

**Flumethrin (1%) Formulation**

|         |                |               |                                 |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number:   | Date of last issue: 24.02.2025  |
| 7.0     | 14.04.2025     | 4019085-00018 | Date of first issue: 25.02.2019 |

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**SECTION 1. IDENTIFICATION**

Product identifier : Flumethrin (1%) Formulation

**Manufacturer or supplier's details**

Company : MSD

Address : Rua Coronel Bento Soares, 530  
Cruzeiro - Sao Paulo - Brazil CEP 12730-340

Telephone : 908-740-4000

Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

**Recommended use of the chemical and restrictions on use**

Recommended use : Veterinary product

Restrictions on use : Not applicable

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**SECTION 2. HAZARDS IDENTIFICATION****GHS Classification in accordance with ABNT NBR 14725 Standard**

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Dermal) : Category 3

Skin irritation : Category 2

Eye irritation : Category 2A

Reproductive toxicity : Category 1B

Specific target organ toxicity - : Category 2  
single exposure (Oral)

Specific target organ toxicity - : Category 2 (Auditory system)  
repeated exposure

Specific target organ toxicity - : Category 2  
repeated exposure (Oral)

Aspiration hazard : Category 1

Short-term (acute) aquatic : Category 3  
hazard

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Long-term (chronic) aquatic hazard : Category 3

**GHS label elements in accordance with ABNT NBR 14725 Standard**

Hazard pictograms :



Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.  
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 if swallowed.  
H373 May cause damage to organs through prolonged or repeated exposure if swallowed.  
H373 May cause damage to organs (Auditory system) through prolonged or repeated exposure.  
H412 Harmful to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**  
P201 Obtain special instructions before use.  
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
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.  
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.

**Storage:**

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P405 Store locked up.

## Other hazards which do not result in classification

Vapors may form explosive mixture with air.

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

## Components

| Chemical name | CAS-No.    | Classification   | Concentration (% w/w) |
|---------------|------------|--|-----------------------|
| Paraffin oil  | 8012-95-1  | Asp. Tox., 1<br>Aquatic Chronic, 4   | $\geq 50$ -< 70       |
| Xylene        | 1330-20-7  | Flam. Liq., 3<br>Acute Tox. (Oral), 5<br>Acute Tox. (Inhalation), 5<br>Acute Tox. (Dermal), 5<br>Skin Irrit., 2<br>Eye Irrit., 2A<br>STOT SE, 3<br>STOT RE, (Auditory system), 2<br>Asp. Tox., 1<br>Aquatic Acute, 2<br>Aquatic Chronic, 3 | $\geq 10$ -< 20       |
| Flumethrin    | 69770-45-2 | Acute Tox. (Oral), 2<br>Acute Tox. (Dermal), 1<br>Eye Irrit., 2B<br>Repr., 1B<br>STOT SE (Oral), 1<br>STOT RE (Oral), 1<br>Aquatic Chronic, 1  | $\geq 1$ -< 2,5       |
| Toluene       | 108-88-3   | Flam. Liq., 2<br>Acute Tox. (Inhalation), 5<br>Skin Irrit., 2<br>Repr., 2<br>STOT SE, 3<br>STOT RE, (Central nervous system), 2<br>Asp. Tox., 1<br>Aquatic Acute, 2<br>Aquatic Chronic, 3  | $\geq 0,25$ -< 1      |

## SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.

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|   |   |  |
|---|---|--|
|   |   | When symptoms persist or in all cases of doubt seek medical advice.  |
| If inhaled  | : | If inhaled, remove to fresh air.<br>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.<br>Get medical attention.<br>Wash clothing before reuse.<br>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.<br>If easy to do, remove contact lens, if worn.<br>Get medical attention.   |
| If swallowed  | : | If swallowed, DO NOT induce vomiting.<br>If vomiting occurs have person lean forward.<br>Call a physician or poison control center immediately.<br>Rinse mouth thoroughly with water.<br>Never give anything by mouth to an unconscious person.  |
| Most important symptoms and effects, both acute and delayed | : | Harmful if swallowed.<br>May be fatal if swallowed and enters airways.<br>Toxic in contact with skin.<br>Causes skin irritation.<br>Causes serious eye irritation.<br>May damage the unborn child.<br>May cause damage to organs if swallowed.<br>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.  |

