SAFETY DATA SHEET

Permethrin (65%) Formulation

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

1.1 Product identifier

Trade name : Permethrin (65%) 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

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)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids, Category 3</td>
<td>H226: Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Acute toxicity, Category 4</td>
<td>H302: Harmful if swallowed.</td>
</tr>
<tr>
<td>Acute toxicity, Category 4</td>
<td>H332: Harmful if inhaled.</td>
</tr>
<tr>
<td>Skin sensitisation, Category 1</td>
<td>H317: May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure, Category 3</td>
<td>H336: May cause drowsiness or dizziness.</td>
</tr>
<tr>
<td>Short-term (acute) aquatic hazard, Category 1</td>
<td>H400: Very toxic to aquatic life.</td>
</tr>
<tr>
<td>Long-term (chronic) aquatic hazard, Category 1</td>
<td>H410: Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

2.2 Label elements

<table>
<thead>
<tr>
<th>Labelling (REGULATION (EC) No 1272/2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard pictograms :</td>
</tr>
<tr>
<td>Signal word : Warning</td>
</tr>
<tr>
<td>Hazard statements :</td>
</tr>
<tr>
<td>H226 Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H302 + H332 Harmful if swallowed or if inhaled.</td>
</tr>
<tr>
<td>H317 May cause an allergic skin reaction.</td>
</tr>
</tbody>
</table>
H336 May cause drowsiness or dizziness.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
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.
P391 Collect spillage.

Hazardous components which must be listed on the label:
Permethrin (ISO)
1-Methoxy-2-propanol

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

<table>
<thead>
<tr>
<th>Chemical name</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>Permethrin (ISO)</td>
<td>52645-53-1</td>
<td>258-067-9</td>
<td>613-058-00-2</td>
<td></td>
<td>Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10.000 M-Factor (Chronic aquatic toxicity): 10.000</td>
<td>&gt;= 50 - &lt; 70</td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>203-539-1</td>
<td></td>
<td></td>
<td>Flam. Liq. 3; H226 STOT SE 3; H336</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
</tbody>
</table>
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. 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.

4.2 Most important symptoms and effects, both acute and delayed

Risks: Harmful if swallowed or if inhaled. May cause an allergic skin reaction. May cause drowsiness or dizziness.

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: High volume water jet

5.2 Special hazards arising from the substance or mixture

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

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:
- Remove all sources of ignition.
- 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.
- 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.
6.3 Methods and material for containment and cleaning up

Methods for 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.

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.
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.

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,
7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:

Advice on common storage:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Organic peroxides
  - Flammable solids
  - Pyrophoric liquids
  - Pyrophoric solids
  - Self-heating substances and mixtures
  - Substances and mixtures, which in contact with water, emit flammable gases
  - 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>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></td>
<td>Wipe limit</td>
<td>800 µg/100 cm²</td>
</tr>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>107-98-2</td>
<td>TWA OEL-RL</td>
<td>100 ppm</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>360 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Further information: Absorption through the skin, Recommended Limit

| STEL OEL-RL         | 300 ppm   |                   | ZA OEL            |
|                     | 1.080 mg/m³|                   |                   |

Further information: Absorption through the skin, Recommended Limit

| STEL                | 150 ppm   |                   | 2000/39/EC        |
|                     | 568 mg/m³ |                   |                   |
| TWA                 | 100 ppm   |                   | 2000/39/EC        |
|                     | 375 mg/m³ |                   |                   |

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methoxy-2-propanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>369 mg/m³</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acute systemic effects</td>
<td>553.5 mg/m³</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Engineering measures
Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less 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

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 face shield 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. Take note that the product is flammable, which may impact the selection of hand protection.
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: Organic vapour type (A)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- **Appearance**: liquid
- **Colour**: dark amber
- **Odour**: strong
- **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**: 37.8 - 40 °C
- **Evaporation rate**: No data available
- **Flammability (solid, gas)**: 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**: Not applicable
- **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): Not applicable
- Molecular weight: No data available
- Particle size: Not applicable

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


10.4 Conditions to avoid

- Conditions to avoid: Heat, flames and sparks.

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:
  - Inhalation
  - Skin contact
  - Ingestion
  - Eye contact

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

- Acute oral toxicity: 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):
Acute oral toxicity : LD50 (Rat): 480 - 554 mg/kg
  
  Acute toxicity estimate: 480 mg/kg
  Method: Calculation method

Acute inhalation toxicity : LC50 (Rat): 2,3 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist

  Acute toxicity estimate: 2,3 mg/l
  Test atmosphere: dust/mist
  Method: Calculation method

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

1-Methoxy-2-propanol:
- Acute oral toxicity : LD50 (Rat): 4.016 mg/kg
- 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:
- Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
- 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):
- Species : Rabbit
- Result : No skin irritation

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

2-Methoxypropanol:
- Result : Skin irritation
- Remarks : Based on harmonised classification in EU regulation 1272/2008, Annex VI
SAFETY DATA SHEET

Permethrin (65%) Formulation

Version: 1.2   Revision Date: 27.08.2021   SDS Number: 7766182-00003   Date of last issue: 11.03.2021   Date of first issue: 05.02.2021

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: Irreversible effects on the eye
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

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  
Application Route: Intraperitoneal injection  
Result: negative  
Remarks: Based on data from similar materials

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Mouse  
Application Route: Ingestion  
Result: negative
Carcinogenicity
Not classified based on available information.

