SAFETY DATA SHEET

Permethrin (65%) Formulation

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Permethrin (65%) Formulation

Manufacturer or supplier’s details
Company : MSD
Address : JL Raya Pandaan KM. 48
Pandaan, Jawa Timur - Indonesia
Telephone : 908-740-4000
Emergency telephone number : 1-908-423-6000
E-mail address : EHSDATASTEWARD@msd.com

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

2. HAZARDS IDENTIFICATION

GHS Classification
Flammable liquids : Category 3
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Skin sensitisation : Category 1
Specific target organ toxicity - single exposure : Category 3
Short-term (acute) aquatic hazard : Category 1
Long-term (chronic) aquatic hazard : Category 1

GHS label elements
Hazard pictograms : ☢ ⚠ ☑
Signal word : Warning
Hazard statements : H226 Flammable liquid and vapour.
H302 + H332 Harmful if swallowed or if inhaled.
H317 May cause an allergic skin reaction.
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

**Prevention:**
- P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- P261 Avoid breathing mist or vapours.
- 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.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
- P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
- P362 + P364 Take off contaminated clothing and wash it before reuse.
- P391 Collect spillage.

**Storage:**
- P403 + P235 Store in a well-ventilated place. Keep cool.
- P405 Store locked up.

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

Other hazards which do not result in classification:
Vapours may form explosive mixture with air.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance / Mixture:** Mixture

**Components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permethrin (ISO)</td>
<td>52645-53-1</td>
<td>&gt;= 60 -&lt;= 100</td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>&gt;= 30 -&lt; 60</td>
</tr>
<tr>
<td>2-Methoxypropanol</td>
<td>1589-47-5</td>
<td>&lt; 0.3</td>
</tr>
</tbody>
</table>
4. FIRST AID MEASURES

General advice: In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical 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. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting. 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 or if inhaled. May cause an allergic skin reaction. May cause drowsiness or dizziness.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

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

Unsuitable extinguishing media: High volume water jet

Specific hazards during firefighting: Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapours may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Chlorine compounds
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.
6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). 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: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. 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.

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. Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling: Do not get on skin or clothing. Avoid breathing mist or vapours. Do not swallow. Avoid contact with 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. Non-sparking tools should be used. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges. 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 labelled containers.
- Store locked up.
- Keep tightly closed.
- Keep in a cool, well-ventilated place.
- Store in accordance with the particular national regulations.
- Keep away from heat and sources of ignition.

Materials to avoid:
- Do not store with the following product types:
  - Self-reactive substances and mixtures
  - Organic peroxides
  - Oxidizing agents
  - Flammable gases
  - Pyrophoric liquids
  - Pyrophoric solids
  - Self-heating substances and mixtures
  - Poisonous gases
  - Explosives

### 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>Permethrin (ISO)</td>
<td>52645-53-1</td>
<td>TWA</td>
<td>80 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>800 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>NAB</td>
<td>100 ppm</td>
<td>ID OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PSD</td>
<td>150 ppm</td>
<td>ID OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>100 ppm</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

#### Engineering measures:
- Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless quick connections).
- 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.
- Use explosion-proof electrical, ventilating and lighting equipment.

#### 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: Organic vapour type

Hand protection: Chemical-resistant gloves

Material: Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

Remarks: 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.

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.
Contaminated work clothing should not be allowed out of the workplace.
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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Colour: dark amber
Odour: strong
Odour Threshold: No data available
pH: No data available
Flash point: 37.8 - 40 °C
Evaporation rate: No data available
Flammability (solid, gas): Not applicable
Flammability (liquids) : Not applicable
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 : immiscible
Partition coefficient: n-octanol/water : Not applicable
Auto-ignition temperature : No data available
Decomposition temperature : No data available
Viscosity
   Viscosity, kinematic : No data available
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : No data available
Particle size : Not applicable

10. STABILITY AND REACTIVITY
Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions
   Flammable liquid and vapour.
   Vapours may form explosive mixture with air.
   Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.
Incompatible materials : Oxidizing agents
Hazardous decomposition products : No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION
Information on likely routes of : Inhalation
### Acute toxicity

Harmful if swallowed or if inhaled.

