Flumethrin (1%) Formulation

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Flumethrin (1%) Formulation

Manufacturer or supplier’s details
Company: MSD
Address: No. 485 Jing Tai Road
Pu Tuo District - Shanghai - China 200331

Telephone: +1-908-740-4000
Emergency telephone number: 86-571-87268110
E-mail address: EHSDATASTEWARD@msd.com

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

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance: Aqueous solution
Colour: light brown, yellow
Odour: No data available

Flammable liquid and vapour. Harmful if swallowed. May be fatal if swallowed and enters airways. Toxic in contact with skin. Causes skin irritation. Causes serious eye irritation. May damage the unborn child. May cause damage to organs. May cause damage to organs through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.

GHS Classification
Flammable liquids: Category 3
Acute toxicity (Oral): Category 4
Acute toxicity (Dermal): Category 3
Skin corrosion/irritation: Category 2
Serious eye damage/eye irritation: Category 2A
Reproductive toxicity: Category 1B
Specific target organ toxicity - single exposure: Category 2
Specific target organ toxicity - repeated exposure: Category 2
Aspiration hazard : Category 1
Short-term (acute) aquatic hazard : Category 3
Long-term (chronic) aquatic hazard : Category 3

GHS label elements

Hazard pictograms : [images of hazard symbols]
Signal word : Danger
Hazard statements :
- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H311 Toxic in contact with skin.
- H315 Causes skin irritation.
- H319 Causes serious eye irritation.
- H360D May damage the unborn child.
- H371 May cause damage to organs.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H412 Harmful to aquatic life with long lasting effects.

Precautionary statements :

Prevention:
- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- 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.
- P260 Do not breathe mist or vapours.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
- P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/ doctor if you feel unwell.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P305 + P351 + P338 IF IN EYES: Rinse cautiously with water
for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.

**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.

**Physical and chemical hazards**
Flammable liquid and vapour.

**Health hazards**
Harmful if swallowed. Toxic in contact with skin. Causes skin irritation. Causes serious eye irritation. May damage the unborn child. May cause damage to organs. May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

**Environmental hazards**
Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

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

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (w/w)</th>
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<tbody>
<tr>
<td>Paraffin oil</td>
<td>8012-95-1</td>
<td>&gt;= 50 - &lt; 70</td>
<td></td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>&gt;= 10 - &lt; 20</td>
<td></td>
</tr>
<tr>
<td>Flumethrin</td>
<td>69770-45-2</td>
<td>&gt;= 1 - &lt; 2.5</td>
<td></td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>&gt;= 0.25 - &lt; 1</td>
<td></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.
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. If vomiting occurs have person lean forward. Call a physician or poison control centre immediately. 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. May be fatal if swallowed and enters airways. Toxic in contact with skin. Causes skin irritation. Causes serious eye irritation. May damage the unborn child. May cause damage to organs. May cause damage to organs through prolonged or repeated exposure.

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: 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.
6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**: Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

**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

**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. Do not breathe mist or vapours. Do not swallow. Do not get in eyes. Wash skin thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. 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.

Avoidance of contact: Oxidizing agents

Storage

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

Packaging material: Unsuitable material: None known.