### SECTION 5. FIRE-FIGHTING MEASURES

|                                       |   |   |
|---------------------------------------|---|---|
| Suitable extinguishing media          | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry chemical  |
| Unsuitable extinguishing media        | : | High volume water jet   |
| Specific hazards during fire fighting | : | Do not use a solid water stream as it may scatter and spread fire.<br>Flash back possible over considerable distance.<br>Vapors may form explosive mixtures with air.<br>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.<br>Use water spray to cool unopened containers.   |

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Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.

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

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**SECTION 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/vapors/mists with a water spray jet.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked 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.

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**SECTION 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.  
Do not breathe mist or vapors.  
Do not swallow.  
Do not get in eyes.  
Wash skin thoroughly after handling.

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- 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.
  - Wash contaminated clothing before re-use.
  - The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.
- Conditions for safe storage** :
- Keep in properly labeled 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:
  - Strong oxidizing agents
  - Self-reactive substances and mixtures
  - 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
  - Very acutely toxic substances and mixtures

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

| Components   | CAS-No.   | Value type<br>(Form of exposure)      | Control parameters / Permissible concentration | Basis  |
|--------------|-----------|---------------------------------------|--|--------|
| Paraffin oil | 8012-95-1 | TWA<br>(Inhalable particulate matter) | 5 mg/m <sup>3</sup>                            | ACGIH  |
| Xylene       | 1330-20-7 | LT                                    | 78 ppm<br>340 mg/m <sup>3</sup>                | BR OEL |

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|            |            |   |                                 |          |
|------------|------------|---|---------------------------------|----------|
|            |            | Further information: Degree of harmfulness: medium                              |                                 |          |
|            |            | TWA   | 20 ppm                          | ACGIH    |
| Flumethrin | 69770-45-2 | TWA   | 30 µg/m <sup>3</sup> (OEB 3)    | Internal |
|            |            | Further information: Skin   |                                 |          |
|            |            | Wipe limit  | 300 µg/100 cm <sup>2</sup>      | Internal |
| Toluene    | 108-88-3   | LT  | 78 ppm<br>290 mg/m <sup>3</sup> | BR OEL   |
|            |            | Further information: Absorption through the skin, Degree of harmfulness: medium |                                 |          |
|            |            | TWA   | 20 ppm                          | ACGIH    |

## Biological occupational exposure limits

| Components | CAS-No.   | Control parameters   | Biological specimen | Sampling time  | Permissible concentration | Basis     |
|------------|-----------|----------------------|---------------------|--|---------------------------|-----------|
| Xylene     | 1330-20-7 | methyl hippuric acid | Urine               | End of workday   | 1.5 mg/g creatinine       | BR BEI    |
|            |           | Methylhippuric acids | Urine               | End of shift (As soon as possible after exposure ceases) | 0.3 g/g creatinine        | ACGIH BEI |
| Toluene    | 108-88-3  | toluene              | Blood               | Start of the last working day of the week                | 0,02 mg/l                 | BR BEI    |
|            |           | toluene              | Urine               | End of workday   | 0,03 mg/l                 | BR BEI    |
|            |           | ortho-cresol         | Urine               | End of workday   | 0.3 mg/g creatinine       | BR BEI    |
|            |           | Toluene              | In blood            | Prior to last shift of work-week                         | 0,02 mg/l                 | ACGIH BEI |
|            |           | Toluene              | Urine               | End of shift (As soon as possible after exposure ceases) | 0,03 mg/l                 | ACGIH BEI |
|            |           | o-Cresol             | Urine               | End of shift (As soon as possible after exposure ceases) | 0.3 mg/g creatinine       | ACGIH BEI |

**Engineering measures** : Use appropriate engineering controls and manufacturing

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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**

|                          |   |  |
|--------------------------|---|--|
| 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 vapor type   |
| 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.   |
| Eye protection           | : | Wear safety glasses with side shields or goggles.<br>If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.<br>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.<br>Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.<br>Use appropriate degowning techniques to remove potentially contaminated clothing.                    |