#### Product:

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Skin contact</th>
<th>Ingestion</th>
<th>Eye contact</th>
</tr>
</thead>
</table>

**Acute toxicity estimate:** 769.23 mg/kg  
**Method:** Calculation method

| Acute inhalation toxicity | Acute toxicity estimate: 3.54 mg/l  
| Exposure time: 4 h  
| Test atmosphere: dust/mist  
| Method: Calculation method |

#### Components:

**Permethrin (ISO):**

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>LD50 (Rat): 480 - 554 mg/kg</th>
</tr>
</thead>
</table>
| Acute inhalation toxicity | LC50 (Rat): 2.3 mg/l  
| Exposure time: 4 h  
| Test atmosphere: dust/mist |
| Acute dermal toxicity | LD50 (Rabbit): > 2,000 mg/kg |

**1-Methoxy-2-propanol:**

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>LD50 (Rat): 4,016 mg/kg</th>
</tr>
</thead>
</table>
| Acute inhalation toxicity | LC50 (Mouse): < 22.2 mg/l  
| Exposure time: 6 h  
| Test atmosphere: vapour |
| Acute dermal toxicity | LD50 (Rat): > 2,000 mg/kg  
| Assessment: The substance or mixture has no acute dermal toxicity |

**2-Methoxypropanol:**

<table>
<thead>
<tr>
<th>Acute oral toxicity</th>
<th>LD50 (Rat): &gt; 5,000 mg/kg</th>
</tr>
</thead>
</table>
| Acute inhalation toxicity | LC50 (Rat): > 6 mg/l  
| Exposure time: 4 h  
| Test atmosphere: vapour |

**Skin corrosion/irritation**

Not classified based on available information.

#### Components:

**Permethrin (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>
1-Methoxy-2-propanol:
Species : Rabbit
Result : No skin irritation

2-Methoxypropanol:
Species : Rabbit
Result : No skin irritation
Remarks : Based on data from similar materials

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

Components:
Permethrin (ISO):
Species : Rabbit
Result : No eye irritation

1-Methoxy-2-propanol:
Species : Rabbit
Result : No eye irritation

2-Methoxypropanol:
Result : No eye irritation
Remarks : Based on data from similar materials

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

Components:
Permethrin (ISO):
Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive
Assessment : Probability or evidence of skin sensitisation in humans

1-Methoxy-2-propanol:
Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative
2-Methoxypropanol:
   Test Type: Maximisation Test
   Exposure routes: Skin contact
   Species: Guinea pig
   Result: negative
   Remarks: Based on data from similar materials

Germ cell mutagenicity
Not classified based on available information.

Components:

Permethrin (ISO):
   Genotoxicity in vitro:
      Test Type: Bacterial reverse mutation assay (AMES)
                  Result: negative
      Test Type: In vitro mammalian cell gene mutation test
                  Result: negative
      Test Type: Chromosome aberration test in vitro
                  Result: negative
      Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
                  Result: negative
      Test Type: Chromosome aberration test in vitro
                  Result: positive
   Genotoxicity in vivo:
      Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
                  Species: Mouse
                  Result: negative
      Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
                  Species: Mouse
                  Result: negative
      Test Type: Rodent dominant lethal test (germ cell) (in vivo)
                  Species: Mouse
                  Result: negative
      Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
                  Species: Rat
                  Application Route: Intraperitoneal injection
                  Result: negative
      Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
                  Species: Mouse
                  Application Route: Ingestion
                  Result: positive
## Germ cell mutagenicity - Assessment

Weight of evidence does not support classification as a germ cell mutagen.