**Components:**

**Permethrin (ISO):**
- Species: Rat
  - Result: negative
- Species: Mouse
  - Result: negative

**1-Methoxy-2-propanol:**
- Species: Rat
  - Application Route: inhalation (vapour)
  - Exposure time: 2 Years
  - Method: OECD Test Guideline 453
  - Result: negative

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

**Components:**

**Permethrin (ISO):**
- Effects on fertility: Test Type: Two-generation reproduction toxicity study
  - Species: Rat
  - Application Route: Ingestion
  - Result: negative
- Effects on foetal development: Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
  - Species: Rat
  - Application Route: Ingestion
  - Result: negative

**1-Methoxy-2-propanol:**
- Effects on fertility: Test Type: Two-generation reproduction toxicity study
  - Species: Rat
  - Application Route: inhalation (vapour)
  - Method: OECD Test Guideline 416
  - Result: negative
- 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
## 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

- **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

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.

SECTION 12: Ecological information

12.1 Toxicity

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

M-Factor (Acute aquatic toxicity) : 10.000

Toxicity to microorganisms : EC50 : > 1.000 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity) : NOEC: 0.00041 mg/l
Exposure time: 35 d
Species: Danio rerio (zebra fish)
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: 0.0047 µg/l
  Exposure time: 21 d
- Species: Daphnia magna (Water flea)
  Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity): 10.000

1-Methoxy-2-propanol:

Toxicity to fish:
- LC50 (Leuciscus idus (Golden orfe)): 6.812 mg/l
  Exposure time: 96 h
  Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 23.300 mg/l
  Exposure time: 48 h

Toxicity to algae/aquatic plants:
- ErC50 (Skeletonema costatum (marine diatom)): 6.745 mg/l
  Exposure time: 72 h
  Method: ISO 10253

Toxicity to microorganisms:
- IC50: > 1.000 mg/l
  Exposure time: 3 h
  Method: OECD Test Guideline 209

2-Methoxypropanol:

Toxicity to fish:
- LC50 (Leuciscus idus (Golden orfe)): > 100 mg/l
  Exposure time: 96 h
  Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): > 100 mg/l
  Exposure time: 48 h
  Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants:
- ErC50 (Skeletonema costatum (marine diatom)): > 100 mg/l
  Exposure time: 72 h
  Method: ISO 10253
  Remarks: Based on data from similar materials

Toxicity to microorganisms:
- EC10: > 1 mg/l
  Exposure time: 3 h
  Method: OECD Test Guideline 209
  Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: > 1 mg/l
  Exposure time: 21 d
- Species: Daphnia magna (Water flea)
  Method: OECD Test Guideline 211
  Remarks: Based on data from similar materials
12.2 Persistence and degradability

**Components:**

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

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

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

12.3 Bioaccumulative potential

**Components:**

**Permethrin (ISO):**
- Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish) Bioconcentration factor (BCF): 570
- Partition coefficient: \( \text{log Pow} \): 4.67

**1-Methoxy-2-propanol:**
- Partition coefficient: \( \text{log Pow} \): < 1

**2-Methoxypropanol:**
- Partition coefficient: \( \text{log Pow} \): -0.49 Remarks: Calculation

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

**Product:**
- Assessment: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

**Product:**
- Endocrine disrupting potential: The substance/mixture does not contain components considered to have endocrine disrupting properties according to
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REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose 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.

SECTION 14: Transport information

14.1 UN number

| ADN | UN 3092 |
| ADR | UN 3092 |
| RID | UN 3092 |
| IMDG | UN 3092 |
| IATA | UN 3092 |

14.2 UN proper shipping name

| ADN | 1-METHOXY-2-PROpanol, SOLUTION |
| ADR | 1-METHOXY-2-PROpanol, SOLUTION |
| RID | 1-METHOXY-2-PROpanol, SOLUTION |
| IMDG | 1-METHOXY-2-PROpanol, SOLUTION (Permethrin (ISO)) |
| IATA | 1-Methoxy-2-propanol, solution |

14.3 Transport hazard class(es)

| ADN | 3 |
| ADR | 3 |
| RID | 3 |
| IMDG | 3 |
| IATA | 3 |

14.4 Packing group
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ADN
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

ADR
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3
Tunnel restriction code : (D/E)

RID
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IMDG
Packing group : III
Labels : 3
EmS Code : F-E, S-D

IATA (Cargo)
Packing instruction (cargo aircraft) : 366
Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

IATA (Passenger)
Packing instruction (passenger aircraft) : 355
Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

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 are highlighted in the body of this document by two vertical lines.

Full text of H-statements

- H226: Flammable liquid and vapour.
- H302: Harmful if swallowed.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H332: Harmful if inhaled.
- H335: May cause respiratory irritation.
- H336: May cause drowsiness or dizziness.
- H360D: May damage the unborn child.
- 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 Dam.: Serious eye damage
- Flam. Liq.: Flammable liquids
- Reppr.: Reproductive toxicity
- Skin Irrit.: Skin irritation
- Skin Sens.: Skin sensitisation
- STOT SE: Specific target organ toxicity - single exposure
- ZA OEL: South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
- 2000/39/EC / TWA: Limit Value - eight hours
- 2000/39/EC / STEL: Short term exposure limit
- ZA OEL / TWA OEL-RL: Long term occupational exposure limits - recommended limit
- ZA OEL / STEL OEL-RL: Short term occupational exposure limits - recommended limit
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Further information

Classification of the mixture:

Classification procedure:

Flam. Liq. 3 H226 Based on product data or assessment
Acute Tox. 4 H302 Calculation method
Acute Tox. 4 H332 Calculation method
Skin Sens. 1 H317 Calculation method
STOT SE 3 H336 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.

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