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>Paraffin oil</td>
<td>8012-95-1</td>
<td>TWA (Inhalable particulate matter)</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Xylene</td>
<td>1330-20-7</td>
<td>PC-TWA</td>
<td>50 mg/m³</td>
<td>CN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC-STEIL</td>
<td>100 mg/m³</td>
<td>CN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>100 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>150 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Flumethrin</td>
<td>69770-45-2</td>
<td>TWA</td>
<td>45 µg/m³ (OEL 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Further information: Skin</td>
<td>Wipe limit</td>
<td>450 µg/100 cm²</td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>PC-TWA</td>
<td>50 mg/m³</td>
<td>CN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PC-STEIL</td>
<td>100 mg/m³</td>
<td>CN OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>20 ppm</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
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<tbody>
<tr>
<td>Substance</td>
<td>CAS Number</td>
<td>Sample</td>
<td>Measurement</td>
<td>Threshold Concentration</td>
<td>Source</td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
<td>-----------------------------</td>
<td>--------------------------------------</td>
<td>-------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Xylen</td>
<td>1330-20-7</td>
<td>methylhippuric acids Urine</td>
<td>End of shift</td>
<td>0.3 g/g creatinine</td>
<td>CN BEI</td>
</tr>
<tr>
<td>Methylhippuric acids Urine</td>
<td>End of shift</td>
<td>0.4 g/l</td>
<td>CN BEI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toluene</td>
<td>108-88-3</td>
<td>hippuric acid Urine</td>
<td>End of workshift (after exposure has ended)</td>
<td>1.5 g/g creatinine</td>
<td>CN BEI</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>hippuric acid Urine</td>
<td>End of workshift (after exposure has ended)</td>
<td>1.5 g/g creatinine</td>
<td>CN BEI</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>hippuric acid Urine</td>
<td>End of workshift (after exposure has ended)</td>
<td>11 Millimoles per liter</td>
<td>CN BEI</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>hippuric acid Urine</td>
<td>End of workshift (after exposure has ended)</td>
<td>2 g/l</td>
<td>CN BEI</td>
</tr>
<tr>
<td>Toluene</td>
<td></td>
<td>toluene end exhaled air</td>
<td>End of workshift (15-30 min after exposure has ended)</td>
<td>20 mg/m³</td>
<td>CN BEI</td>
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<tr>
<td>Toluene</td>
<td></td>
<td>toluene end exhaled air</td>
<td>Prior to shift</td>
<td>5 mg/m³</td>
<td>CN BEI</td>
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<tr>
<td>Toluene</td>
<td></td>
<td>In blood</td>
<td>Prior to last shift of workweek</td>
<td>0.02 mg/l</td>
<td>ACGIH BEI</td>
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<tr>
<td>Toluene</td>
<td></td>
<td>Urine</td>
<td>End of shift (As soon as possible after work)</td>
<td>0.03 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>
Flumethrin (1%) Formulation

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:
Combined particulates and organic vapour type

Eye/face 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.

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.

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,
9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Appearance</td>
<td>Aqueous solution</td>
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<td>Colour</td>
<td>light brown, yellow</td>
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<td>Odour</td>
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<tr>
<td>Odour Threshold</td>
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<tr>
<td>pH</td>
<td>No data available</td>
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<td>Melting point/freezing point</td>
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<td>Initial boiling point and boiling range</td>
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<td>Flash point</td>
<td>54 °C</td>
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<td>Evaporation rate</td>
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<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
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<tr>
<td>Flammability (liquids)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
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</tr>
<tr>
<td>Relative vapour density</td>
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</tr>
<tr>
<td>Relative density</td>
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<tr>
<td>Density</td>
<td>0.820 - 0.900 g/cm³</td>
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<td>Solubility(ies)</td>
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<td>Water solubility</td>
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<td>Partition coefficient: n-octanol/water</td>
<td>Not applicable</td>
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<td>Auto-ignition temperature</td>
<td>No data available</td>
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<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
</tbody>
</table>
Flumethrin (1%) Formulation

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.
- Oxidizing agents

Incompatible materials: Oxidizing agents

Hazardous decomposition products: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Exposure routes:
- Inhalation
- Skin contact
- Ingestion
- Eye contact

Acute toxicity:
Harmful if swallowed.
Toxic in contact with skin.

Product:
- Acute oral toxicity: Acute toxicity estimate: 404.59 mg/kg
  Method: Calculation method
- Acute inhalation toxicity: Acute toxicity estimate: > 40 mg/l
  Exposure time: 4 h
  Test atmosphere: vapour
  Method: Calculation method
- Acute dermal toxicity: Acute toxicity estimate: 402.36 mg/kg
  Method: Calculation method

Components:
- Paraffin oil:
  - Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
  - Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

**Xylene:**
- Acute oral toxicity: LD50 (Rat): 3,523 mg/kg
- Acute inhalation toxicity: LC50 (Rat): 27.571 mg/l
  Exposure time: 4 h
  Test atmosphere: vapour
- Acute dermal toxicity: LD50 (Rabbit): > 4,200 mg/kg