### 1-Methoxy-2-propanol:

**Genotoxicity in vitro**

- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative

- Test Type: Chromosome aberration test in vitro
  - Result: negative

- Test Type: In vitro mammalian cell gene mutation test
  - Result: negative

- Test Type: In vitro sister chromatid exchange assay in mammalian cells
  - Result: equivocal

- Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
  - Method: OECD Test Guideline 482
  - Result: negative

### Genotoxicity in vivo

- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: negative

### 2-Methoxypropanol:

**Genotoxicity in vitro**

- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative

- Test Type: Chromosome aberration test in vitro
  - Result: negative
  - Remarks: Based on data from similar materials

- Test Type: In vitro mammalian cell gene mutation test
  - Result: negative
  - Remarks: Based on data from similar materials

- Test Type: In vitro sister chromatid exchange assay in mammalian cells
  - Result: equivocal
  - Remarks: Based on data from similar materials

- Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
  - Method: OECD Test Guideline 482
  - Result: negative
  - Remarks: Based on data from similar materials

### Genotoxicity in vivo

- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
### Carcinogenicity
Not classified based on available information.

### Components:

#### Permethrin (ISO):

<table>
<thead>
<tr>
<th>Application Route</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intraperitoneal injection</td>
<td>Rat</td>
<td>negative</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Mouse</td>
<td>negative</td>
</tr>
</tbody>
</table>

#### 1-Methoxy-2-propanol:

<table>
<thead>
<tr>
<th>Application Route</th>
<th>Species</th>
<th>Method</th>
<th>Exposure time</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation (vapour)</td>
<td>Rat</td>
<td>OECD Test Guideline 453</td>
<td>2 Years</td>
<td>negative</td>
</tr>
</tbody>
</table>

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

### Components:

#### Permethrin (ISO):

<table>
<thead>
<tr>
<th>Effects on fertility</th>
<th>Application Route</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Two-generation reproduction toxicity study</td>
<td>Ingestion</td>
<td>Rat</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effects on foetal development</th>
<th>Application Route</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test</td>
<td>Ingestion</td>
<td>Rat</td>
<td>negative</td>
</tr>
</tbody>
</table>

#### 1-Methoxy-2-propanol:

<table>
<thead>
<tr>
<th>Effects on fertility</th>
<th>Application Route</th>
<th>Method</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Two-generation reproduction toxicity study</td>
<td>Inhalation (vapour)</td>
<td>OECD Test Guideline 416</td>
<td>Rat</td>
<td>negative</td>
</tr>
</tbody>
</table>
Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

2-Methoxypropanol:
Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rabbit  
Application Route: Inhalation  
Result: positive

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

**STOT - single exposure**
May cause drowsiness or dizziness.

**Components:**

**1-Methoxy-2-propanol:**
Assessment : May cause drowsiness or dizziness.

**2-Methoxypropanol:**
Assessment : May cause respiratory irritation.  
Remarks : Based on harmonised classification in EU regulation 1272/2008, Annex VI

**STOT - repeated exposure**
Not classified based on available information.

**Repeated dose toxicity**

**Components:**

**Permethrin (ISO):**
Species : Rat  
NOAEL : 0.2201 mg/l  
Application Route : Inhalation  
Exposure time : 90 Days

Species : Rat  
NOAEL : 175 mg/kg  
Application Route : Ingestion  
Exposure time : 90 Days

**1-Methoxy-2-propanol:**
Species : Rat  
NOAEL : 919 mg/kg  
Application Route : Ingestion  
Exposure time : 35 Days
**SAFETY DATA SHEET**

**Permethrin (65%) 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>1.1</td>
<td>2021/08/27</td>
<td>7766191-00002</td>
<td>2021/02/05</td>
<td>2021/02/05</td>
</tr>
</tbody>
</table>

**Species:** Rat

**NOAEL:** 1.1 mg/l

**Application Route:** Inhalation (vapour)

**Exposure time:** 2 yr

**Method:** OECD Test Guideline 453

**Species:** Rabbit

**NOAEL:** 1,838 mg/kg

**Application Route:** Skin contact

**Exposure time:** 90 Days

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**2-Methoxypropanol:**

**Species:** Rat

**NOAEL:** 10.5 mg/l

**Application Route:** Inhalation (vapour)

**Exposure time:** 28 Days

**Species:** Rat

**NOAEL:** > 300 mg/l

**Application Route:** Ingestion

**Number of exposures:** 25 Days

**Remarks:** Based on data from similar materials

**Species:** Rabbit

**NOAEL:** > 200 mg/l

**Application Route:** Skin contact

**Number of exposures:** 90 Days

**Remarks:** Based on data from similar materials

**Aspiration toxicity**

Not classified based on available information.