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|   |   |                     |
|---|---|---------------------|
| Physical state                          | : | Aqueous solution    |
| Color                                   | : | light brown, yellow |
| Odor                                    | : | No data available   |
| Odor Threshold                          | : | No data available   |
| pH                                      | : | No data available   |
| Melting point/freezing point            | : | No data available   |
| Initial boiling point and boiling range | : | No data available   |

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|  |   |  |
|--|---|--|
| Flash point                                      | : | 54 °C  |
| Evaporation rate                                 | : | No data available  |
| Flammability (solid, gas)                        | : | Not applicable   |
| Flammability (liquids)                           | : | No data available  |
| Upper explosion limit / Upper flammability limit | : | No data available  |
| Lower explosion limit / Lower flammability limit | : | No data available  |
| Vapor pressure                                   | : | No data available  |
| Relative vapor density                           | : | No data available  |
| Relative density                                 | : | No data available  |
| Density  | : | 0,820 - 0,900 g/cm <sup>3</sup>                          |
| Solubility(ies)                                  |   |  |
| Water solubility                                 | : | No data available  |
| Partition coefficient: n-octanol/water           | : | Not applicable   |
| Autoignition 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 characteristics                         |   |  |
| Particle size                                    | : | Not applicable   |

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**SECTION 10. STABILITY AND REACTIVITY**

|                                    |   |   |
|------------------------------------|---|---|
| Reactivity                         | : | Not classified as a reactivity hazard.  |
| Chemical stability                 | : | Stable under normal conditions.   |
| Possibility of hazardous reactions | : | Flammable liquid and vapor.<br>Vapors may form explosive mixture with air.<br>Can react with strong oxidizing agents. |

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

**SECTION 11. TOXICOLOGICAL INFORMATION**

|  |   |  |
|--|---|--|
| Information on likely routes of exposure | : | Inhalation<br>Skin contact<br>Ingestion<br>Eye contact |
|--|---|--|

**Acute toxicity**

Harmful if swallowed.  
Toxic in contact with skin.

**Product:**

|                     |   |   |
|---------------------|---|---|
| Acute oral toxicity | : | Acute toxicity estimate: 404,59 mg/kg<br>Method: Calculation method |
|---------------------|---|---|

|                           |   |  |
|---------------------------|---|--|
| Acute inhalation toxicity | : | Acute toxicity estimate: > 40 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapor<br>Method: Calculation method |
|---------------------------|---|--|

|                       |   |   |
|-----------------------|---|---|
| Acute dermal toxicity | : | Acute toxicity estimate: 402,36 mg/kg<br>Method: Calculation method |
|-----------------------|---|---|

**Components:****Paraffin oil:**

|                       |   |   |
|-----------------------|---|---|
| Acute oral toxicity   | : | LD50 (Rat): > 5.000 mg/kg   |
| Acute dermal toxicity | : | LD50 (Rabbit): > 2.000 mg/kg<br>Assessment: The substance or mixture has no acute dermal toxicity |

**Xylene:**

|                           |   |   |
|---------------------------|---|---|
| Acute oral toxicity       | : | LD50 (Rat): 3.523 mg/kg<br>Method: Directive 67/548/EEC, Annex V, B.1.  |
| Acute inhalation toxicity | : | LC50 (Rat): 27,571 mg/l<br>Exposure time: 4 h<br>Test atmosphere: vapor |
| Acute dermal toxicity     | : | LD50 (Rabbit): > 4.200 mg/kg  |

**Flumethrin:**

|                           |   |  |
|---------------------------|---|--|
| Acute oral toxicity       | : | LD50 (Rat): > 20 mg/kg<br>LD50 (Mouse): > 20 mg/kg |
| Acute inhalation toxicity | : | LC50 (Rat): > 2.934 mg/l                           |

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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: vapor

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  
Method : Directive 67/548/EEC, Annex V, B.4.  
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

