation.

Advice on safe handling:
- Do not get on skin or clothing.
- 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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
- Keep in properly labelled containers. Store locked up. 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

<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></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information: Recommended Limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA OEL-RL (inhalable dust)</td>
<td>10 mg/m³</td>
<td>ZA OEL</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>Further information: Skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>600 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
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
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)
   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
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
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

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

Skin corrosion/irritation
Causes skin irritation.

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

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:
Pirimiphos-methyl (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.

**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

**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.

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.

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
LOAEL: 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
LOAEL: 0.5 mg/kg
Application Route: Oral
Exposure time: 2 yr
Target Organs: Central nervous system
Symptoms: cholinesterase inhibition

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

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

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

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

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

12.4 Mobility in soil
No data available

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 han-
dling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

| ADN   | : UN 3077 |
| ADR   | : UN 3077 |
| RID   | : UN 3077 |
| IMDG  | : UN 3077 |
| IATA  | : UN 3077 |

14.2 UN proper shipping name

| ADN   | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO)) |
| ADR   | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO)) |
| RID   | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO)) |
| IMDG  | : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Pirimiphos-methyl (ISO)) |
| IATA  | : Environmentally hazardous substance, solid, n.o.s. (Pirimiphos-methyl (ISO)) |

14.3 Transport hazard class(es)

| ADN   | : 9 |
| ADR   | : 9 |
| RID   | : 9 |
| IMDG  | : 9 |
| IATA  | : 9 |

14.4 Packing group

| ADN   | Packing group : III |
|       | Classification Code : M7 |
|       | Hazard Identification Number : 90 |
|       | Labels : 9 (ENVIRONM.) |
| ADR   |
SAFETY DATA SHEET

Pirimiphos-Methyl Formulation

Version: 2.3  Revision Date: 23.03.2020  SDS Number: 1356634-00009  Date of last issue: 13.09.2019  Date of first issue: 24.02.2017

Packing group: III  Classification Code: M7  Hazard Identification Number: 90  Labels: 9 (ENVIRONM.)  Tunnel restriction code: (-)

RID
Packing group: III  Classification Code: M7  Hazard Identification Number: 90  Labels: 9 (ENVIRONM.)

IMDG
Packing group: III  Labels: 9 (ENVIRONM.)  EmS Code: F-A, S-F

IATA (Cargo)
Packing instruction (cargo aircraft): 956  Packing instruction (LQ): Y956  Packing group: III  Labels: Miscellaneous,

IATA (Passenger)
Packing instruction (passenger aircraft): 956  Packing instruction (LQ): Y956  Packing group: III  Labels: Miscellaneous,

14.5 Environmental hazards

ADN  Environmentally hazardous: yes

ADR  Environmentally hazardous: yes

RID  Environmentally hazardous: yes

IMDG  Marine pollutant: yes

IATA (Passenger)  Environmentally hazardous: yes

IATA (Cargo)  Environmentally hazardous: 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 are highlighted in the body of this document by two vertical lines.

**Full text of H-Statements**

- **H302**: Harmful if swallowed.
- **H312**: Harmful in contact with skin.
- **H315**: Causes skin irritation.
- **H319**: Causes serious eye irritation.
- **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; AICS - Australian Inventory of Chemical Substances; 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 Equip-
Further information

Classification of the mixture:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Code</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irrit. 2</td>
<td>H315</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Irrit. 2</td>
<td>H319</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 1</td>
<td>H370</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>H410</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

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