**Flumethrin:**
- Acute oral toxicity: LD50 (Rat): > 20 mg/kg
  LD50 (Mouse): > 20 mg/kg
- Acute inhalation toxicity: LC50 (Rat): > 2,934 mg/l
- Acute dermal toxicity: LD50 (Rat): > 5 mg/kg

**Toluene:**
- Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
- Acute inhalation toxicity: LC50 (Rat): 28.1 mg/l
  Exposure time: 4 h
  Test atmosphere: vapour
- Acute dermal toxicity: LD50 (Rabbit): > 5,000 mg/kg

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

**Components:**

**Paraffin oil:**
- Species: Rabbit
  Result: No skin irritation

**Xylene:**
- Species: Rabbit
  Result: Skin irritation

**Flumethrin:**
- Result: No skin irritation

**Toluene:**
- Species: Rabbit
## Flumethrin (1%) Formulation

### Method


### Result

**Skin irritation**

### Serious eye damage/eye irritation

Causes serious eye irritation.

### Components:

#### Paraffin oil:

- **Species:** Rabbit
- **Result:** No eye irritation

#### Xylene:

- **Species:** Rabbit
- **Result:** Irritation to eyes, reversing within 21 days

#### Flumethrin:

- **Result:** Mild eye irritation

#### Toluene:

- **Species:** Rabbit
- **Result:** No eye irritation
- **Method:** OECD Test Guideline 405

### Respiratory or skin sensitisation

#### Skin sensitisation

Not classified based on available information.

#### Respiratory sensitisation

Not classified based on available information.

### Components:

#### Xylene:

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

#### Toluene:

- **Test Type:** Maximisation Test
- **Exposure routes:** Skin contact
- **Species:** Guinea pig
- **Result:** negative

### Germ cell mutagenicity

Not classified based on available information.
Flumethrin (1%) Formulation

Components:

Xylene:
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: negative

Genotoxicity in vivo:
- Test Type: Rodent dominant lethal test (germ cell) (in vivo)
  Species: Mouse
  Application Route: Skin contact
  Result: negative

Flumethrin:
Genotoxicity in vitro:
- Test Type: Microbial mutagenesis assay (Ames test)
  Test system: Salmonella typhimurium
  Result: equivocal

- Test Type: Chromosomal aberration
  Test system: Chinese hamster ovary cells
  Result: positive
  Remarks: Not classified due to inconclusive data.

- Test Type: Chromosomal aberration
  Test system: Human lymphocytes
  Result: negative

- Test Type: in vitro micronucleus test
  Test system: Mouse
  Result: negative

Germ cell mutagenicity - Assessment:
- Weight of evidence does not support classification as a germ cell mutagen.

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

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

Genotoxicity in vivo:
- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  Species: Rat
  Application Route: Intraperitoneal injection
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Flumethrin (1%) Formulation

Version: 3.3  Revision Date: 2021/08/27  SDS Number: 4019098-00010  Date of last issue: 2020/11/23
Date of first issue: 2019/02/25

Result: negative

Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Mouse
Application Route: inhalation (vapour)
Method: OECD Test Guideline 478
Result: negative

Carcinogenicity
Not classified based on available information.

Components:

Xylene:
Species: Rat
Application Route: Ingestion
Exposure time: 103 weeks
Result: negative

Flumethrin:
Species: Rat
Application Route: Oral
Exposure time: 2 Years
NOAEL: 0.5 mg/kg body weight
Result: negative

Carcinogenicity - Assessment: Weight of evidence does not support classification as a carcinogen

Toluene:
Species: Rat
Application Route: inhalation (vapour)
Exposure time: 103 weeks
Result: negative

Species: Mouse
Application Route: Skin contact
Exposure time: 24 Months
Result: negative

Reproductive toxicity
May damage the unborn child.