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**Toluene:**

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

**Respiratory or skin sensitization****Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:****Xylene:**

|                    |   |                               |
|--------------------|---|-------------------------------|
| Test Type          | : | Local lymph node assay (LLNA) |
| Routes of exposure | : | Skin contact                  |
| Species            | : | Mouse                         |
| Result             | : | negative                      |

**Toluene:**

|                    |   |                                     |
|--------------------|---|-------------------------------------|
| Test Type          | : | Maximization Test                   |
| Routes of exposure | : | Skin contact                        |
| Species            | : | Guinea pig                          |
| Method             | : | Directive 67/548/EEC, Annex V, B.6. |
| Result             | : | negative                            |

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Xylene:**

|                       |   |  |
|-----------------------|---|--|
| Genotoxicity in vitro | : | Test Type: Bacterial reverse mutation assay (AMES)                     |
|                       |   | Result: negative   |
|                       |   | Test Type: Chromosome aberration test in vitro                         |
|                       |   | Result: negative   |
| Genotoxicity in vivo  | : | 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   |

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| Genotoxicity in vitro               | : | Test Type: Microbial mutagenesis assay (Ames test)<br>Test system: Salmonella typhimurium<br>Result: equivocal<br><br>Test Type: Chromosomal aberration<br>Test system: Chinese hamster ovary cells<br>Result: positive<br>Remarks: Not classified due to inconclusive data.<br><br>Test Type: Chromosomal aberration<br>Test system: Human lymphocytes<br>Result: negative<br><br>Test Type: in vitro micronucleus test<br>Test system: Mouse<br>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<br>Result: negative<br><br>Test Type: Bacterial reverse mutation assay (AMES)<br>Result: negative  |
| Genotoxicity in vivo  | : | Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)<br>Species: Rat<br>Application Route: Intraperitoneal injection<br>Result: negative<br><br>Test Type: Rodent dominant lethal test (germ cell) (in vivo)<br>Species: Mouse<br>Application Route: inhalation (vapor)<br>Method: OECD Test Guideline 478<br>Result: negative |

### **Carcinogenicity**

Not classified based on available information.

### **Components:**

#### **Xylene:**

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

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|                   |   |      |
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| Species           | : | Rat  |
| Application Route | : | Oral |

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|               |                         |
|---------------|-------------------------|
| 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 (vapor) |
| 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<br>Species: Rat<br>Application Route: inhalation (vapor)<br>Result: negative |
|----------------------|--|

|                              |  |
|------------------------------|--|
| Effects on fetal development | : Test Type: Embryo-fetal development<br>Species: Rat<br>Application Route: inhalation (vapor)<br>Result: negative |
|------------------------------|--|

**Flumethrin:**

|                              |   |
|------------------------------|---|
| Effects on fetal development | : Test Type: Development<br>Species: Rat<br>Application Route: Oral<br>Developmental Toxicity: NOAEL: 0,36 mg/kg body weight<br>Result: Maternal toxicity observed., Reduced offspring weight gain., Fetal abnormalities. |
|------------------------------|---|

|   |
|---|
| Test Type: Development<br>Species: Rat<br>Application Route: Oral<br>Developmental Toxicity: NOAEL: 0,5 mg/kg body weight<br>Result: Maternal toxicity observed., Skeletal malformations.,<br>Reduced fetal weight. |
|---|

|  |
|--|
| Test Type: Development<br>Species: Rabbit<br>Application Route: Oral<br>Developmental Toxicity: NOAEL: 1,7 mg/kg body weight |
|--|

## Flumethrin (1%) Formulation

|         |                |               |                                 |
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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 (vapor)  
Method: OECD Test Guideline 416  
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: inhalation (vapor)  
Result: positive

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

### STOT-single exposure

May cause damage to organs if swallowed.

### Components:

#### Xylene:

Assessment : May cause respiratory irritation.

#### Flumethrin:

Routes of exposure : 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 if swallowed.  
May cause damage to organs (Auditory system) through prolonged or repeated exposure.

### Components:

#### Xylene:

Routes of exposure : inhalation (vapor)  
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:

Routes of exposure : Oral  
Assessment : Causes damage to organs through prolonged or repeated exposure.