---

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Components:**

**Permethrin (ISO):**

**Toxicity to fish:** LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00079 mg/l

Exposure time: 96 h

**Toxicity to daphnia and other aquatic invertebrates:** EC50 (Daphnia magna (Water flea)): 0.0001 mg/l

Exposure time: 48 h

**Toxicity to algae/aquatic plants:** ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.13 mg/l

Exposure time: 72 h

EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0023 mg/l

Exposure time: 72 h
<table>
<thead>
<tr>
<th>Substance</th>
<th>Toxicity to fish (Chronic toxicity)</th>
<th>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</th>
<th>M-Factor (Acute aquatic toxicity)</th>
<th>Toxicity to microorganisms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M-Factor</strong></td>
<td>NOEC (Danio rerio (zebra fish)): 0.00041 mg/l</td>
<td>NOEC (Daphnia magna (Water flea)): 0.0047 µg/l</td>
<td>10,000</td>
<td>EC50: &gt; 1,000 mg/l</td>
</tr>
<tr>
<td></td>
<td>Exposure time: 35 d</td>
<td>Exposure time: 21 d</td>
<td></td>
<td>Exposure time: 3 h</td>
</tr>
<tr>
<td><strong>1-Methoxy-2-propanol</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>2-Methoxypropanol</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Remarks**: Based on data from similar materials

**Exposure time**: 96 h

**Method**: DIN 38412
Persistence and degradability

Components:

Permethrin (ISO):
Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301F

1-Methoxy-2-propanol:
Biodegradability : Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

2-Methoxypropanol:
Biodegradability : Result: Readily biodegradable.
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Permethrin (ISO):
Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 570
Partition coefficient: n-octanol/water : log Pow: 4.67

1-Methoxy-2-propanol:
Partition coefficient: n-octanol/water : log Pow: < 1

2-Methoxypropanol:
Partition coefficient: n-octanol/water : log Pow: -0.49
Remarks: Calculation

Mobility in soil
No data available

Other adverse effects
No data available

13. DISPOAL 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.
Empty containers retain residue and can be dangerous.
Do not pressurize, cut, weld, braze, solder, drill, grind, or ex-
pose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations

**UNRTDG**
- UN number: UN 3092
- Proper shipping name: 1-METHOXY-2-PROPANOL SOLUTION
- Class: 3
- Packing group: III
- Labels: 3

**IATA-DGR**
- UN/ID No.: UN 3092
- Proper shipping name: 1-Methoxy-2-propanol solution
- Class: 3
- Packing group: III
- Labels: Flammable Liquids
- Packing instruction (cargo aircraft): 366
- Packing instruction (passenger aircraft): 355

**IMDG-Code**
- UN number: UN 3092
- Proper shipping name: 1-METHOXY-2-PROPANOL SOLUTION
- Class: 3
- Packing group: III
- Labels: 3
- EmS Code: F-E, S-D
- Marine pollutant: yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

**Special precautions for user**

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

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

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances Hazardous to Health
Hazardous substances that must be registered : Not applicable

Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances
Hazardous substances approved for use : Not applicable
Prohibited substances : Not applicable
Restricted substances : Not applicable

Regulation of the Minister of Trade No. 44 of 2009 on Procurement, Distribution and Supervision of Hazardous Materials
Type of Hazardous Materials Restricted to Import, Distribution and Supervision : Not applicable

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

16. OTHER INFORMATION

Further information
Date format : yyyy/mm/dd

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ID OEL : Indonesia. Occupational Exposure Limits
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
ID OEL / NAB : Long term exposure limit
ID OEL / PSD : Short term exposure limit

AIIIC - 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% 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 con-
SAFETY DATA SHEET

Permethrin (65%) Formulation

Version 1.1
Revision Date: 2021/08/27
SDS Number: 7766191-00002
Date of last issue: 2021/02/05
Date of first issue: 2021/02/05

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.

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