Components:

Xylene:
Effects on fertility: Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: inhalation (vapour)
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development
**SAFETY DATA SHEET**

according to GB/T 16483 and GB/T 17519

**Flumethrin (1%) 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>3.3</td>
<td>2021/08/27</td>
<td>4019098-00010</td>
<td>2020/11/23</td>
<td>2019/02/25</td>
</tr>
</tbody>
</table>

**Flumethrin:**

**Effects on foetal development**:

- **Test Type**: Development
- **Species**: Rat
- **Application Route**: Oral
- **Developmental Toxicity**: NOAEL: 0.36 mg/kg body weight
- **Result**: Maternal toxicity observed, Reduced offspring weight gain, foetal abnormalities

- **Test Type**: Development
- **Species**: Rat
- **Application Route**: Oral
- **Developmental Toxicity**: NOAEL: 0.5 mg/kg body weight
- **Result**: Maternal toxicity observed, Skeletal malformations, Reduced foetal weight

- **Test Type**: Development
- **Species**: Rabbit
- **Application Route**: Oral
- **Developmental Toxicity**: NOAEL: 1.7 mg/kg body weight
- **Result**: No teratogenic potential

**Reproductive toxicity - Assessment**: May damage the unborn child.

**Toluene:**

**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**: positive

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

**STOT - single exposure**

May cause damage to organs.

**Components:**

**Xylene:**

**Assessment**: May cause respiratory irritation.
# Flumethrin (1%) 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>3.3</td>
<td>2021/08/27</td>
<td>4019098-00010</td>
<td>2020/11/23</td>
<td>2019/02/25</td>
</tr>
</tbody>
</table>

## Flumethrin:
- **Exposure routes**: Oral
- **Assessment**: Causes damage to organs.

## Toluene:
- **Assessment**: May cause drowsiness or dizziness.

### STOT - repeated exposure
May cause damage to organs through prolonged or repeated exposure.

## Components:

### Xylene:
- **Exposure routes**: Inhalation (vapour)
- **Target Organs**: Auditory system
- **Assessment**: Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d.

### Flumethrin:
- **Exposure routes**: Oral
- **Assessment**: Causes damage to organs through prolonged or repeated exposure.

### Toluene:
- **Exposure routes**: Inhalation
- **Target Organs**: Central nervous system
- **Assessment**: May cause damage to organs through prolonged or repeated exposure.

## Repeated dose toxicity

### Components:

#### Paraffin oil:
- **Species**: Rat, female
- **LOAEL**: 161 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days

#### Xylene:
- **Species**: Rat
- **LOAEL**: > 0.2 - 1 mg/l
- **Application Route**: Inhalation (vapour)
- **Exposure time**: 13 Weeks
- **Remarks**: Based on data from similar materials

- **Species**: Rat
- **LOAEL**: 150 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days
Flumethrin (1%) Formulation

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>0.7 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>13 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>digestive system, Skin</td>
</tr>
<tr>
<td>Symptoms</td>
<td>decrease in appetite, Skin disorders</td>
</tr>
</tbody>
</table>

Species: Dog
NOAEL: 0.88 mg/kg
Application Route: Oral
Exposure time: 13 Weeks
Target Organs: digestive system, Hair, Skin
Symptoms: decrease in appetite, Skin disorders

Toluene:
Species: Rat
LOAEL: 1.875 mg/l
Application Route: Inhalation (vapour)
Exposure time: 6 Months
Species: Rat
NOAEL: 625 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks

Aspiration toxicity
May be fatal if swallowed and enters airways.

Components:

Paraffin oil:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Xylene:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Toluene:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

Toluene:
Inhalation: Target Organs: Central nervous system
Symptoms: Neurological disorders

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Paraffin oil:
Toxicity to fish : LL50 (Scophthalmus maximus (turbot)): > 100 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Acartia tonsa): > 100 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EL50 (Skeletonema costatum (marine diatom)): > 100 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Remarks: Based on data from similar materials

Xylene:
Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l
Exposure time: 24 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 10 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (Danio rerio (zebra fish)): > 0.1 - < 1 mg/l
Exposure time: 35 d
Method: OECD Test Guideline 210
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EL10 (Daphnia magna (Water flea)): > 1 - 10 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC: > 100 mg/l
Exposure time: 3 h
Flumethrin (1%) Formulation

Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

**Flumethrin:**
Toxicity to fish (Chronic toxicity)
: NOEC (Danio rerio (zebra fish)): 0.046 mg/l
   Exposure time: 144 h

M-Factor (Chronic aquatic toxicity)
: 1

**Toluene:**
Toxicity to fish
: LC50 (Oncorhynchus kisutch (coho salmon)): 5.5 mg/l
   Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates
: EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l
   Exposure time: 48 h

Toxicity to algae/aquatic plants
: NOEC (Skeletonema costatum (marine diatom)): 10 mg/l
   Exposure time: 72 h

Toxicity to fish (Chronic toxicity)
: NOEC (Oncorhynchus kisutch (coho salmon)): 1.39 mg/l
   Exposure time: 40 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
: NOEC (Ceriodaphnia dubia (water flea)): 0.74 mg/l
   Exposure time: 7 d

Toxicity to microorganisms
: EC50 (Nitrosomonas sp.): 84 mg/l
   Exposure time: 24 h

**Persistence and degradability**

**Components:**

**Xylene:**
Biodegradability
: Result: Readily biodegradable.
   Biodegradation: > 70 %
   Exposure time: 28 d
   Method: OECD Test Guideline 301F
   Remarks: Based on data from similar materials

**Toluene:**
Biodegradability
: Result: Readily biodegradable.
   Biodegradation: 80 %
   Exposure time: 20 d

**Bioaccumulative potential**

**Components:**

**Paraffin oil:**
Partition coefficient: n-octanol/water
: log Pow: > 4
   Remarks: Calculation
Xylene:
Partition coefficient: n-octanol/water: log Pow: 3.16
Remarks: Calculation

Flumethrin:
Partition coefficient: n-octanol/water: log Pow: 6.2

Toluene:
Bioaccumulation: Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): 90
Partition coefficient: n-octanol/water: log Pow: 2.73

Mobility in soil
No data available

Other adverse effects
No data available

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.
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.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 1992
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S.
(Xylene, Flumethrin)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: 3 (6.1)

IATA-DGR
UN/ID No.: UN 1992
Proper shipping name: Flammable liquid, toxic, n.o.s.
(Xylene, Flumethrin)
Class: 3
Subsidiary risk: 6.1
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Flumethrin (1%) Formulation

Version 3.3  Revision Date: 2021/08/27  SDS Number: 4019098-00010  Date of last issue: 2020/11/23

Packing group: III
Labels: Flammable Liquids, Toxic
Packing instruction (cargo aircraft): 366
Packing instruction (passenger aircraft): 355

IMDG-Code
UN number: UN 1992
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (Xylene, Flumethrin)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: 3 (6.1)
EmS Code: F-E, S-D
Marine pollutant: no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

GB 6944/12268
UN number: UN 1992
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (Xylene, Flumethrin)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: 3 (6.1)

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

National regulatory information
Law on the Prevention and Control of Occupational Diseases
Regulations on Safety Management of Hazardous Chemicals
Catalogue of Hazardous Chemicals: Listed

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)
No. / Code    Chemical name / Category    Threshold quantity
W5.4   Flammable liquids    5,000 t

The components of this product are reported in the following inventories:
AICS: not determined
DSL: not determined
SAFETY DATA SHEET
generated according to GB/T 16483 and GB/T 17519

Flumethrin (1%) Formulation

Version 3.3
Revision Date: 2021/08/27
SDS Number: 4019098-00010
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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)
ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
CN BEI: China. Biological Occupational Exposure Indices
CN OEL: Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

ACGIH / TWA: 8-hour, time-weighted average
ACGIH / STEL: Short-term exposure limit
CN OEL / PC-TWA: Permissible concentration - time weighted average
CN OEL / PC- STEL: Permissible concentration - short term exposure limit

All - 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 Civil Aviation Organization; 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; IECS - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCIA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System
Flumethrin (1%) Formulation

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**Disclaimer**

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.

CN / EN