**Flumethrin (1%) Formulation**

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**Toluene:**

|                    |  |
|--------------------|--|
| Routes of exposure | : 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 (vapor)                   |
| 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:**

|                   |  |
|-------------------|--|
| Species           | : Rat                                  |
| NOAEL             | : 0,7 mg/kg                            |
| Application Route | : Oral                                 |
| Exposure time     | : 13 Weeks                             |
| Target Organs     | : digestive system, Skin               |
| Symptoms          | : decrease in appetite, Skin disorders |

|                   |  |
|-------------------|--|
| 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 (vapor) |
| Exposure time     | : 6 Months           |

|                   |             |
|-------------------|-------------|
| Species           | : Rat       |
| NOAEL             | : 625 mg/kg |
| Application Route | : Ingestion |

## Flumethrin (1%) Formulation

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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

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

### Components:

#### Paraffin oil:

|   |  |
|---|--|
| Toxicity to fish                                    | : LL50 ( <i>Scophthalmus maximus</i> (turbot)): > 100 mg/l<br>Exposure time: 96 h<br>Test substance: Water Accommodated Fraction<br>Remarks: Based on data from similar materials        |
| Toxicity to daphnia and other aquatic invertebrates | : EL50 ( <i>Acartia tonsa</i> (Calanoid copepod)): > 100 mg/l<br>Exposure time: 48 h<br>Test substance: Water Accommodated Fraction<br>Remarks: Based on data from similar materials     |
| Toxicity to algae/aquatic plants                    | : EL50 ( <i>Skeletonema costatum</i> (marine diatom)): > 100 mg/l<br>Exposure time: 72 h<br>Test substance: Water Accommodated Fraction<br>Remarks: Based on data from similar materials |
|   | NOELR ( <i>Skeletonema costatum</i> (marine diatom)): > 1 mg/l<br>Exposure time: 72 h<br>Test substance: Water Accommodated Fraction<br>Remarks: Based on data from similar materials    |

## Flumethrin (1%) Formulation

|         |                |               |                                 |
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II

### Xylene:

|  |   |  |
|--|---|--|
| Toxicity to fish   | : | LC50 (Oncorhynchus mykiss (rainbow trout)): 13,5 mg/l<br>Exposure time: 96 h   |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l<br>Exposure time: 24 h<br>Method: OECD Test Guideline 202<br>Remarks: Based on data from similar materials  |
| Toxicity to algae/aquatic plants                                       | : | EC50 (Skeletonema costatum (marine diatom)): 10 mg/l<br>Exposure time: 72 h  |
| Toxicity to fish (Chronic toxicity)                                    | : | NOEC (Danio rerio (zebra fish)): > 0,1 - < 1 mg/l<br>Exposure time: 35 d<br>Method: OECD Test Guideline 210<br>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<br>Exposure time: 21 d<br>Method: OECD Test Guideline 211<br>Remarks: Based on data from similar materials  |
| Toxicity to microorganisms   | : | NOEC: > 100 mg/l<br>Exposure time: 3 h<br>Method: OECD Test Guideline 209<br>Remarks: Based on data from similar materials                                   |

### Flumethrin:

|                                     |   |   |
|-------------------------------------|---|---|
| Toxicity to fish (Chronic toxicity) | : | NOEC (Danio rerio (zebra fish)): 0,046 mg/l<br>Exposure time: 144 h |
| M-Factor (Chronic aquatic toxicity) | : | 1   |

### Toluene:

|  |   |   |
|--|---|---|
| Toxicity to fish   | : | LC50 (Oncorhynchus kisutch (coho salmon)): 5,5 mg/l<br>Exposure time: 96 h  |
| Toxicity to daphnia and other aquatic invertebrates                    | : | EC50 (Ceriodaphnia dubia (water flea)): 3,78 mg/l<br>Exposure time: 48 h    |
| Toxicity to algae/aquatic plants                                       | : | NOEC (Skeletonema costatum (marine diatom)): 10 mg/l<br>Exposure time: 72 h |
| Toxicity to fish (Chronic toxicity)                                    | : | NOEC (Oncorhynchus kisutch (coho salmon)): 1,39 mg/l<br>Exposure time: 40 d |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Ceriodaphnia dubia (water flea)): 0,74 mg/l<br>Exposure time: 7 d     |
| Toxicity to microorganisms   | : | EC50 (Nitrosomonas sp.): 84 mg/l<br>Exposure time: 24 h                     |

## Flumethrin (1%) Formulation

|         |                |               |                                 |
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**Persistence and degradability****Components:****Xylene:**

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

**Toluene:**

|                  |   |   |
|------------------|---|---|
| Biodegradability | : | Result: Readily biodegradable.<br>Biodegradation: 80 %<br>Exposure time: 20 d |
|------------------|---|---|

**Bioaccumulative potential****Components:****Paraffin oil:**

|  |   |                                      |
|--|---|--------------------------------------|
| Partition coefficient: n-octanol/water | : | log Pow: > 4<br>Remarks: Calculation |
|--|---|--------------------------------------|

**Xylene:**

|  |   |                                       |
|--|---|---------------------------------------|
| Partition coefficient: n-octanol/water | : | log Pow: 3,16<br>Remarks: Calculation |
|--|---|---------------------------------------|

**Flumethrin:**

|  |   |              |
|--|---|--------------|
| Partition coefficient: n-octanol/water | : | log Pow: 6,2 |
|--|---|--------------|

**Toluene:**

|                 |   |  |
|-----------------|---|--|
| Bioaccumulation | : | Species: Leuciscus idus (Golden orfe)<br>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

**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

|                        |   |   |
|------------------------|---|---|
| Waste from residues    | : | Do not dispose of waste into sewer.<br>Dispose of in accordance with local regulations.   |
| Contaminated packaging | : | Empty containers should be taken to an approved waste handling site for recycling or disposal.<br>Empty containers retain residue and can be dangerous. |

**Flumethrin (1%) Formulation**

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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****International Regulations****UNRTDG**

|                           |   |
|---------------------------|---|
| UN number                 | : UN 1992   |
| Proper shipping name      | : FLAMMABLE LIQUID, TOXIC, N.O.S.<br>(Xylene, Flumethrin) |
| Class                     | : 3   |
| Subsidiary risk           | : 6.1   |
| Packing group             | : III   |
| Labels                    | : 3 (6.1)   |
| Environmentally hazardous | : no  |

**IATA-DGR**

|  |   |
|--|---|
| UN/ID No.                                | : UN 1992   |
| Proper shipping name                     | : Flammable liquid, toxic, n.o.s.<br>(Xylene, Flumethrin) |
| Class                                    | : 3   |
| Subsidiary risk                          | : 6.1   |
| 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.<br>(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.

**Domestic regulation****ANTT**

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

**Flumethrin (1%) Formulation**

|         |                |               |                                 |
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Hazard Identification Number : 36

**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.

**SECTION 15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture**National List of Carcinogenic Agents for Humans - : Not applicable  
(LINACH)Brazil. List of chemicals controlled by the Federal : Xylene  
Police**The ingredients of this product are reported in the following inventories:**

AICS : not determined

DSL : not determined

IECSC : not determined

**SECTION 16. OTHER INFORMATION**Revision Date : 14.04.2025  
Date format : dd.mm.yyyy**Further information**Sources of key data used to : Internal technical data, data from raw material SDSs, OECD  
compile the Material Safety eChem Portal search results and European Chemicals Agen-  
Data Sheet cy, <http://echa.europa.eu/>

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 other abbreviations**

|             |   |
|-------------|---|
| ACGIH       | : USA. ACGIH Threshold Limit Values (TLV)   |
| ACGIH BEI   | : ACGIH - Biological Exposure Indices (BEI)   |
| BR BEI      | : Brazil. NR7. Parameters for Biological Control of Occupational Exposure to Some Chemical Agents |
| BR OEL      | : Brazil. NR 15 - Unhealthy activities and operations   |
| ACGIH / TWA | : 8-hour, time-weighted average   |
| BR OEL / LT | : Up to 48 hours /week  |

AIIC - 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

**Flumethrin (1%) Formulation**

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x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; 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; TSCA - 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

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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